THE MAGAZINE OF **UC DAVIS COMPREHENSIVE CANCER CENTER** VOL 28 NO 1 / WINTER 2025

SYNTHESIS

MobileMammo+ brings breast cancer screenings to the community

Dear Reader,

You may have heard it said that cancer is a reminder of our humanity. At UC Davis Comprehensive Cancer Center, we are reminded daily of the human-centered focus of our mission.

In this issue of Synthesis, you will be inspired by grateful patients who have overcome incredible odds to survive, return to joy, and give back in meaningful ways.

Our commitment to meet patients where they are is key — not just in helping them navigate obstacles but in finding those regions where health care is remote and less accessible. Whether urban or rural, serving these areas where health disparities are prevalent is an important priority for us.

We are doing all we can to reduce cancer burdens that are all too common in marginalized communities. For example, read in this issue about our 45-foot MobileMammo+. This mobile mammography clinic will travel to destinations far and wide in the vast area we serve in Northern California. If people can't get to us, we'll go to them.

We hope to expand the service to include other cancer screenings in the future, and these screenings will be accompanied by education and prevention counseling.

This is how we conquer cancer and rise to meet our UC Davis Health promise to "Believe in Better."

Also, in this issue of Synthesis, you'll read about a new CT imaging system combined with cutting-edge robotic-assisted technology designed to detect lung cancer at an earlier stage. In fact, for the first time at UC Davis, we are diagnosing more stage 1 lung cancer cases than late-stage cases. Earlier diagnosis provides our patients with a significant advantage, greatly improving their chances of successful treatment outcomes.

Inside the magazine, you'll also see how we are charting a new frontier with the launch of our Head and Neck Malignancies Innovation Group. We hope to change the course of this group of devastating cancers that is so prevalent in our region. Since these cancers are also common in dogs, we have launched a new comparative oncology clinical trial at our affiliated cancer center at the UC Davis School of Veterinary Medicine. The trial utilizes biomedical engineering technology pioneered at UC Davis.

You'll find so much more to uncover within the pages of this issue — from creative community prevention and educational outreach to the various ways you can get involved in raising money for cancer research.

Join us as we take a lead role in piloting the next generation of cancer care through advanced scientific discoveries delivered with a human touch. We appreciate you.

Primo "Lucky" Lara Jr., M.D., F.A.S.C.O.
DIRECTOR, UC DAVIS COMPREHENSIVE CANCER CENTER

BREAKING BARRIERS TO **BEAT CANCER**℠

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in this issue

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The Sacramento Bee names Elisa Tong one of the Top 20 AAPI Change Makers

Elisa Tong was named one of the Top 20 Asian American and Pacific Islander (AAPI) Change Makers in 2024 by The Sacramento Bee's Equity Lab and the Sacramento-based Nehemiah Emerging Leaders Program (NELP).

In the Sept. 26 article featuring Tong, The Sacramento Bee wrote that she has "....dedicated herself to educating people about the dangers of tobacco, improving tobacco cessation programs, making inroads into racial and ethnic populations with high rates of tobacco use and drawing attention to how tobacco companies market to consumers."

Elisa Tong among Exceptional Women Of Color honorees

UC Davis internist Elisa Tong, who specializes in tobacco use cessation therapy, was honored at the Exceptional Women Of Color event in September. African American community partners at Sac Cultural Hub sponsor the event and they are also part of the Saving Our Legacy (SOL) Project: African Americans for Smoke-Free Places. The SOL Project works to adopt and implement smoke-free policies that protect people from the hazards of tobacco smoke and electronic smoking device vapor.

Theresa Keegan, a professor in the Division of Hematology and Oncology, is the 2024 honoree of the UC Davis Health Department of Internal Medicine Faculty Research Award. The recognition is given to faculty at the assistant, associate or early professor level for distinguished contributions to research.

As an epidemiologist with primary interests in cancer outcomes and health disparities, Keegan has undertaken research examining population-based cancer registry data. As part of her focus in adolescent and young adult (AYA) oncology, she looks at sociodemographic disparities in diagnosis, treatment, access to care, late effects and survival of cancer.

She has been involved with multiple studies, including the Adolescent and Young Adult Health Outcomes and Patient Experience study that the National Cancer Institute supported, and the currently funded Valuing Opinions and Insight from Cancer Experience study in which she collaborates with a national team.

Keegan has presented research findings revealing that AYAs with Medicaid are more likely to be diagnosed at a later stage and that their survival rates are worse than those of AYA cancer patients who have private health insurance. Maintaining insurance coverage is a struggle for AYAs, according to Keegan, and their success rate in beating cancer remains directly related to their degree of access to care.

Cancer news via podcast!

Check out the Beat Cancer podcast, offering an in-depth discussion of the science, research and advancements taking place at UC Davis Comprehensive Cancer Center. Learn about the latest cancer news including prevention, screening and treatment — and how we are breaking barriers to beat cancer in our community and beyond. Find Beat Cancer on the cancer center website or your favorite podcast platform.

Would you like a topic covered? Email us at **beatcancer@ucdavis.edu**.

Oncology Bone Marrow Transplant Unit earns Beacon Award

The American Association of Critical-Care Nurses has presented the Oncology Bone Marrow Transplant Unit with a Silver Beacon Award for Excellence. This award signifies exceptional patient-centered care, a positive work environment, high morale and low turnover.

The unit is a 35-bed facility specializing in the care of patients with cancer. The 90 nurses in the unit perform comprehensive care for patients who are undergoing treatment for cancer, including chemotherapy, radiation, stem cell transplant and immune effector cell therapy. The care team serves nearly 200 blood and marrow transplant patients annually.

Colorectal surgery earns Surgical Quality Partner honors

The American College of Surgeons (ACS) and the National Accreditation Program for Rectal Cancer (NAPRC) have designated the colorectal surgery program at UC Davis Health a Surgical Quality Partner. The award is given to programs that excel in quality of care, preventing complications, saving lives and reducing costs.

"UC Davis Health was one of the first institutions in the country to get this designation and remains the only university-based NAPRC accredited program in Northern California," said chief of colorectal surgery Ankit Sarin. "Our reaccreditation, under the leadership of Assistant Professor Miquell Miller, is a testament to our continued commitment to the highest quality of care for our cancer patients."

Miller, a surgeon, is director of the cancer center's rectal cancer tumor board and assistant director of its Office of Inclusivity, Diversity, Equity and Accessibility.

ACS quality improvement assessments are grounded in more than a century of experience and are an important measure of a hospital's surgical quality. The designation follows similar accreditation earned by the UC Davis Medical Center and UC Davis Comprehensive Cancer Center.

Colorectal surgery team (left to right) Sean Flynn, James Taylor, Ankit Sarin, Miquell Miller, Robert Kucejko and Erik Noren

Lung Cancer Integrated Service Line wins School of Medicine Dean's Excellence Award

The UC Davis School of Medicine presented a 2023 Dean's Excellence Award to the Lung Cancer Integrated Service Line in recognition of team excellence in clinical care.

The Lung Cancer Integrated Service Line is led by Director of Thoracic Oncology Jonathan Riess. It performs leading-edge care by integrating digital, artificial intelligence and telehealth technologies for screening and detection. The team was recognized for its exemplary achievements in integrating services, enhancing patient care and advancing lung cancer treatment.

The annual School of Medicine Excellence Awards celebrate excellence in diversity, clinical care, research and mentoring, as well as team excellence in clinical care and inclusion.

"Congratulations to our awardees, who exemplify our school's commitment to achieving excellence in all our mission areas and living our values of trust, kindness and inclusion," said Susan Murin, School of Medicine interim dean. "We are thankful for their leadership and dedication to transforming lives throughout our community."

Synthesis magazine wins top industry award

UC Davis Comprehensive Cancer Center captured the nationally coveted PR Daily Award in 2024, one of only three health systems in the country to do so. The cancer center's summer 2023 issue of Synthesis magazine was named best publication at the Aug. 1 ceremony in New York City.

New Head and Neck Malignancies Innovation Group launched

36 biomedical engineers, scientists and clinicians team up to find treatment options for these often-debilitating cancers

Randy Carney (left) and Andrew Birkeland (right) are leading the new Head and Neck Malignancies Innovation Group.

It takes an army to take on cancer. In the case of the new Head and Neck Malignancies Innovation Group, it is taking a large multidisciplinary team of biomedical engineers, scientists, oncologists and veterinarians attacking the complex types of cancer from every angle.

The group is being led by Andrew Birkeland, a head and neck oncology surgeon based at the medical campus in Sacramento, and Randy Carney, a professor of biomedical engineering on the university's Davis campus.

"We saw a need to bring together scientists and clinicians to find novel ideas to research very unique but frustrating cancers of the head and neck that can leave survivors with severe quality of life issues," Birkeland said. "We need advanced treatments that are more effective and are less debilitating."

Treatment for cancers of the head and neck can leave patients with profound swallowing disorders or the inability to speak. It can also change the way a patient looks and breathes.

"Helping these patients not only survive, but thrive is a priority," Birkeland said.

The Head and Neck Malignancies Innovation Group meets monthly on a virtual platform. Members also get together separately in teams to develop breakthroughs they can move from the laboratory to clinical trials and then to patient bedsides.

"Think of it as a 'meeting of the minds' as we brainstorm outside of the box on new angles to research new treatments," said Carney, who added that the collaboration between the two campuses is critically important.

The group's leaders also include internationally renowned head and neck cancer researcher Xiao-Jing Wang, who brought with her the first ever Specialized Programs of Research Excellence grant from the National Cancer Institute when she joined UC Davis in 2022. The prestigious five-year $9.8 million federal grant is intended to translate cancer research into clinical interventions.

Head and neck cancer

Head and neck cancer includes tumors that develop in or around the throat, larynx (voice box), nose, sinuses or mouth. It is more common in men than women. The American Association for Cancer Research estimates this year more than 66,000 Americans will be diagnosed with head and neck cancer, which makes up about 4% of all cancers in the U.S.

Risk factors:
- alcohol use
- tobacco use
- human papillomavirus (HPV)
- oral health
- genetics

Symptoms:
- difficulty swallowing
- persistent lump in neck or mouth sores
- persistent sore throat
- hoarseness or voice changes

Prevention:
- Avoid tobacco
- Limit alcohol
- HPV vaccination

Treatments

Head and neck cancer treatment can include surgery, radiation therapy, chemotherapy, targeted therapy, immunotherapy, or a combination of treatments. The treatment plan for an individual patient depends on a number of factors, including the location of the tumor, the stage of the cancer, and the person's age and general health.

Dogs get head and neck cancers, too

Stephanie Goldschmidt

Clinical trial in canine companions may help humans

When Sarah Lindley found a lump near her dog Bucky's tooth, she didn't think it was a problem. The lively husky mix, which she and her partner, Tom Yuzvinsky, consider part of the family, didn't appear to be in pain. Still, she scheduled an appointment with her local veterinarian on the Central Coast.

"At first we thought something was stuck in his gums and he might lose a tooth," Lindley said. "Then the biopsy came back as cancerous."

To get treatment for Bucky as quickly as possible, the couple turned to the UC Davis School of Veterinary Medicine. He was diagnosed with squamous cell carcinoma, the second-most common oral cancer in dogs, according to Stephanie Goldschmidt, an assistant professor caring for companion pets at the veterinary medical teaching hospital's Dentistry and Oral Surgery Service.

Before removing Bucky's cancerous tumor surgically, Goldschmidt asked to enroll him in a clinical trial funded by UC Davis Comprehensive Cancer Center. Cancer in dogs is similar to cancer in people. Bucky and other dogs are helping scientists advance cancer cell detection, with the potential to improve oral surgery outcomes for canines and their human companions.

It's called comparative oncology and it holds the promise of transforming cancer treatments for pets as well as people. Goldschmidt is part of the new Head and Neck Malignancies Innovation Group at the cancer center. The clinical trial in which Bucky is enrolled exemplifies the collaborative research the group is doing.

"Squamous cell carcinoma is the most common oral cancer in humans, and the mutational profile for malignant cells in canines and humans is quite similar," explained Goldschmidt, the project's lead researcher. "We think that dogs provide an excellent model for [studying] the disease."

Squamous cell carcinoma recurs nearly 30% of the time in dogs. Recurrence is also high in humans. In fact, surgeries for this type of cancer have the third-highest positive margins, indicating that malignant cells remain after the tumor is removed. As standard practice, surgeons remove a border of healthy tissue around tumors to catch stray cancer cells and thereby prevent cancer recurrence.

Surgeons observe a fine balance between removing enough tissue to prevent cancer regrowth and preserving quality of life. In Goldschmidt's experiences, dog tumors tend to be more advanced by the time they are discovered and often require removal of bone tissue. Although reconstructive surgery isn't always an option, she and her team are adept at correcting postoperative defects, as she did for Bucky after removing the front part of his lower jaw.

In both dogs and humans, surgery can impair various functions. Tumor removal in the head and neck region can significantly alter vocal capabilities, swallowing and appearance, explained Andrew Birkeland, who is an associate professor in the Department of Otolaryngology Head and Neck Surgery and one of the co-directors of the Head and Neck Malignancies Innovation Group.

Goldschmidt's research is designed to pinpoint tumor margins with greater accuracy and help surgeons spare more healthy tissue. "Taking the most conservative route with tissue removal while preventing cancer spread is always the best option," she said.

Canine cancer patient Bucky

Bucky's tumor "lights up" with fluorescence imaging.

The members of the oncology clinical trial team, which includes veterinary pathologists and oncologists as well as biomedical engineers, are evaluating a cancer-detection technique using the oral fluorophore 5-ALA. It emits light of a certain wavelength when stimulated by lasers.

Oral tissues have their own luminosity, called auto-fluorescence, that researchers can see using spectral imaging. In cancer cells, the spectral properties are shifted. In the trial that includes Bucky, the researchers are determining if 5-ALA, an amino acid commonly found in mammal cells, would make changes in fluorescence properties between normal and cancer tissue more pronounced than focusing on auto-fluorescence alone.

Before surgery, Goldschmidt gives canine participants a pill containing 5-ALA, an amino acid that breaks down into the compound protoporphyrin IX. It tends to accumulate in cancer cells. Using a fluorescence lifetime imaging device developed and built in Biomedical Engineering Professor Laura Marcu's lab, the team screens for protoporphyrin IX and auto-fluorescence spectral properties and compares those measurements to tumor margins after surgical removal.

If the trial succeeds, the team will progress to 5-ALA research in human head and neck patients. They are currently analyzing their data and determining the potential to train computers to track cancer cells using spectral images.

Marcu and colleagues in the Department of Neurological Surgery's UC Davis National Center for Interventional Biophotonic Technologies are also using Interventional Fluorescence Lifetime Imaging to identify tumor margin, histology, and grade of malignant brain tumors.

Bucky's family members were excited to assist with the trial. "It wasn't a difficult decision. Goldschmidt and the rest of the UC Davis team were so obviously committed to their work. It felt good to give back," Yuzvinsky said.

After facial reconstruction, Bucky was eating on his own and holding a ball in his mouth. The couple looks forward to getting back to their normal lives post-surgery, like skijoring, when Bucky and the other family dog enjoy pulling them on skis.

"Basically, he loves his humans," said Lindley. "He just loves his pack."

Six teams selected for the Reaching Across the Causeway Award

Award recognizes collaborative science among medical and veterinary researchers

Six research teams won the second annual Reaching Across the Causeway award in 2024. The award recognizes and supports exceptional collaboration among researchers in the UC Davis schools of Medicine and Veterinary Medicine.

Each team will receive one-year support of up to $50,000. The funding will help in planning, preparation and submission of applications for research grants. The medical and veterinary schools co-fund this award, supporting four team projects. This year, UC Davis Comprehensive Cancer Center and the Clinical and Translational Science Center funded two more projects.

The winning teams:

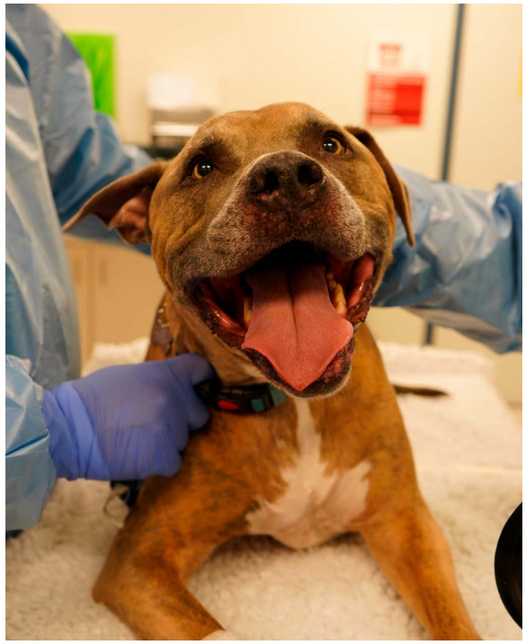
Kermit Carraway and James Angelastro
Carraway is a biochemist and cell and cancer biologist in the Department of Biochemistry and Molecular Medicine. Angelastro is an associate professor in the Department of Molecular Biosciences. Their project aims to verify how cell signaling contributes to the malignant properties of glioblastoma. The goal is to identify new and more effective treatments for this aggressive type of brain tumor.

Resmi Karalasseril Ravindran and William Culp
Ravindran is a pathologist and project scientist in the Department of Pathology and Laboratory Medicine. Culp is a professor of surgical and radiological sciences in the veterinary school. Their study aims to find new biomarkers of canine hepatocellular (liver) carcinoma that can aid in diagnosis and future treatments in both canines and humans.

Hannah Savage and Derek Bays
Savage is an assistant professor of pathology, microbiology and immunology in the School of Veterinary Medicine. Bays is an assistant clinical professor of infectious diseases in the School of Medicine. Their team is investigating the effectiveness of drugs that restore the anaerobic environment of the gastrointestinal tract of patients receiving treatment for leukemia. They hope to discover if this form of treatment will prevent invasive candidiasis (thrush, an infection of the mouth and throat caused by a yeast-like fungus) in these patients.

Jinhwan Kim and Jessica Lawrence
Kim is an assistant professor of biomedical engineering and surgery. Lawrence is a professor of surgical and radiological sciences. Their team is conducting a novel cell therapy approach to treating soft tissue sarcoma in mouse models and through clinical trials in dogs.

Tarini Ullal and Valentina Medici
Ullal is a staff faculty veterinarian of small animal internal medicine. Medici is a professor of gastroenterology and hepatology within the UC Davis Health Department of Internal Medicine. Their team will evaluate serum samples from dogs with copper-associated hepatopathy (liver disease) and humans with Wilson disease (a disorder that causes buildup of excessive copper in the organs). Their study seeks to establish biomarkers that improve non-invasive diagnosis and monitoring of both dogs and humans with copper-associated liver diseases.



The School of Medicine and School of Veterinary Medicine researchers have been collaborating to find cures to human and animal diseases, including cancer.

R01 Roundup

Prestigious Research Project Grant (R01) grants are the original and historically oldest grant mechanisms given by the National Institutes of Health (NIH). These mature research projects are hypothesis-driven and supported by strong preliminary data. The National Cancer Institute, within the NIH, awards R01 grants for cancer-related research.

Laura Fejerman wins $3 million R01 grant to research breast cancers in Latinas

Laura Fejerman is principal investigator for a $3.1 million R01 grant to research breast cancer in Latinas. Julie Dutil, professor at the University of Puerto Rico, is co-principal investigator.

The goal of the study is to look at the genetic architecture of breast cancer overall as well as distinct tumor subtypes, which can lead to differing prognoses.

Advances in DNA genotyping and sequencing technologies have led to the identification of more than 300 germline variants that contribute to breast cancer risk. However, as of today, most of that breast cancer research has involved women of European ancestry.

The five-year Latin America Genomics of Breast Cancer Risk Study will study combined genetic and risk factors and account for variation by ancestry and geography. The project supports a consortium of investigators in the U.S. and Latin America (The LAGENO consortium) that focuses on breast cancer studies in Latinas. Countries represented include Mexico, Guatemala, Chile, Argentina, Brazil, Peru, Colombia, Uruguay, and Puerto Rico.

Aiming Yu awarded two R01 grants totaling more than $3 million


Aiming Yu

Aiming Yu is a professor of biochemistry and molecular medicine who explores novel anticancer agents and investigates experimental therapeutics.

Yu directs the PK/PD Bioanalytical Core Facility and oversees the Molecular Pharmacology and Chemical Biology Shared Resources at the cancer center in support of drug development programs. He was awarded two R01 grants in 2024:

Novel biologic RNA molecules to modulate HCC metabolism
This $2.4 million award supports Yu's studies regarding the production and utilization of one-of-a-kind, recombinant RNA molecules to modulate liver cancer metabolism to enhance therapeutic outcomes.

Novel bioengineered microRNA therapeutics for lung cancer
This $1.9 million R01 renewal award is allowing Yu and his team to investigate novel therapeutic microRNAs for the treatment of lung cancer.

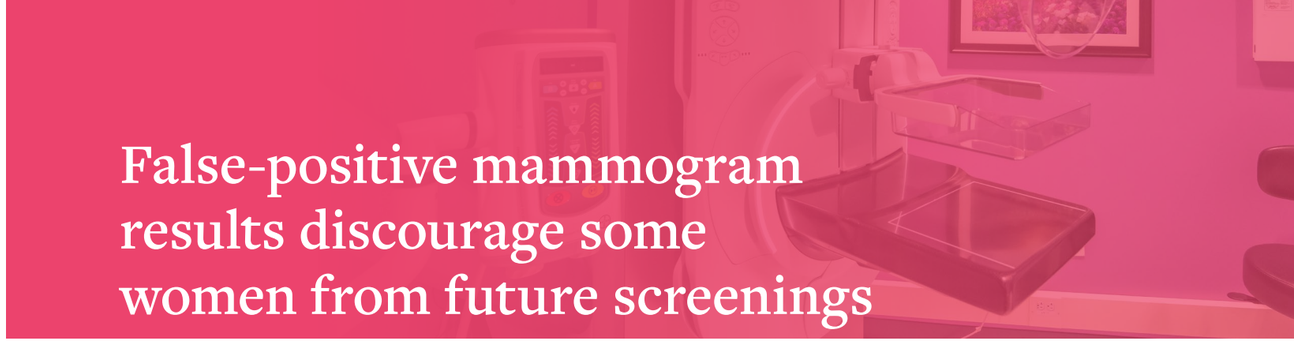
Both programs are built upon RNA molecular bioengineering technology Yu and his team invented at UC Davis and protected by active patents.

Stephen Kowalczykowski awarded $2.5 million R01 grant to study defective proteins that cause cancer


Stephen Kowalczykowski

Stephen Kowalczykowski, distinguished professor in the Department of Microbiology and Molecular Genetics, earned a $2.5 million R01 grant for "Molecular Functions of BRCA2 and RAD51 Paralogs in Homologous Recombination and Chromosome Maintenance."

DNA repair will be the focus of the grant. DNA repair by homologous recombination (HR) is a fundamental biological process necessary for the maintenance of chromosomal integrity. The failure to maintain genomic integrity is a major source of predisposition to cancer and hematological malignancies such as Fanconi's anemia. Kowalczykowski's research will study gene mutations in proteins RAD51, BRCA2, and the RAD51 paralogs, RAD51B, RAD51C, RAD51D, XRCC2, and XRCC3—all known to trigger cancer.



False-positive mammogram results discourage some women from future screenings


Diana Miglioretti

A major, new study led by UC Davis Comprehensive Cancer Center researcher Diana Miglioretti found women who receive a false-positive mammography result that requires additional imaging or biopsy were less likely to return for future routine screening.

Early detection of breast cancer through mammography continues to save lives. However, abnormal findings on mammograms can lead to additional imaging and biopsies, many of which turn out to be "false positives," meaning there is no cancer diagnosis. False positives can also have financial implications for patients and cause significant emotional anxiety.

"The finding raises concerns about the potential unintended consequence of false-positive results, where women may avoid screening mammograms in the future," said Miglioretti, lead author of the study and chief of the Division of Biostatistics at UC Davis.

The research was published in the Annals of Internal Medicine. It analyzed data for more than 3.5 million screening mammograms nationwide performed between 2005 and 2017. The results included over 1 million patients aged 40 to 73.

Findings are worrisome to researchers

The study found that 77% of women with a negative result from a mammogram returned for subsequent screening. But this percentage dropped to 61% after a false-positive finding requiring another mammogram in six months to confirm the results. It decreased to 67% if a biopsy was recommended. The impact was even more pronounced for women who received false-positive results on two consecutive mammograms — only 56% returned for recommended screenings.

The high rate of women who don't return for future screening is concerning to the research team.

"It is important for women with false-positive results to continue screening every one to two years," Miglioretti said, "Having a false-positive result, especially if it results in a diagnosis of benign breast disease, is associated with an increased risk of being diagnosed with breast cancer in the future."

The research also showed that Asian and Latina women were the least likely to return for future screening mammograms after a false positive result, which may contribute to existing health disparities.

False-positive results are common, especially among younger women. They occur in 10–12% of mammograms in women 40–49 years of age. After 10 years of annual screenings, 50–60% of women can expect at least one false-positive and 7–12% at least one false-positive with a biopsy recommendation.

"It's important to understand that most women recalled for additional imaging due to a finding on a screening mammogram do not have breast cancer," Miglioretti said. "They should try not to be worried if they are recalled for additional work-up. It is a normal and common part of the screening process."

About 10% of the time, additional imaging is necessary to get a better look at an area that appeared questionable on a screening mammogram.

Why do false-positive results occur?

False-positive results occur when an abnormality appears on a mammogram, but further testing reveals there is no cancer. They can happen for a variety of reasons, including:

- **Breast tissue density:** Women with dense breast tissue have more fibrous and glandular tissue, which can increase the difficulty of distinguishing between normal and abnormal areas. Younger women are more likely to have dense breast tissue, which is the main reason why they have a higher incidence of false positives.
- **Calcifications:** Small calcium deposits in the breast, known as calcifications, can sometimes be mistaken for cancer on a mammogram, particularly if they appear in clusters or have certain patterns.
- **Overlapping tissue**: Overlapping breast tissue can create shadows or areas that look like masses or abnormalities on a mammogram. A newer-technology, 3D mammogram reduces the chance of this happening.
- **Normal variations in breast tissue:** Sometimes normal variations in breast tissue resemble cancerous growths but are not.

New 3D CT imaging system helps diagnose lung cancer earlier

For the first time, lung cancer is being diagnosed more often at stage 1 rather than later stages at UC Davis

A new state-of-the-art mobile 3D CT imaging system is catching lung cancer earlier by pinpointing potentially cancerous growths for more precise biopsies.

The Cios Spin device, made by Siemens Healthineers, is being paired with a breakthrough robotic-assisted bronchoscopy system called the Ion, made by Intuitive.

Robotic-assisted bronchoscopy allows doctors to precisely examine air passages with a controller that operates a small camera at the end of a flexible tube. The Cios Spin aids this advanced tool by using cone beam computed tomography (CT) to create real-time 3D images. The images automatically update to identify the best path to reach lung nodules or lesions.

"It's similar to driving your car and using the GPS system to update your destination. In this case, we are using Cios Spin to update the exact location of the lung nodule biopsy," said Chinh Phan, director of the UC Davis Health Interventional Pulmonary Program.

The Cios Spin continually transmits CT data to Ion throughout the procedure. This enables Phan to make fine adjustments in targeting the lung nodule for a more precise and safer biopsy.

Results show lung cancer is being caught earlier when it is more treatable

After a year of using the Cios Spin and Ion together, Phan said that for the first time, UC Davis Comprehensive Cancer Center is diagnosing more lung cancers at stage 1, when it is most easily treatable, in comparison to late-stage disease.

"The result of using these combined technologies that pair advanced CT imaging with robotic bronchoscopy is the transformation of lung cancer care for the patients in our community," Phan said.

LUNG CANCER

Lung cancer is the leading cause of cancer death in the United States. An estimated 125,000 Americans will lose their lives to the devastating disease this year.

California has the lowest lung cancer screening rate in the country, which is one of the reasons the cancer center launched its new lung clinic and lung cancer screening program.

Enhancing the program are two new imaging technologies, the first to be deployed in the region: Advanced imaging helps catch lung cancer earlier and another new imaging technology tracks the progress of lung cancer treatment.

Advanced imaging may hold key **to tracking lung cancer treatment**

Lung cancer can advance quickly. Once a person starts treatment, determining whether that treatment is working or if the patient should be switched to a different treatment is vital. New advanced imaging technology at UC Davis Health may give doctors a way to quickly track how well their patients are doing with a certain treatment.

Scientists at UC Davis Comprehensive Cancer Center and the UC Davis Department of Radiology have discovered a novel way to image the unique blood supply of the lungs. Their findings suggest that such imagery could help determine if lung cancer treatment is working.

Pioneering EXPLORER gives scientists a peek inside the workings of the lungs

The groundbreaking research uses EXPLORER, an innovative PET scanner invented at UC Davis and housed at the UC Davis Health Molecular Imaging Center in Sacramento. EXPLORER produces images of the body in minutes with higher quality and less radiation than traditional positron emission tomography (PET) scanners.

Findings from the lung cancer study were published in the Journal of Nuclear Medicine. For the first time, they show how fast dynamic imaging using an advanced PET scanner, such as EXPLORER, can "see" into organs that have a dual blood supply. The lungs receive deoxygenated blood from the pulmonary arteries and oxygenated blood from the bronchial arteries.

Viewing the dual blood supply

Cancer frequently spreads to the lungs from other parts of the body because of this extensive blood supply.

"Our study found that the dual-blood supply effect is bigger in lung tumors than in normal lung tissue. This is why it can be used to spot lung cancer and has the potential to help us understand how it spreads," said Guobao Wang, a Department of Radiology professor who is leading the study.

Insights from the study

Wang added that lung cancers often don't do well with immunotherapy or other more traditional treatments. Analyzing lung tumors with a powerful PET imaging tool may lead to better therapy.

"In this new work, we are combining high frame-rate movies from EXPLORER with advanced math to develop a new PET imaging method. This makes it now possible to see and understand the dual-blood supply in normal lung tissue and lung tumors," added Yiran Wang, a doctoral candidate in the Wang Lab and the first author of the research paper. He was jointly supervised by Simon Cherry, one of the co-inventors of the EXPLORER scanner.

New clinic expansion to meet the needs of patients

Santiago Lombo Luque (left) and Erin Meierhenry Noren (right).

Only clinic of its kind in Northern California is committed to timely cancer diagnosis and care

UC Davis Health internist Santiago Lombo Luque is joining with Erin Meierhenry Noren to expand services to patients suspected of having cancer.

Located at UC Davis Comprehensive Cancer Center, the new clinic is the first of its kind in Northern California. The clinic evaluates pain and other symptoms as well as test results that may signal a suspicion of cancer.

Noren, who is assistant director for cancer center initiatives in the Department of Internal Medicine, collaborated with cancer center Director Primo "Lucky" Lara Jr. to open the clinic in 2022.

"We saw a need to step in to help patients who received alarming news about abnormal test results indicating they may have cancer," said Lara. "People are in a vulnerable state when this happens and there is an important need to be seen quickly and compassionately while getting a diagnosis confirmed."

Patients are referred quickly to clinic

People often come to the clinic as referrals from the emergency department or from within and outside of the UC Davis Health Primary Care network.

"A broad spectrum of patients we see at the clinic are experiencing everything from mildly concerning findings or symptoms to those that clearly signal metastatic cancer of unknown primary origin," said Noren. "Patients are very anxious about a possible diagnosis of cancer and the uncertainty of what is happening to their health."

The critical role of a timely cancer evaluation

Some of the people seen at the clinic come to the emergency department due to acute symptoms such as pain. They are often from underserved communities and do not know where or how to seek help due to lack of consistent access to health care.

"Many patients we see live far away and do not have a primary care physician, so there isn't anyone to synthesize all the information and coordinate the diagnostic tests that are required," Lombo Luque said.

Often, the shocking news of a cancer diagnosis comes with the results of an X-ray scan or other imaging that indicates the presence of a mass or lesion. By that time, the cancer is often in an advanced stage.

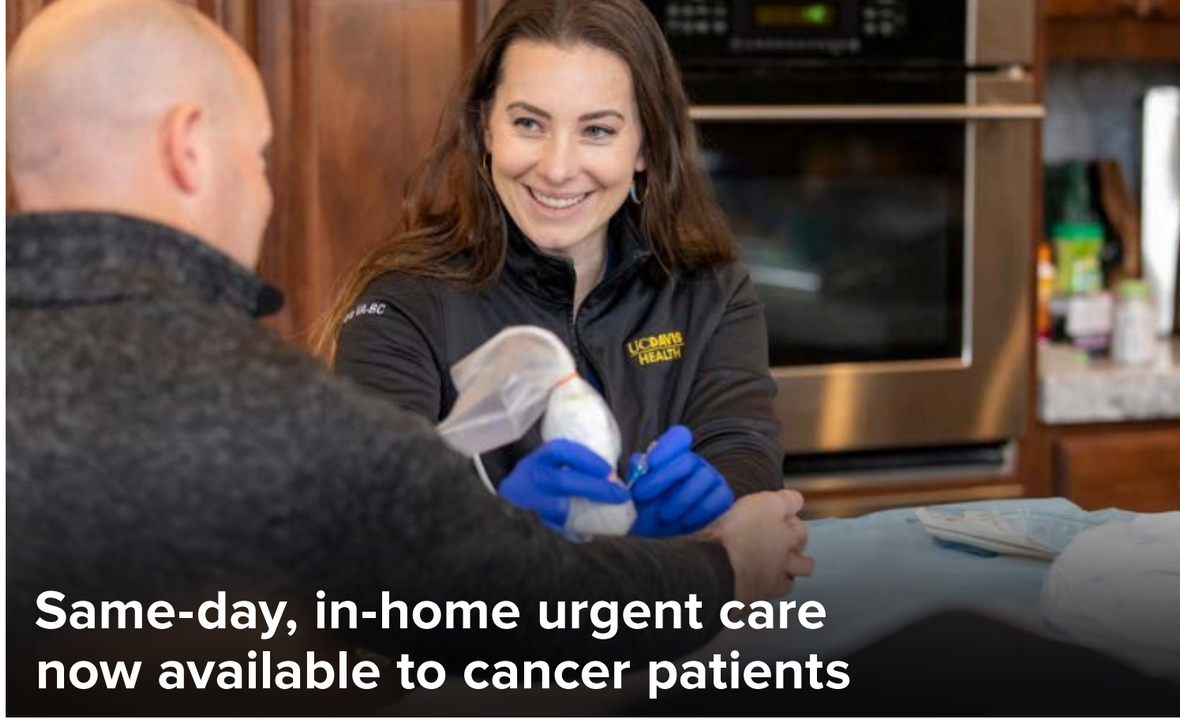
"Time is of the essence," Lombo Luque adds. "While helping to manage cancer-related pain, we also help to pinpoint the origin of the cancer."

Fortunately, he and Noren have access to state-of-the-art radiology, laboratory and pathology services at UC Davis. They also can quickly consult with a variety of cancer specialists at UC Davis Comprehensive Cancer Center as well as its specialty tumor boards, which hold meetings to assess cases, confirm diagnoses and offer treatment options.

As internists who specifically partner with the cancer center, Noren and Lombo Luque improve coordination of care and increase patient access to the cancer experts.

"As a 'cancer detective,' I take great pride in the ability to help a person who is in limbo to reach a diagnosis," said Noren. "This allows them to either move forward with cancer treatment, or alternatively, relieves the burden of a possible cancer diagnosis so they can move on with their life. It's about turning uncertainty into a diagnosis."

For an appointment with the clinic, call **916-734-5959**.



Same-day, in-home urgent care now available to cancer patients

People being treated at UC Davis Comprehensive Cancer Center are the latest UC Davis Health patients to benefit from urgent care delivered to their home. The new program that started in August allows cancer patients access to urgent medical care from 9 a.m. to 10 p.m., 365 days per year. The patients are seen for conditions such as nausea, vomiting, fever, wound checks and pain.

UC Davis Health partnered with DispatchHealth, the nation's first comprehensive in-home medical care provider, to roll out the new program. A vehicle displaying the logos of both organizations, and equipped with a mobile lab for blood tests, visits residences by appointment.

UC Davis Health first aligned with DispatchHealth in the summer of 2023 to start an urgent care at home program for UC Davis Health primary care patients. That service is designed to improve access to care, deliver a better patient experience, curtail unnecessary emergency department visits and reduce hospital readmissions.

"We are pleased to offer this human-centered care to our patients undergoing treatments for cancer," said David Tom Cooke, physician-in-chief of UC Davis Comprehensive Cancer Center. "We are essentially going back to the future by providing house calls to our patients, making it less stressful, more convenient and faster to get relief from their symptoms."

Cooke added that the service is leveraging the latest technology to ensure patients are getting the best possible outcome and avoiding visits to the emergency department.

DispatchHealth has assigned two vehicles to respond to calls within a 25-mile radius of UC Davis Medical Center. A traveling nurse practitioner or physician assistant, as well as a trained medical technician, administer care. A board-certified emergency department physician is available virtually by the on-site care team at the patient's home.

"The Urgent Medical Care At-Home program is designed to be a pillar of support for patients during their times of sickness and vulnerability," said Vimal Mishra, the head of digital care at UC Davis Health. "This innovative initiative brings compassionate care directly to patients' homes, sparing them from lengthy emergency room waits. It is a testament to the collaborative efforts between our innovation technology, ambulatory operations and care delivery teams."

UC Davis Health patients can request access to the new at-home urgent care by contacting their oncologist, primary care provider, advice nurse or UC Davis Telehealth Express Care.

Enloe Health cancer patients gain local access to UC Davis clinical trials

Affiliation with UC Davis Health Cancer Care Network enhances advanced cancer treatment for patients in the Chico region

Enloe Health and UC Davis Health are bringing leading-edge cancer research and clinical trials to Northern California. As the newest affiliate of the UC Davis Health Cancer Care Network, Enloe Health can now open innovative clinical trials with the full support of UC Davis Comprehensive Cancer Center.

The affiliation brings the latest discoveries in cancer care to Enloe Regional Cancer Center without its patients ever leaving the convenience of their local health system.

Breaking new ground

In May 2024, Enloe Health held a groundbreaking ceremony in Chico for its new Gonzales Comprehensive Cancer Center, which is expected to open in 2026.

"UC Davis research has immense promise for improving cancer survival and treatment outcomes," said Sam Mazj, medical director of the Enloe Health Gonzales Comprehensive Cancer Center. "Enloe Health's affiliation with UC Davis will bring together a diverse team of scientists, medical professionals and community partners to conduct cutting-edge research and treatment in our community. It symbolizes hope."

Enloe Health's new Gonzales Comprehensive Cancer Center, an approximately 97,000-square-foot state-of-the-art facility, will replace the Enloe Health Regional Cancer Center. The new center will respond to the dire need for more cancer care services in the North State, where cancer is a leading cause of death.

The new center will serve Northern California between Colusa County and the Oregon border. It will include expanded patient care space, advanced treatment options, enhanced equipment, integrated supportive therapies and more.

"This is a truly transformative partnership," said UC Davis Comprehensive Cancer Center Director Primo "Lucky" Lara Jr. "The best part is patients will not have to travel to Sacramento to have the access to advanced research that they deserve."

ENLOE HEALTH
REGIONAL CANCER CENTER

UC Davis Health Rocklin Clinic is first in Placer County to offer contrast-enhanced mammography

Latest technology enhances cancer care for one of the fastest growing regions of California

Breast imaging at the UC Davis Health Rocklin Clinic, in the Placer Center for Health, is bringing the latest technology to western Placer County. The new Senographe Pristina mammography system made by GE HealthCare generates 2D and 3D contrast-enhanced imagery.

"We are excited to bring this technology to our patients at Placer Center for Health in the next few months and at a number of our screening centers soon after," said Shadi Aminololama-Shakeri, chief of the Division of Breast Radiology. "While same-day interpretation and workup of recalls from screening exams are challenging to accommodate, at UC Davis Health we are working on streamlining this process by using contrast-enhanced mammography."

The new mammography technology helps to determine initial findings quickly, enabling women to stay on schedule with their breast imaging more easily.

Larisa Bisic, manager for imaging services at UC Davis Health clinics, said the contrast-enhanced mammography unit will be offered to women at higher risk of breast cancer. That includes women with dense breasts who radiologists determine need to have more advanced diagnostic screening.

"Similar to an MRI, we will use contrast dye administered through IV [intravenous drip] in the arm during the screening," said Bisic. "Unlike an MRI, though, the person being screened will be sitting rather than lying down in a tube. The rest of the screening will be conducted similar to a traditional mammogram."

With the dye contrast, the new imaging technology will help breast radiologists spot abnormalities that may need follow up procedures such as an ultrasound, MRI or a biopsy.

State-of-the art cancer care offered at Rocklin clinic

Placer County is one of the fastest growing areas of California. The California Department of Finance estimates that the population of the county will grow 25% between 2020 and 2060.

Joseph Avery, manager of the Rocklin clinic, said the dramatic population growth in Placer County means that UC Davis Health must keep up with the community's growing need for health care in the region.

"We continue to increase our cancer care services at the Rocklin clinic," Avery said.

Several full-time oncologists are assigned to the Rocklin clinic, which encompasses a 10-bed chemotherapy infusion center along with dedicated clinical space for cancer care.

"We are bringing our NCI-designated comprehensive cancer center to the people of Placer County, providing the convenience of top cancer care close to home," Avery added.

Life-saving stem cell transplant program revitalized

UC Davis Children's Hospital is the region's only provider to offer the treatment, also called bone marrow transplant

Fourteen-year-old Faith Brown was greeted with bubbles and noise makers from exuberant doctors, nurses and staff, as she and her family walked through the pediatrics unit for the last time.

Faith had one final job to do before leaving UC Davis Children's Hospital: She needed to ring the bell!

A brass bell hangs on the wall in the hallway of the unit. Patients ring it when they've finished treatment for cancer or a transplant. In Faith's case, it was a stem cell transplant to treat a type of leukemia.

A nurse held a banner that said, "Way to go!" It was signed by her care team. Another sign read, "We are so proud of you."

Faith grabbed the rope and rang the bell multiple times with a bright clang.

"Three cheers for the best feeling in the world," shouted Faith's mother Angie Evans, which was met with more clapping and cheering.

A revitalized stem cell transplant program for children

The moment was made possible by the revitalized UC Davis pediatric stem cell transplant (also known as a bone marrow transplant) program. UC Davis Health is the only provider of this specialized service for children in the Sacramento area.

It is led by Lisa Madden, a pediatric hematologist and oncologist at UC Davis Comprehensive Cancer Center, who has expertise in the fields of stem cell transplant and cellular therapies.

"This is an exciting time to be in the field of stem cell transplant. We are constantly expanding the diseases for which we can offer transplant, sometimes using modalities which are less toxic to the patient," Madden said. "Stem cell transplant is a procedure that is lifesaving. In the case of cancer, this is more immediately obvious. But stem cell transplant can be used to treat other lethal disorders in which there is a slow progression to organ failure, and in which lifespan is otherwise shortened and often painful. Diseases in this category include sickle cell disease and thalassemia, some metabolic disorders like Hurler Syndrome from which patients otherwise don't live past early childhood, and also some immune disorders from which patients get constant infections. When things go well, they are cured, they no longer have to come to clinic constantly for things like blood transfusions. It can truly change their lives."

Some of the diseases and conditions that can be cured by stem cell transplantation include:

- High-risk childhood acute lymphoblastic leukemia
- Certain lymphomas
- Hemoglobin disorders, including sickle cell disease and thalassemia
- Bone marrow failure disorders like severe aplastic anemia and telomere disorders like dyskeratosis congenita (a telomere is a section of a DNA sequence at the end of a chromosome)
- Metabolic disorders like Hurler Syndrome and osteopetrosis
- Autologous transplantation (a procedure in which patients have their own previously harvested stem cells reimplanted after intensive chemotherapy) may be part of the treatment for neuroblastoma and medulloblastoma
- Immune disorders like severe congenital neutropenia and leukocyte adhesion deficiency

Stem cell transplant offers a lifeline

Faith had been diagnosed in early 2024 with acute myeloid leukemia, an aggressive type of cancer that affects the blood and bone marrow. She had ongoing chemotherapy, requiring her to be hospitalized for six months.

When Faith was offered the opportunity for a stem cell transplant, her family decided it was a lifeline for their daughter that they couldn't refuse.

"Through studying leukemias, we knew that her best chance of survival was to do an allogeneic (donor) transplant," Madden said.

In July, Madden performed Faith's stem cell transplant. During the procedure Madden replaced damaged or diseased bone marrow cells with healthy stem cells from a volunteer donor, in this case Faith's brother. Faith was monitored closely by her hospital care team for side effects and complications post-procedure before she got the green light that she could leave the hospital.

Marcio Malogolowkin, the cancer center's chief of pediatric hematology-oncology, said he is proud that children and families now have access to these life-saving therapies in Sacramento.

"Our children can now benefit from these procedures in a setting that is close to home. We hope that lessens the burden for so many families in our region," Malogolowkin said.

He added that the pediatric stem cell transplant program benefits from the expertise and resources developed by the UC Davis Health Adult Stem Cell Transplant Program and UC Davis Institute for Regenerative Cures colleagues. It will soon enable them to bring cell and gene therapies to children throughout the region.

"Together, we have a world-class team that is committed to providing extraordinary care for every patient."

—MARCIO MALOGOLOWKIN, M.D., CHIEF, DIVISION OF PEDIATRIC HEMATOLOGY-ONCOLOGY

Faith Brown

Teen patient was too sick to attend prom, so staff brought prom to her

As a disco ball spun rays of light around her, 17-year-old Addison Ryker stepped into the room on crutches. She wore the red strapless lace gown that she had chosen months before for the special occasion. Her hair fell over her shoulders in soft, cascading waves. It felt like a dream.

This was Junior Prom.

But for Addison, prom wasn't at a hotel ballroom or high school gym. Hers was in the teen lounge at UC Davis Children's Hospital, where she was hospitalized.

Getting the cancer diagnosis

In late 2023, Addison's world was turned upside down when she was diagnosed with osteosarcoma, an aggressive bone cancer. What at first thought seemed be growing pains ended up being a life-altering diagnosis at UC Davis Health.

Suddenly, her carefree life was replaced with a battle against cancer. Nothing was certain.

Addison had every intention of attending her high school's prom. She had her dress picked, her matching heels ready, her prom date (who is also her best friend) confirmed.

But when Addison landed in the hospital and would not be discharged in time for her prom, her care team at the hospital wondered if they could bring the prom to her.

"Whenever a kiddo is missing something due to hospitalization, we try to re-create it, however we can," said child life specialist Sherry Petta, who worked with Addison's primary care nurse Heather Zoucha to plan the event.

"We all saw how down and depressed she was when she realized she would have to miss prom. But it is always the patient's choice. If Addison decided that she didn't want to do anything, we would respect that. We would support whatever she wanted."

Addison gave the team permission to move forward on prom planning. In about 24 hours, they pulled together a prom, custom made for her.

Addison Ryker and her date to prom.

> "Whenever a kiddo is missing something due to hospitalization, we try to re-create it, however we can."
>
> —SHERRY PETTA, CHILD LIFE SPECIALIST

A prom to remember

Pediatric nurses and staff lined both sides of the hallway, creating a path guiding Addison and her prom date to their prom location: the transformed teen lounge.

They had decorated the room with a casino theme, echoing the prom theme at Addison's high school. White and black tablecloths, poker chips and packs of cards decorated tables. Addison's mom, dad and stepmom were there to take photos. A Spotify prom playlist provided a soundtrack for the night.

The care team also designed and signed a prom card for Addison, calling her their Queen of Hearts.

Santana Diaz, the hospital's executive chef, designed an elegant meal for Addison and her prom date to celebrate, complete with champagne flutes filled with sparkling apple cider to toast the event.

A printed menu outlined the prom meal for two: a tomato cucumber salad, seasoned grilled chicken breast with potato corn cakes and cheese fondue with asparagus, served with a carrot radish chive garnish. For dessert? Ginger Elizabeth macarons.

They ate, they talked, they danced (as much as she could on crutches). It was a prom unlike any other.

"Addison was incredibly touched and happy. The kindness of the staff helped make a difficult day special," said Emily Long, Addison's mother. "I cannot thank them enough for their kindness and thoughtfulness. We truly feel blessed."

Surgeons use collarbone to create new upper arm for young cancer patient

Sydney Engle was 9 when she was taken by ambulance to UC Davis Children's Hospital after initially being treated for a broken arm. Her parents knew the situation had to be something really serious.

"It was terrifying. Life changed in an instant," recalled Sydney's mom, Kacy Engle, of that whirlwind day in February 2023. "That morning, I thought it was just a pulled muscle. I figured that's what they'd tell us. Then we found out her arm was broken, and that became the least of our worries."

From bad to worse

Tests revealed Sydney had osteosarcoma, a type of bone cancer that tends to occur in teenagers and young adults but also can affect younger children. The most common symptoms are limited movement, bone pain, a lump and an unexplained broken arm or leg bone. The prognosis depends on a number of factors, but osteosarcoma requires rapid treatment to prevent it from spreading.

Treatment for osteosarcoma involves chemotherapy and surgery. Doctors select treatment options based on the location, size, type and grade of the osteosarcoma and whether the cancer has spread beyond the bone.

"Sydney had an aggressive osteosarcoma involving her shoulder of her dominant (right) arm. Because of the extent of her disease and her age, surgical options were quite challenging," said UC Davis pediatric musculoskeletal surgical oncologist and Chair of the Department of Orthopaedic Surgery R. Lor Randall. "You have to consider durability and the ability to grow with the child."

Sydney started chemotherapy immediately and three months later, she would have surgery — but not before her parents had to make the hardest decision of their lives.

Options for surgery

The family was given several options: Use part of Sydney's collarbone to fix her arm or take a bone from her leg to use in her arm. Amputation also was discussed.

"The type of amputation she would need wouldn't leave a nub for a prosthetic. They would have had to take from the middle of her shoulder almost to her neck," Kacy said. "Her chances of survival would be best, but her quality of life would be compromised."

It was a hard decision to make on behalf of their 9-year-old child. Kacy worried that her daughter would grow up without a limb and ask why her parents had not given her a chance at normalcy.

"It kept replaying in my mind," Kacy said. "We decided amputation was not the right choice."

The Engles opted instead for an uncommon surgery that would make a new upper arm using her collarbone to replace her diseased humerus — the upper arm bone that connects the shoulder to the elbow.

"We found out that people come from all over the U.S. to see Dr. Randall for surgery," Kacy said. "We totally trusted him, 100%. We put our child in his hands knowing how serious he is about what he does."

Randall is one of relatively few physicians who have performed the exceptionally rare procedure called "clavicula pro humero." In the procedure, the clavicle, or collarbone, is transposed with its blood supply off the central vessels to function as the upper arm and establish attachment to the rest of the body.

"I believe our team was the first to do this in the United States years ago," Randall said. "I first learned about the procedure in 2005 when I was touring in Africa, where they do not have as many options as we do here. We are now one of the most experienced teams in the world in utilizing this technique."

Although the surgical technique is uncommon, Sydney's parents were confident in Randall and appreciate how the care team helped explain what was happening.

Sydney Engle and her sister, Abigail.

"They made us feel comfortable and taken care of and more importantly, they were doing everything they possibly could for Syd," said her father, Jeremy.

The Engles remember that the surgery took more than 9 hours.

"Dr. Randall came out a few times and reassured us it was going well," Kacy recalled. "When Sydney woke up from surgery, they wanted her to move her fingers on that hand. Thankfully, she was able to move them."

Getting through treatment

The initial surgery was a success, although Sydney has had to overcome some obstacles since then. She was so eager to use her arm that she needed a follow-up procedure to reinforce the collarbone which, at her age, is about the diameter of a pencil. She then needed to finish chemotherapy. The treatment that helped save her life took about a year.

"Sydney is crazy tough. Even if you don't think about the surgeries, it was really hard for her just going through treatment," Kacy said. "Each chemo session was different from the last. Some of them were OK. Some of them were horrible. We had no idea if she was going to survive this."

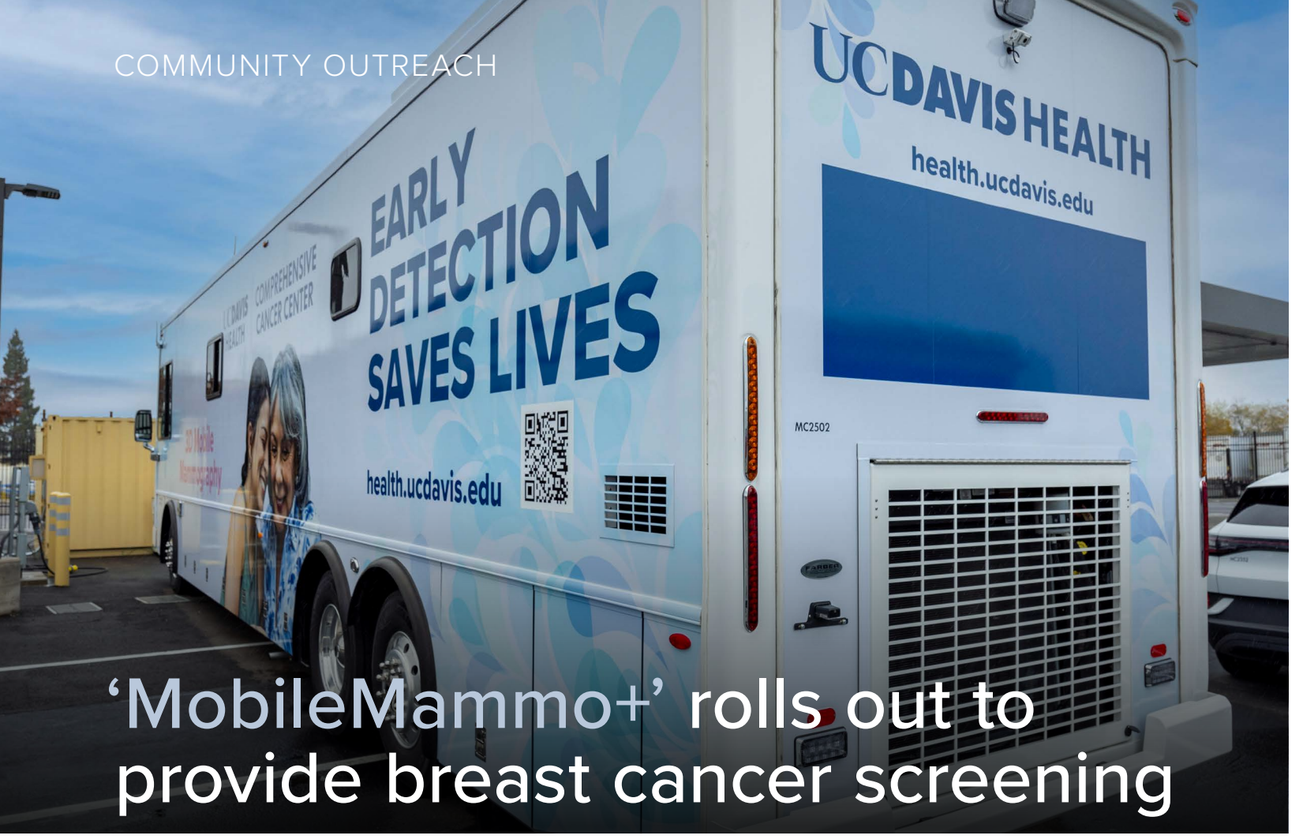
But survive she has, and after completing treatment in November 2023, Sydney was finally able to go back to school.

"She's just determined. Determined to get better," Kacy said. "I've learned a lot from her. Her will to live. It's pretty amazing."

Shared gratitude

"The care UC Davis provided was phenomenal. They were so positive and really helped us through some very challenging times," Jeremy said of the surgical team at UC Davis Children's Hospital.

"We made friends with all the staff. I miss them," Kacy said. "It really was a wonderful experience even though it was such a horrible experience."



‘MobileMammo+’ rolls out to provide breast cancer screening

UC Davis Comprehensive Cancer Center’s first-ever mobile mammography clinic has hit the road. The “MobileMammo+” bus will serve marginalized and hard-to-reach communities to increase access to breast cancer screening.

Services on the 45-foot-long clinic-on-wheels include mammograms, multilingual care and health education. The mobile clinic also serves as a data collection hub for health equity research led by Diana Miglioretti, breast cancer researcher and UC Davis Biostatistics Division chief. She also co-leads the cancer center’s Population Sciences and Health Disparities program.

Precision breast cancer screening research focuses on racially diverse and low-income women

“More than 30% of women are inadequately screened and rates are even lower among marginalized communities,” Miglioretti said. “The mobile mammography service helps us gather crucial data for health equity research, which will help us tailor our cancer prevention programs and deepen our understanding of breast cancer in diverse populations.”

Over a five-year period, data collected during MobileMammo+ stop-overs will help build a repository of longitudinal data on breast cancer screening, diagnosis and treatment.

“The idea is to, eventually, develop effective, individualized care for women by leveraging leading-edge genomics and AI [artificial intelligence] to predict breast cancer risk in underserved women,” Miglioretti said.

The project will draw on expertise from Shadi Aminololama-Shakeri, chief of breast radiology at UC Davis Health. Also involved is Laura Fejerman, a leading researcher of breast cancer in Latinas and co-director of the cancer center’s Women’s Cancer Care and Research Program (WeCARE). Fejerman is associate director for the cancer center’s Office of Community Outreach and Engagement and co-director of the Latinos United for Cancer Health Advancement initiative.

“We want to build and implement a multi-faceted program to improve cancer screening and diagnosis that incorporates traditional and innovative approaches that will lead to more effective and personalized strategies for underserved communities,” Fejerman said.

Bringing mammogram screening to marginalized communities

Patients in many rural and urban communities struggle to access preventive health care due to barriers regarding transportation, insurance, language differences and distance to a provider or clinic.

Staffed with a certified breast imaging technologist, MobileMammo+ can perform services that mirror the radiology expertise at UC Davis Health clinics. “This will allow us to offer state-of-the-art 3D mammography to under-resourced and remote communities,” Aminololama-Shakeri said.

The MobileMammo+ bus will be parked at the UC Davis Health Elk Grove Clinic two to three days a week and then travel to Federally Qualified Health Centers to serve marginalized communities throughout the region the rest of the week. In the future, MobileMammo+ may visit non-clinical locations such as churches and social service agencies.

“We will provide breast cancer screening education, outreach and navigation services to increase screening participation and patient navigation to ensure that diagnostic imaging and breast cancer treatment are received, if indicated,” said Elizabeth Morris, chair of the Department of Radiology.

“We hope to screen nearly 5,000 women a year,” said Alyssa Reed, senior program manager for WeCARE.

Reed, who has been personally impacted by breast cancer, stresses the importance of early detection. Mammograms can correctly identify about 87% of women with breast cancer.

“We know that the earlier breast cancer is caught, the greater the chances of successfully treating that cancer,” Reed said.

Screening for other cancers in the future

Cervical cancer screenings also may soon be available on MobileMammo+ through human papillomavirus (HPV) self-testing.

“The cancer center is seeking additional funding to conduct a study on the mobile mammography bus that uses HPV testing kits to increase cervical cancer screening rates,” said Julie Dang. She is executive director of the cancer center’s Office of Community Outreach and Engagement and conducts studies focused on HPV-related cancers.

HPV vaccinations and colorectal cancer FIT tests may also be brought on board as MobileMammo+ expands in future years.

FUNDING FOR MOBILEMAMMO+

Initial funding for MobileMammo+ came from a settlement award that arose from a class-action lawsuit against Wyeth Pharmaceuticals. The lawsuit alleged that Wyeth misrepresented the benefits and risks of its hormone replacement therapy medication for women.

In cases in which money remains after eligible class members receive their claim payments, courts can distribute those residual funds to charitable causes. The proposed mobile mammography service was one of the recipients of those surplus Wyeth settlement funds.

Funding is key for multiplying the impact of MobileMammo+

Expansion of the mobile mammography service depends upon philanthropic support as well as grants.

“There is so much more we would like to do to increase access to cancer screenings and save lives,” said Miglioretti, who added that the mobile service may be able to perform other types of cancer screenings down the road.

If you would like to contribute to the expanded services provided by MobileMammo+, please call **916-734-9400** or go to the Give UC Davis — Mammovan Program Fund website at **give.ucdavis.edu/CCAD/76694**.

Imaging room on MobileMammo+

HEALIX study aims to reduce cervical cancer rates and health disparities

HPV vaccinations, screening tests and free take-home HPV self-test offered

Cervical cancer rates have declined, thanks to the Pap test and the Human Papillomavirus (HPV) vaccine, which can prevent 90% of cervical cancer.

However, disparities in cervical cancer outcomes persist among women of color, those with lower socioeconomic status and by geography. Medically underserved women account for more than 60% of current cervical cancer diagnoses.

UC Davis Comprehensive Cancer Center has launched the Healthy Cervix study, also called HEALIX, to determine the reasons for the uneven prevalence of cervical cancer among those population groups. The research study is being conducted through a collaboration between the cancer center and Peach Tree Health, a Federally Qualified Health Center that operates clinics in Yuba, Butte, Sutter and Sacramento counties. The one-year research collaboration, launched in July 2024, will run until June 2025.

Seeking to reconcile disparities

HEALIX aims to reduce cervical cancer disparities among underrepresented and underserved women by increasing Pap and HPV testing as well as HPV vaccination among their adolescent children. The study will test new ways of encouraging and enabling women aged 21–65 to undergo cervical cancer screening. It will also test new approaches to persuade parents to obtain HPV vaccinations for their children who are between the ages of 9 and 17.

The study is taking place at three of Peach Tree's clinics in Yuba and Sutter counties. A fourth clinic, in Sacramento, will serve as the location for the control group. These participants will not receive screening and serves as a baseline for assessing the effects of screening recruitment.

Study basics

HEALIX study group leaders hope to enroll about 1,200 women and adolescents from diverse backgrounds in the study, primarily Spanish-speaking patients. In 2022, Peach Tree clinics in Live Oak, Yuba City and Marysville fell short of meeting screening and vaccination goals. HEALIX is exploring new approaches to increase rates at the same clinics.

"We need to understand if cultural stigmas and perhaps taboos regarding talking about sexual health are playing a role in low screening and vaccination rates," said Julie Dang, who is co-leading the HEALIX team with Laura Fejerman, associate director of the cancer center's Community Outreach and Engagement. "We think the culturally tailored interventions we are testing may make a difference."

Peach Tree health educator Magali Cisneros is doing most of the outreach to test the new interventional approaches. She is following up at the clinics with Latina patients who have not been screened for cervical cancer or who canceled screening appointments.

"We are trying to reduce all the barriers that may be keeping these women from coming in for routine cervical cancer screenings, including speaking to them in their native Spanish language," Cisneros said.

HEALIX is distributing $10 gas cards to study participants to cover their expenses to drive to a clinic. The study also offers either in-clinic cervical cancer testing or an HPV self-collection test, which can be done at the clinic or at home.

The U.S. Food and Drug Administration has approved the use of HPV tests that allow for self-collection in a health care facility. Researchers in the study are investigating whether women prefer using a self-test kit or in-clinic cervical cancer test. Everlywell, which manufactured the test kits for this study, created an IT clinic interface that is being used to register the kits and track results.

Pap vs. HPV tests

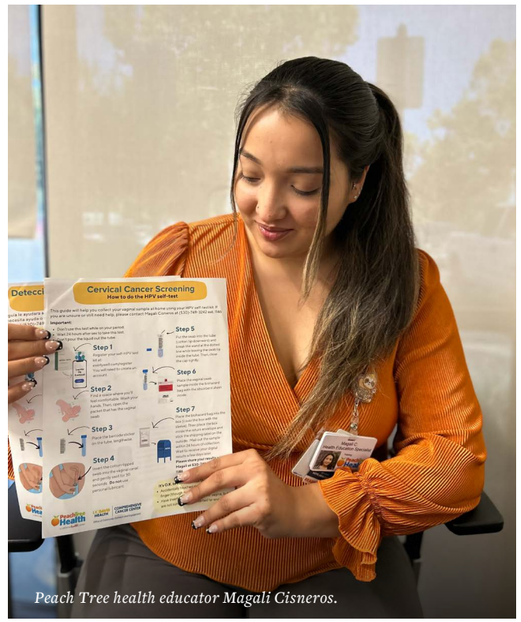
Until the mid-20th century, cervical cancer was commonly undetected in women until advancing to lethal stages, but the death rate fell after Pap tests became routine in the early 1960s.

The U.S. Preventive Services Task Force recommends screening for cervical cancer every three years with Pap tests alone in women aged 21 to 29 years. For women aged 30 to 65 years, it recommends screening every three years with Pap tests alone, every five years with high-risk human papillomavirus (hrHPV) testing alone, or every five years with hrHPV testing in combination with Pap tests (co-testing).

Screen + vaccinate

Dang added, "Basically, our goal is to convince moms of the importance of screening themselves and vaccinating their kids."

"Once women get screened, either in clinic or at home, then we are giving them key prevention tips and letting them know about the HPV vaccine, which is best given to children between the ages of 9 and 12 and before they become sexually active," Cisneros said.



Peach Tree health educator Magali Cisneros.

Miquell Miller is appointed an ambassador for VOICES of Black Women study

The American Cancer Society has launched VOICES of Black Women, the largest behavioral and environmental focused population study of cancer risk and outcomes in Black women in the U.S.

Miquell Miller, assistant director of the cancer center's Office of Inclusivity, Diversity, Equity and Accessibility (IDEAL), has been appointed to serve as a California Ambassador for the study.

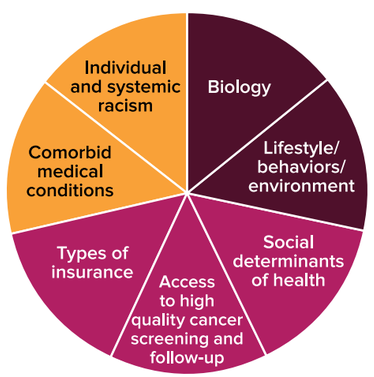
"When I learned about the VOICES study, I knew I had to get involved," said Miller, assistant professor of colorectal surgery and the director of the cancer center's Rectal Cancer Tumor Board. "I'm not just a doctor who treats a lot of cancer patients who are Black. I have also been a female Black patient who has experienced what racial bias feels like when you are on the receiving end of health care."

As a VOICES ambassador, Miller will help recruit women to the study and promote VOICES at UC Davis Comprehensive Cancer Center and within the community.

The American Cancer Society initiated the VOICES study in 2024 with the goal of enrolling more than 100,000 Black women in 20 states and the District of Columbia. The geographical areas were picked based on where most Black women live in the U.S.

The long-term study will gather valuable data from Black women between the ages of 25 and 55 from diverse backgrounds and income levels who have not been diagnosed with cancer. The goal is to better understand the drivers of cancer in this population. Over the span of 30 years, the women will answer behavioral, environmental and lived experience questions through periodic short surveys.

To enroll in the VOICES survey, go to voices.cancer.org.



American Cancer Society VOICES OF BLACK WOMEN

Understanding which combination of factors contributes to which disparities will facilitate our understanding of how to eliminate them.

UC Davis Health hosts 34th Annual Scientific Meeting of the Society of Black Academic Surgeons

UC Davis Health and its Department of Surgery hosted the 34th Annual Scientific Meeting of the Society of Black Academic Surgeons (SBAS) in 2024. The sold-out event drew more than 300 academic surgeons to the health campus, including medical school deans, faculty, residents and medical students from across the nation.

Health equity spotlight on UC Davis Health

Conference sessions focused on UC Davis Health's efforts to achieve equity in cancer care, trauma management and holistic medical school admissions.

General Thoracic Surgery Chief David Tom Cooke, physician-in-chief of UC Davis Comprehensive Cancer Center, was one of the co-chairs of the national meeting.

"UC Davis Health is proud to support the mission of the Society of Black Academic Surgeons and contribute to the growth and development of future surgical leaders," said Cooke, who is also associate director of the cancer center's Inclusivity, Diversity, Equity and Accessibility (IDEAL) Office.

Miquell Miller, assistant director of IDEAL and director of the cancer center's Rectal Cancer Tumor Board, co-chaired the conference with Cooke.

"It is such an honor to host the annual meeting of the Society for Black Academic Surgeons," Miller said. "We are proud of the inclusive scientific discovery underway at UC Davis Health and the commitment we are making toward reducing health disparities. The conference gives us a chance to share what we have learned and our hopes for the future."

This was only the second time the Society for Black Academic Surgeons held its annual meeting in Northern California.

History of the Society of Black Academic Surgeons

Established in 1987, SBAS was founded to address the unique challenges faced by Black academic surgeons. It has since evolved into a dynamic and inclusive scientific forum for surgeons of all backgrounds. The mission of SBAS is to improve health outcomes, advance scientific research and foster the careers of African American and other underrepresented minority surgeons.

Participants in the 34th Annual Scientific Meeting of the Society of Black Academic Surgeons toured California's Capitol.

Ta Ta Totes bring TLC to breast cancer patients undergoing clinical trial treatments

Nicole Robbins knows the fear, the unknowns and the discomforts that come with stage 3 breast cancer.

In 2022, the Placerville native, mother and El Dorado Hills school teacher learned she had inflammatory triple-negative breast cancer. The fast-growing, aggressive type of cancer accounts for about 10–15% of all breast cancer cases.

"It's a scary, scary journey," said Robbins. "When you have triple-negative breast cancer, you are given a binder of information that tells you what lies ahead."

Robbins' oncologist at UC Davis Comprehensive Cancer Center encouraged her to enter a clinical trial designed to improve outcomes in high-risk breast cancer patients.

The treatment included a combination of powerful chemotherapy drugs. Sitting for hours and hours in an infusion chair at the cancer center inspired Robbins to take on her project.

"That's when I got the idea for the Ta Ta Totes," said Robbins, explaining the totes are care packages she creates for fellow breast cancer patients. "I experienced everything that came with treatment. It was hard and I saw other women, many of them alone, going through the same thing."

Chemotherapy from the clinical trial helped shrink her tumor to the size of a tiny dot. A bilateral mastectomy and radiation followed. Then immunotherapy was added.

"I went through every type of treatment imaginable," said Robbins, who, only a week before dropping off a shipment of Ta Ta Totes at the cancer center, had undergone plastic surgery to restore the shape of both breasts.

Ta Ta Totes are popular with patients

With a head full of blonde curls and ample energy to carry nearly a dozen totes on a recent morning, Robbins explained how during treatment she made a list of what patients like her needed.

"I have met so many magical people at UC Davis Comprehensive Cancer Center. My doctors and nurses have been wonderful, and I wanted a way to give back while helping other breast cancer patients."

In between treatments, she gathered friends and family to create a collection of warm and cozy items to put into harvest-themed totes to deliver to fellow late-stage breast cancer patients in clinical trials.

Robbins quickly left a favorable impression among patients and staff.

"This woman is amazing," said Teri Nguyen, clinical research coordinator at the cancer center. "Our patients are thrilled to receive the Ta Ta Totes and are often caught up in emotion because of the love that has been put into them. It brings them to tears and we are so grateful for Nicole's creativity and generosity."

Ta Ta Totes creator and breast cancer survivor Nicole Robbins delivers totes to nurse Apinya Vorasaph and clinical research coordinator Teri Nguyen.

Everything inside the Ta Ta Totes is handmade. The items include:

- Fleece blanket to keep patients warm during chemo infusions
- "Port pillow" to reduce automobile shoulder seatbelt discomfort for women with infusion ports
- Blank "thank you" cards for patients to send to doctors and nurses
- Mints and ginger chews to help when chemo-induced changes in taste become unpleasant
- Handsewn "pocket hug" to bring patients a smile when the going gets rough
- Box containing inspiring quotes
- Seed packet to "watch something grow"

Robbins had to take a leave from teaching during the chemotherapy treatments, so creating the Ta Ta Totes became a therapeutic outlet to fill that void. It became such a passion that she stepped up production by launching a nonprofit fundraising organization, Harvest4pink.org.

The organization's website not only sells Ta Ta Totes, it also features tips for women undergoing breast cancer treatment, book recommendations, and suggests helpful gifts to buy for people who are being treated for breast cancer.

Robbins has completed her treatment and has since moved with her husband Brian to a small town in Wyoming to enjoy their retirement. However, she still makes regular trips to UC Davis Comprehensive Cancer Center for her check-ups — with lots of Ta Ta Totes in tow.

"The best way to help yourself is to put your arm around someone who needs it more," Robbins is fond of saying. She also reminds other women: "Don't forget to check your tatas. Mine tried to kill me."

Ta Ta Totes

Crush Challenge participants cycle and sip their way to raising money for cancer research

The date is set for the 11th Annual Crush Challenge. The spectacular bike ride and wine event will be Aug. 23, 2025. Once again, it promises to provide views of beautiful vistas in the Napa Valley and the opportunity to taste fine wines and enjoy musical entertainment.

Cyclists can choose between 17-, 25- or 37-mile bike route options through the picturesque Napa Valley with a rest stop at ZD Wines' barrel tasting. After the ride, cyclists and non-cyclists can meet at North Yountville Park to enjoy the popular food and wine garden and taste the offerings of 12 local restaurants and 12 wineries.

The deLeuze Family Charitable Foundation and ZD Wines host the fundraising event along with UC Davis Comprehensive Cancer Center. Crush Challenge helps raise money to advance research into nontoxic treatment for lymphoma as well as to benefit the Boys & Girls Clubs of Napa Valley.

In 2024, the event raised $100,000 and drew more than 150 cyclists, including a team of 31 participants from UC Davis Health, with CEO David Lubarsky participating.

The story behind the Crush Challenge event

Norman deLeuze, founder of ZD Wines, was the inspiration for Crush Challenge. Diagnosed with an aggressive cancer, the Napa winemaker sought treatments beyond traditional radiation and chemotherapy with UC Davis oncologist Joseph Tuscano, who specializes in cancers of the blood.

ZD Wines President Brett deLeuze explained, "My father, Norman, was determined to find non-toxic cancer treatment options. Through his own research and treatment, he convinced Dr. Tuscano to work with him, and the relationship resulted in the establishment of the UC Davis deLeuze Family Endowed Professorship focused on researching non-toxic cures for cancer."

Although deLeuze eventually died from his cancer, ZD Wines and the deLeuze family honored Norman's legacy by establishing the deLeuze Family Charitable Foundation and the annual Crush Challenge.

Tickets for the Crush Challenge events will be available in the spring. Go to **CrushChallenge.net** to find out more.

Heart-shaped pillow blankets warm hearts of childhood cancer patients

Marcio Malogolowkin and cancer patient Manny Goff.

Maita Subaru and the Leukemia & Lymphoma Society – Central Valley brighten the day for kids with cancer

Life was a little rough for 9-year-old Emmanuel "Manny" Goff, a cancer patient at UC Davis Comprehensive Cancer Center. He had been traveling 165 miles from Redding for chemotherapy treatments. It is a tedious drive for a youngster and the pediatric infusion room is often chilly.

That's why upon arriving at the cancer center in the summer of 2024 he welcomed the gift of a soft, heart-shaped pillow that turns into a blanket. He responded with a huge smile when asked if it was cuddly.

As part of a national Subaru Loves to Care campaign, Maita Subaru of Sacramento automobile dealership joined with the Greater Sacramento Area Chapter of the Leukemia & Lymphoma Society (LLS) to donate 80 navy-blue plaid pillows to the cancer center. The center gave those pillows to pediatric cancer patients.

Manny was diagnosed with T-cell acute lymphoblastic leukemia in 2023 shortly before Thanksgiving.

"His only symptoms were swollen lymph glands and a runny nose," his mother, Leslie Goff, said, as she watched her son at the center of attention during a TV news interview highlighting the pillow donation.

Maita Subaru and LLS have teamed up during the past nine years to collect toys, blankets, arts and crafts kits, and other items — all for young UC Davis Comprehensive Cancer Center patients.

Marcio Malogolowkin, chief of the Division of Pediatric Hematology-Oncology, along with supportive oncology staff members, accepted the mound of donated pillow blankets.

"This tells us that we are not alone," Malogolowkin said. "Our patients and their families have a hard job as they go through treatment, but knowing they have this kind of support makes this unpredictable journey much easier on them and on us."

It's important to brighten the day of childhood leukemia patients, said Amy Pine, campaign development specialist with LLS – Central Valley.

"It is hard to be in a cold infusion room. We think these pillow blankets will give them something warm to sit with, which we hope will make their day."

Pine said LLS and Subaru have donated 350,000 items nationwide to patients being treated for blood cancers. It is part of what they call "messages of hope" for people battling cancer.

"Partnering with LLS and UC Davis Comprehensive Cancer Center means so much to Maita Subaru," said Levi Whittaker, who is the "love promise champion" at Maita Subaru. "We know the kids here are going through so much and this is very near and dear to us."

Handprints on Hyundai bring Hope On Wheels

Painted “high five” handprints in a variety of colors were placed on a brand-new white Hyundai Tucson that rolled up to UC Davis Comprehensive Cancer Center last summer. The theme of the annual Hyundai Hope On Wheels event in 2024 was “Hope Lights the Way” as it delivered a $100,000 check to help fight childhood cancer in August.

On hand to slap a “high five” on the SUV was 13-year-old Kyla Beeler who is currently undergoing cancer treatment at the cancer center. Smiling brightly with her colorful palm, she left her mark on the Hyundai, sharing her gratitude.

“I am so thankful to Hyundai and UC Davis Comprehensive Cancer Center,” Kyla said. “Thanks to them, I’m now getting ready to start high school and join the local swim team.”

Kyla’s mother, Jennifer, said her daughter’s routine blood tests showed something suspicious about a year ago. The shocking news came when she was diagnosed with acute lymphoblastic leukemia (ALL), the most common type of childhood cancer. Kyla has been receiving chemotherapy for a year and the side effects leave her feeling less than 100%.

Part of the $100,000 donation from Hyundai will go toward evaluating the allergic reactions and other side-effects associated the therapy she is taking and providing new treatment guidelines.

The care for this type of pediatric cancer has improved markedly over the last half-century, but the drug to treat the disease can cause nausea, vomiting, blood clotting issues, fatigue and dizziness.

“This is an example of the community stepping up to help us advance treatments for children with cancer and make those treatments easier on our young patients and their families. The partnership with Hyundai has been tremendous,” said Marcio Malogolowkin, chief of the Division of Pediatric Hematology-Oncology at UC Davis Comprehensive Cancer Center. “It really takes a village to fight pediatric cancer.”

Along with the ALL research, the Hyundai Hope on Wheels contribution will help launch a psychosocial assessment program for parents and other caregivers of pediatric cancer patients. The pilot study will be led by Angela Usher, manager of the cancer center’s Supportive Oncology and Survivorship program.

Over the past decade, Hyundai Hope on Wheels has given half a million dollars to pediatric cancer research at UC Davis Comprehensive Cancer Center.

Primary funding for Hyundai Hope On Wheels comes from Hyundai Motor America and its more than 830 U.S. dealers. In 2024, Hyundai Hope On Wheels surpassed a lifetime total donation of $250 million in support of more than 1,300 childhood cancer research grants to over 175 hospitals and research institutions.

“Thank you so much for what you do. We could give as much money as possible, but without the work of your doctors and staff, the progress being made to fight childhood cancer would not happen,” said Rajesh Gupta, Hyundai western regional sales manager.

Chris Shaffer, president of Roseville Hyundai, added, “Children are our future. This is our chance to make the world a better place.”

Huggie, known as “Hugs” for short, placed a “high five” pawprint on the white SUV at the Hyundai Hope On Wheels event. As a very special pediatric facility dog, the Labrador/Golden Retriever mix is known for being extra cuddly and loves to play with patients. You can follow Hugs and his fellow four-legged colleagues on Instragram @ucdhealthcaninecrew.

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Synthesis — the art of bringing distinct elements together to form a cohesive whole — is the name of our magazine and our strategy as the Central Valley's only National Cancer Institute-designated comprehensive cancer center. Leveraging UC Davis strengths in innovative cancer models and technologies, precision therapeutics, transformative imaging and mitigation of cancer risks and disparities, we aim to reduce the cancer burden in our region and beyond. Uniting physicians, scientists and public health experts, we are committed to making cancer discoveries and delivering them quickly to patients so they have the best possible outcomes.

Synthesis — linking the best in cancer science to improve patients' lives — is our promise.