



# When Every Minute Counts

Time is brain, and in the crucial interval following a stroke, the UCLA mobile stroke unit is on the scene to save lives.





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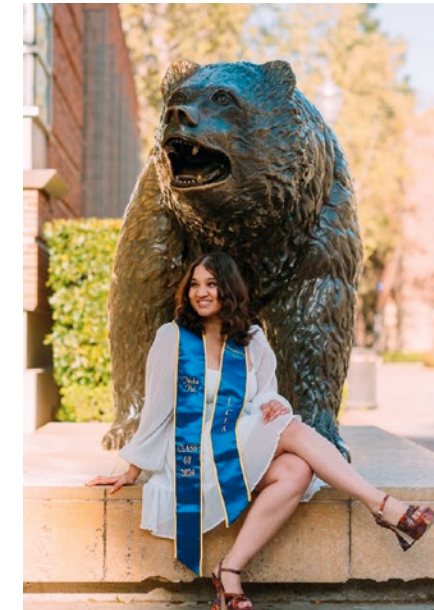
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COURTESY OF NEHA PAI

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Patients, or the families of patients, quoted and/or photographed or pictured in this publication have given their consent to have their names and/or images used and their stories told.

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“With the mobile stroke unit, we can give the blood-vessel-opening thrombolysis drugs far earlier than if we have to wait until the patient arrives at the hospital. This is a situation where bringing the hospital to the patient makes a tremendous amount of sense.”

Dr. Jeffrey L. Saver

# Expanding access for our community: UCLA's new San Fernando Valley hospital

This past spring, UCLA Health acquired West Hills Hospital and Medical Center with the goal of expanding access to high-quality care in our community. Renamed UCLA West Valley Medical Center, the facility is now part of our comprehensive network of clinics and hospitals. This is an exciting time for UCLA Health as we fulfill a need for greater access to inpatient care and services. During this period of integration, we remain committed to delivering the highest standards of excellence in all that we do.

UCLA West Valley Medical Center is a fully licensed and accredited acute care hospital and includes 260 inpatient beds, an emergency department, seven operating rooms and diagnostic and procedure areas. Additionally, the campus has a free-standing ambulatory surgery center and a burn center. The addition of West Valley represents a significant investment toward our goal of expanding timely access to care for our community. It will both increase convenience for patients

living and working in the San Fernando Valley and provide critically needed inpatient hospital capacity in the UCLA Health system to serve more patients who require highly specialized care and treatments. More broadly, additional hospital capacity across our system means more patients will receive the highly specialized treatments and patient- and family-centered care that UCLA Health is known for as a leading academic health system.

At UCLA Health, we've continued to look for opportunities to excel in service to our community. We're excited that more than a thousand West Hills employees will now be part of our UCLA Health family. Many of these health care professionals and support staff are tenured, having worked for this community hospital for a lifetime. Providing quality care that's close to home has always been a guiding principle for the former West Hills Hospital, having served people in the San Fernando Valley for more

than 50 years. UCLA West Valley Medical Center will carry forward that promise to care like family, and we're thrilled to now have the opportunity to provide exceptional care to our patients in this community.

The 14-acre site and more than 1,000 parking spaces at UCLA West Valley Medical Center offer flexibility for potential future hospital expansion, a medical office building or other needs. UCLA Health is developing a comprehensive, long-term plan to upgrade the UCLA West Valley Medical Center property and optimize use of the additional capacity.

In the past 10 years, UCLA Health has added more than 100 community clinics, not only in the San Fernando Valley, but across Southern California and the Central Coast, for a current total of more than 280. In 2021, we acquired a closed community hospital that we are now transforming into a state-of-the-art neuropsychiatric hospital slated to open in 2026 in the Mid-Wilshire neighborhood of Los Angeles. That 139-bed hospital

will expand by 61% the Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA, currently located within Ronald Reagan UCLA Medical Center in Westwood.

Recent and future acquisitions will also improve our ability to advance excellence in health care delivery, education, research, discovery and community engagement. I'm looking forward to seeing what the future holds and the ways we'll continue to expand our reach in the communities we serve.



**Johnese Spisso, MPA**  
President, UCLA Health  
CEO, UCLA Hospital System  
Associate Vice Chancellor, UCLA Health Sciences



JESSICA POINS

**UCLA** Health

NATIONAL HONOR ROLL  
35 CONSECUTIVE YEARS



in **LOS ANGELES**  
& **CALIFORNIA\***



\*Tied for #1 ranking



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# COPING WITH THE EMOTIONAL TOLL OF L.A.'S WILDFIRES

By Vanessa Villafuerte

**IN THE FACE OF THE TERRIFYING** fires that erupted in January and lay waste to broad swaths of the region, residents throughout Los Angeles County went on high alert. People died, homes and businesses — entire communities — were destroyed, wildlife was ravaged and the lives of tens of thousands of families were upended.

For those who lost family, friends or loved ones, or whose property was damaged or destroyed, the road to recovery will be a long one. Months after

the last embers have cooled, images of the ruin may continue to trigger feelings of anxiety and dread.

The psychological toll, even for those who were not directly affected by the fires, will linger, says Melissa Brymer, PhD, director of terrorism and disaster programs at the UCLA-Duke National Center for Child Traumatic Stress. “Addressing the psychological fallout from the fires begins with understanding that the level of trauma varies from person to person,” she says.

“While everyone in Los Angeles has been affected in some way, the impact isn’t the same for everyone. For some, the experience of evacuating was especially traumatic.”

For many people, asking for help may be a particular challenge. But, Dr. Brymer says, it is important that they not face the battle to restore their lives alone. And for those who are supporting someone who lost their home or a loved one, the first step is simply showing up. “We all know someone who’s been impacted to some degree,” Dr.

FOR THOSE WHO LOST FAMILY, FRIENDS OR LOVED ONES, OR WHOSE PROPERTY WAS DAMAGED OR DESTROYED, THE ROAD TO RECOVERY WILL BE A LONG ONE. MONTHS AFTER THE LAST EMBERS HAVE COOLED, IMAGES OF THE RUIN MAY CONTINUE TO TRIGGER FEELINGS OF ANXIETY AND DREAD.

Brymer says. “Instead of asking, ‘How are you doing?’ — because, really, how do you think they’re doing? — try asking, ‘Is there anything I can help with in this moment?’ Think about the routines of the people you care about. Is there a way you can step in? For example, if they have children in school, you might offer to help with drop-off or pick-up. Or if they have pets, maybe you can help by getting pet supplies.”

The extent of the destruction was so vast — nearly incomprehensible — that it

is to be expected that a sense of mental exhaustion will linger. “When we don’t acknowledge the exhaustion that so many are continuing to experience, it can lead to irritability and strain our relationships,” Dr. Brymer says. During the fires and immediately afterward, “many people haven’t been prioritizing their well-being. It’s crucial to acknowledge that, especially for those who might not have been directly impacted.”

There are lessons to be learned from the fires that people can continue to apply going forward as they face new challenges or stressors in their lives. “Checking in with yourself and prioritizing self-care is vital. The constant stream of media keeps

us in a heightened state of arousal,” Dr. Brymer says. “People understandably need information, but this constant engagement takes a toll.

“At some point, we need to rest our minds and bodies,” she says. “It is important to start limiting how much information we’re consuming and to check in with ourselves. Is this helping me make decisions, or is it just making me more distressed? Taking a pause and doing something else to care for yourself is essential.”

**Vanessa Villafuerte** is a senior public information officer for UCLA Health. Before coming to UCLA Health, she was a broadcast journalist.



SIPA USA VIA AP



ISTOCK IMAGES

# WOMEN'S HEALTH IS HUMAN HEALTH

By Yalda Afshar, MD (FEL '19), PhD

**THE QUESTIONS COME AT ME RAPID-** fire from the back of the car. “Why do we have to go to school today?” my kids ask. That one’s to be expected. Then come the questions about differences between girls and boys, anatomical and otherwise. “Why do we do this, but they do that” sorts of questions.

It is a reminder that these young minds are natural scientists, exploring the world through a series of “whys.” As

a physician-scientist, my days mirror this same process: asking questions, seeking patterns and solving puzzles. Each “why” I encounter in my clinic as a maternal and fetal medicine specialist — Why does this heart medication not work for women? Why are there disparities in maternal health? Why is the placenta stuck at delivery? — has profound implications for public health. When these questions are addressed with curiosity, care and evidence, they have the potential to transform individual lives and the health of entire communities.

Women’s health matters. It touches every part of society. When we invest in understanding and improving the unique health needs of women — and in this context I refer both to those who are biologically female and those who identify as women — there is a ripple effect that uplifts families, workplaces and future generations. Women’s health is not an esoteric, niche interest; it is the foundation of a thriving, equitable society. Just like those questions from my kids in the back seat, the “whys” in

women’s health are urgent, real and worthy of every ounce of our scientific and clinical attention.

But despite their being half of the world’s 8.2 billion people, the health needs of women remain underserved, held back by archaic biases in research and systematic exclusion from basic, pre-clinical and clinical trials. Yet, focused research on women’s health — from the unique physiological processes of pregnancy, contraception and menopause to gynecological cancers and diseases that disproportionately impact women — has implications far beyond individual outcomes. When women’s health is prioritized in medical research, the benefits extend far beyond to offer insights and innovations that enrich health care for all, strengthen health systems and, ultimately, elevate the quality of life globally.

It is unfortunate that historically, this has not been the case. Medical research was built around the “male norm,” and the male body has been the default laboratory for exploration. This has created critical gaps in knowledge about how sex differences

influence aging, disease and physiology.

But slowly, there has been a shift that prioritizes sex as a key variable in health. Institutions like the National Institutes of Health (NIH) now mandate the inclusion of women in clinical trials and analyses that explore sex-based differences. This push has led to such crucial — and fundamentally basic — findings as how women and men can experience cardiovascular disease and heart attacks differently. Studies on osteoporosis, a condition with a higher prevalence in women, have deepened our understanding of bone density and degeneration in both men and women. Research in women’s health has spurred advancements in screening and treatment protocols for cervical cancer that are now translatable to broader populations, recognizing the different risk factors and metabolic changes that men also can face. Other examples include differing drug metabolism rates, which has led to adjusted dosing recommendations for medications like antidepressants, enhancing safety.

By embracing sex as a critical

biological variable, research becomes more personalized based on the unique physiological differences among people. It is not one-size-fits-all.

One of the biggest misunderstandings in women’s health research has been the belief that it is merely focused on reproductive health while overlooking the broader health implications and experiences of women across their lifespan. I say this as a reproductive biologist and pregnancy researcher. By moving beyond reproduction, researchers are redefining women’s health as “whole health.” This shift recognizes that women’s health isn’t just about reproductive function, but also involves a host of interconnected physiological systems that deserve study in their own right. Striving to serve the distinct needs of women is beneficial to understanding broader health and disease patterns across the sexes.

Menstruation and menopause research, for example, has linked hormonal changes with bone-density loss and cardiovascular health, informing preventive strategies for aging populations of both sexes. Chronic conditions such as autoimmune diseases and Alzheimer’s, which disproportionately affect women, are receiving greater atten-

While progress has been made toward achieving gender parity in medical research, work still remains to ensure that research represents the diverse patients we serve and the communities we live in. Achieving this requires more than surface-level efforts; it demands increased funding, belief in the significance of this work and targeted policy initiatives to prioritize gender-specific research, especially in historically underfunded areas such as pregnancy, autoimmune diseases, chronic pain conditions and mental health. It is imperative that sex and gender be treated as critical variables in all fields of health research, not just in studies focused on so-called “female-specific” conditions.

Creating a research environment that genuinely prioritizes women’s health is not just ethically sound; it is a scientific imperative that leads to improved outcomes for all populations. The progress thus far offers a hopeful path forward, signaling the possibility of a health care system that recognizes women not as an afterthought, but as integral to the understanding of human health and disease. By continuing to foster inclusivity and equity in research, we can build a future where medical

BY EMBRACING SEX AS A CRITICAL BIOLOGICAL VARIABLE, RESEARCH BECOMES MORE PERSONALIZED OF THE UNIQUE PHYSIOLOGICAL DIFFERENCES AMONG PEOPLE. IT IS NOT ONE-SIZE-FITS-ALL.

tion. This shift promises gender-sensitive treatments while uncovering biological pathways relevant to all patients.

Mental health research, too, benefits from a gender-inclusive approach. Conditions such as depression and anxiety are more commonly diagnosed in women, in part due to hormonal influences that occur during puberty, menstruation, pregnancy and menopause. As researchers dive into these factors, they are uncovering how mental health disorders can be managed through hormone modulation. Findings from these studies are informing new treatments that benefit all people, acknowledging the roles that sex and hormones play in mental health.

science serves all communities with the respect, precision and care they deserve.

Women’s health matters not only because women matter, but because society thrives when all its members are supported with the care and knowledge they need to live well. So, whether in a lab, a clinic or from the back seat of the car on the way to school, the questions we ask and pursue have the power to change the world. And that, perhaps, is the most compelling “why” of all. ●

*Dr. Yalda Afshar is an assistant professor-in-residence of obstetrics and gynecology in the Division of Maternal-Fetal Medicine. Her clinical and research interests include high-risk pregnancy, prenatal ultrasound, genetic testing and congenital heart disease affecting either the mother or fetus.*

## Dance Class Transforms Lives of Autistic Kids

**“PAINT THE BUBBLE,” 21-YEAR-OLD GABI HERNANDEZ** says, her enthusiasm palpable through the Zoom screen. Stretching her arms overhead, the UCLA student sweeps her hands across the imaginary bubble she’s pretending to be inside. Ten students — all young people with neurodevelopmental disabilities, each in their own home — do the same, moving their arms and hands above them, around them and behind them.

“Now paint the bubble with your feet!” says Hernandez, a volunteer instructor with UCLA’s Expressive Movement Initiative. She and the young dancers bend their knees and wield their feet like paintbrushes. The tinkling piano melody of “Mr. Moustafa” by Alexandre Desplat plays as they twist and move.

Far more than just a fun way to spend an hour a week, this therapeutic virtual dance program significantly improves participants’ motor skills, and it even boosts social skills, according to a recently published study led by Rujuta B. Wilson, MD (RES ’12, FEL ’15), an assistant professor of pediatrics and psychiatry.

Impaired mobility can prevent people with autism or other neurodevelopmental conditions from engaging in exercise or team sports, which prevents them from reaping the physical and mental health benefits of those activities.

Dr. Wilson has been exploring the relationship between movement and social communication as a part of her clinical research program at the Jane and Terry Semel Institute for Neuroscience and Human Behavior and the UCLA Center for Autism Research and Treatment. Studies find that infants and toddlers delayed in crawling or walking also have delayed language acquisition, which affects their ability to engage with their caregivers and explore their environment.

Mobility delays or impairments may be the first sign of atypical development in children with autism spectrum disorder, Dr. Wilson says. In research using wearable sensors to track the movements of infants with increased genetic risk for autism spectrum disorder, Dr. Wilson and her colleagues found that infants with “lower movement variability” were more likely to eventually be diagnosed with autism spectrum disorder. Their research also has found that toddlers with autism show differences in the way they walk, and this affects their communication and adaptive function.

Impaired mobility can prevent people with autism or other neurodevelopmental conditions from engaging in exercise or team sports, Dr. Wilson adds, which prevents them from reaping the physical and mental health benefits of those activities. “When we think about opportunities for these individuals to move through organized physical activity, we may not only be targeting their motor skills and reducing their sedentary activity, but also benefiting a whole range of things, including social skills, language skills and opportunities to have meaningful peer interactions, which can improve mental health and well-being,” Dr. Wilson says.

The Expressive Movement Initiative (EMI) is led by UCLA student volunteers and serves children ages 4 to 17 with intellectual and developmental conditions. Each participant is paired with a UCLA student “buddy” for the duration of the 10-week program. Volunteers are trained not in dance moves, but in how to create a safe environment for participants to experiment with movement. If a child wants to lie down or play with their stuffed animals instead of dance, their buddy will do it with them.

When EMI participants do feel like dancing, which is most of the time, they are encouraged to move in ways that feel good to them that day. Classes alternate weekly between group sessions and one-on-one buddy sessions. The course culminates with a recital that invites participants to show off their favorite moves.

Dr. Wilson and her colleagues continue to study the EMI program’s effects on participants’ social and mobility skills, adaptive functioning and quality of life. The paper, published in May 2024, examined pilot data from a randomized controlled trial and found that 10 weeks of dance helps improve motor skills and communication skills.

There are some intangibles that the study isn’t measuring that may be just as powerful: giving children with autism an activity they can be excited about and share with their parents and siblings, and setting them up for a lifetime of better movement and better quality of life.

“For me, really, the pie in the sky is that there can be an evidence base for programs like this for individuals with neurodevelopmental conditions and that would allow us to be prescriptive about it one day,” Dr. Wilson says. “I can say, ‘Here’s a prescription for dance. And we have data that if your child takes this for 30 minutes once a week, it may have far-reaching benefits for them.’”

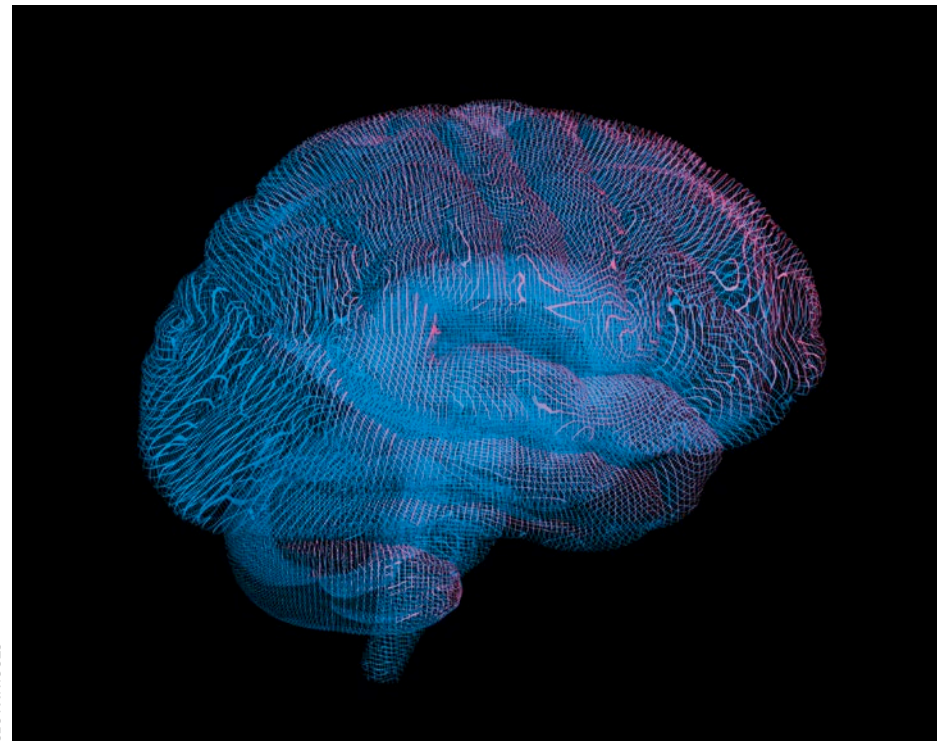
— Sandy Cohen

“A Novel Dance Intervention Program for Children and Adolescents with Developmental Disabilities: A Pilot Randomized Control Trial,” *BMC Sports Science, Medicine and Rehabilitation*, May 14, 2024



“Paint the bubble,” says Gabi Hernandez as she leads a group of young people with neurodevelopmental disabilities through a therapeutic dance program.

## Researchers Uncover Shared Cellular Mechanisms Across Three Major Dementias



**RESEARCHERS HAVE FOR THE** first time identified degeneration-associated “molecular markers” — observable changes in cells and their gene-regulating networks — that are shared by several forms of dementia that affect different regions of the brain. Critically, the UCLA-led research also identified markers specific to different forms of dementia, and the combined findings represent a potential paradigm shift in the search for causes, treatments and cures. “This work provides new insight into the mechanisms of neurodegeneration and identifies new candidate pathways for development of therapeutics,” says Daniel H. Geschwind, MD (RES ’95, FEL ’97), PhD, Gordon and Virginia MacDonald Distinguished Professor of Human Genetics, Neurology and Psychiatry and director of the Institute for Precision Health at UCLA Health.

Previous studies have focused on

a single disorder at a time. Called case-control studies, they compared “diseased” cells with normal ones and often just focused on one brain region. But in this research, the scientists looked at molecular changes across three different forms of dementia that can involve “tau pathology,” the accumulation of abnormal tau protein in vulnerable regions that differ across disorders. They performed single-cell genomic analysis on more than 1 million cells to identify distinct and shared molecular markers in three related conditions: Alzheimer’s disease, frontotemporal dementia (FTD) and progressive supranuclear palsy (PSP).

In addition to validating changes previously observed in Alzheimer’s, they identified dozens of cell types whose changes are shared across multiple dementias and several cell types whose changes in disease were specific to a single disorder, many of which had

not been previously identified. “In dementia, and neurodegenerative disease more generally, specific brain regions and cells are most vulnerable in each disease. This is what leads to the different symptoms and signs across disorders,” Dr. Geschwind says. “Since regional vulnerability is a core feature of the disorders, we reasoned that studying more than one region would give new insights, and that was the case.” Using this study design, the investigators found four genes that marked vulnerable neurons across all three disorders, highlighting pathways that could be used to develop new therapeutic approaches.

Jessica E. Rexach, MD ’12 (RES ’16, FEL ’18), PhD ’10, assistant professor of neurology and neurobehavioral genetics, says this work “profoundly shifted” her perspective on the mechanisms underlying disease susceptibility. “Although these disease-specific differences were among the minority of the changes observed in diseased brains, they were strongly linked to heritability. This surprising finding opens new avenues for understanding why and how certain genes influence the risk of developing one brain disease over another closely related condition,” she says.

Combined, Alzheimer’s, FTD and PSP affect more than 28 million people worldwide. Although Alzheimer’s has been studied extensively, there is no cure, and existing, approved medications only slow disease progression. There are few clinical trials available for FTD and PSP.

“We have created an extensive data resource that paves the way for identifying and exploring new therapeutic candidates for neurodegenerative dementias,” Dr. Rexach says. “We have pinpointed specific molecules that can now be advanced as potential novel regulators of disease in experimental systems — importantly, grounded in primary human disease data. Additionally, we’ve uncovered unexpected conceptual phenomena that may explain why certain cells exhibit more resilience or vulnerability to disease, and we’re eager to investigate these findings further.”

— Will Houston

“Cross-disorder and Disease-specific Pathways in Dementia Revealed by Single-cell Genomics,” *Cell*, October 3, 2024

## Recent Advances Show Promise in Stemming the Growing Prevalence of Diabetes

**A NEW PAPER SURVEYING ADVANCES** in diabetes pathogenesis and treatment explores the complex factors contributing to the onset and progression of the disease, suggesting that an understanding of these dynamics is key to developing targeted interventions to reduce the risk of developing diabetes and managing its complications. The paper’s authors surveyed hundreds of studies that have emerged over the years looking at the causes underpinning types 1 and 2 diabetes and new treatments for the disease. They examine the role that genes, environmental factors, and social determinants of health play and diabetes’ effect on cardiovascular and kidney disease.

What they found shows there are many advances in treatments that could stem the tide of a disease that has struck millions of people around the globe and continues to grow. In addition, some of these advances could be used to treat other disorders. “This review will be the go-to reference for physicians and researchers, providing a state-of-the-art update of where the field is currently, and where it is headed,” E. Dale Abel, MD, PhD, chair and executive medical director of the UCLA Health Department of Medicine, says.

Most patients with diabetes are affected by type 2 diabetes, for which unhealthy diet and obesity are important underlying causes. Type 1 diabetes accounts for fewer than 5% of all cases. As of 2021, about 529 million people around the world were diagnosed with diabetes, representing about 6.1% of the global population, or about one-in-16 people. Prevalence in some regions is as high as 12.3%. Type 2 diabetes comprises about 96% of cases, with more than half due to obesity. Some 1.31 billion people are projected to have the disease by 2050.

Advances in insulins with optimized pharmacokinetics, algorithm-driven

subcutaneous insulin pumps, continuous glucose monitoring and improved tools for self-management have significantly improved the quality of life and outcomes for people with stage 3 type 1 diabetes.

In addition, stem cells could one day replace insulin-producing cells that are lost in type 1 diabetes, Dr. Abel says.

For type 2 diabetes, three classes of glucose-lowering medicines that were introduced in the last 20 years — GLP-1RAs (glucagon like peptide-1 receptor agonists), DPP-4 inhibitors and SGLT-2 inhibitors — have enabled people to control their glucose levels without gaining weight and with a low risk of

developing hypoglycemia. Personalized and precision medicine approaches are being explored to target the molecular mechanisms behind diabetes. However, they must demonstrate that benefits are clinically superior to standard care and are cost-effective. Also, it remains to be seen if precision approaches can be implemented in all settings worldwide, including those with few resources.

Combinations of GLP-1RAs with molecules that target other receptors, such as GIP, have shown even greater efficacy in treating diabetes. Recent trials have also shown that they are very effective in treating obesity, certain types of heart failure, and even sleep apnea, in part because of their potency in inducing weight loss and reducing inflammation. Clinical trials are now underway to test their efficacy in treating other disorders such as Alzheimer’s disease, Dr. Abel says.

— Enrique Rivero

“Diabetes Mellitus — Progress and Opportunities in the Evolving Epidemic,” *Cell*, July 25, 2024



## Scientists Create First Map of DNA Modification in the Developing Human Brain

**A UCLA-LED STUDY HAS PROVIDED** an unprecedented look at how gene regulation evolves during human brain development, showing how the 3D structure of chromatin — DNA and proteins — plays a critical role. It offers new insights into how early brain development shapes lifelong mental health. The study, led by Chongyuan Luo, PhD, assistant professor of human genetics, with colleagues at UC San Francisco, the Salk Institute at UC San Diego and Seoul National University, created the first map of DNA modification in the hippocampus and prefrontal cortex — two regions of the brain critical to learning, memory and emotional regulation. These areas are also frequently involved in disorders like autism and schizophrenia.

“Neuropsychiatric disorders, even those emerging in adulthood, often stem from genetic factors disrupting early brain development,” says Dr. Luo, a member of the Eli and Edythe Broad Center of Regenerative

Medicine and Stem Cell Research at UCLA. “Our map offers a baseline to compare against genetic studies of diseased-affected brains and pinpoint when and where molecular changes occur.”

The research team used a cutting-edge sequencing approach Dr. Luo developed that enables researchers to simultaneously analyze two epigenetic mechanisms that control gene expression on a single-cell basis: chemical changes to DNA known as methylation and chromatin conformation, the 3D structure of how chromosomes are tightly folded to fit into nuclei. Figuring out how these two regulatory elements act on genes that affect development is a critical step to understanding how errors in this process lead to neuropsychiatric conditions.

“The vast majority of disease-causing variants we’ve identified are located between genes on the chromosome, so it’s challenging to know which genes they regulate,” Dr. Luo says. “By studying

how DNA is folded inside of individual cells, we can see where genetic variants connect with certain genes, which can help us pinpoint the cell types and developmental periods most vulnerable to these conditions.”

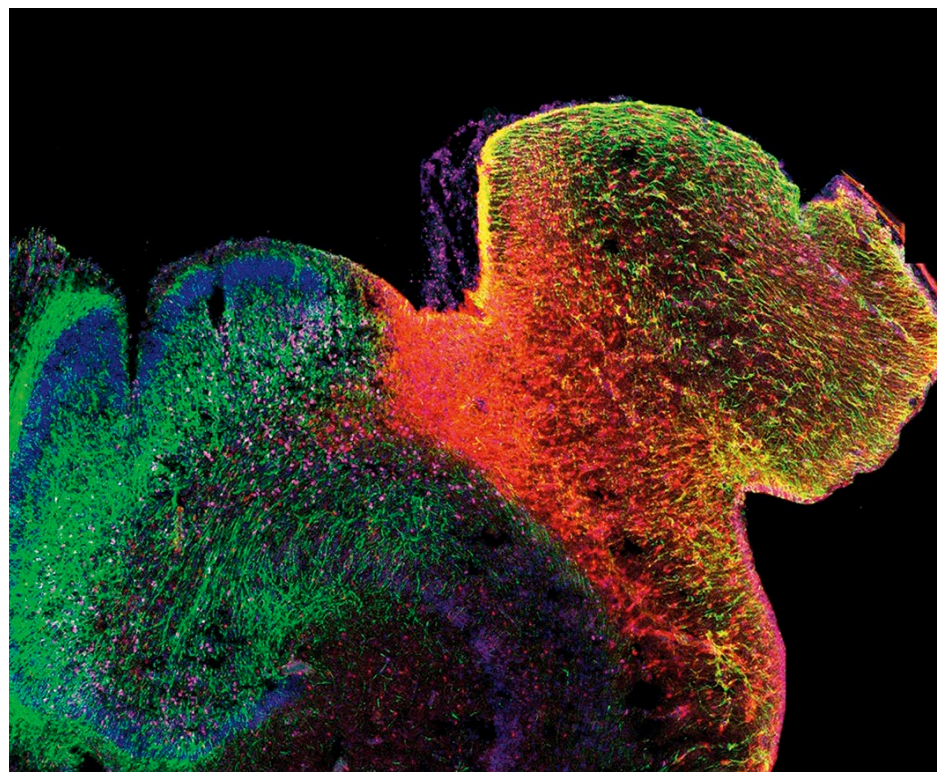
For example, autism spectrum disorder is commonly diagnosed in children aged 2 and over. However, if researchers can gain a better understanding of the genetic risk of autism and how it impacts development, they can potentially develop intervention strategies to help alleviate the symptoms of autism, like communication challenges, while the brain is developing.

The research team analyzed more than 53,000 brain cells from donors spanning mid-gestation to adulthood, revealing significant changes in gene regulation during critical developmental windows. One of the most dynamic periods comes around the midpoint of pregnancy. At this time, neural stem cells called radial glia, which have produced billions of neurons during the first and second trimesters, stop producing neurons and begin generating glial cells, which support and protect neurons. At the same time, the newly formed neurons mature, developing the characteristics they need to fulfill specific functions and forming the synaptic connections that enable them to communicate. This stage of development has been overlooked in previous studies, the researchers say, due to the limited availability of brain tissue from this period.

The findings also have implications for improving stem cell-based models, such as brain organoids, which are used to study brain development and diseases. The new map offers a benchmark for scientists to ensure these models accurately replicate human brain development.

— **Tiare Dunlap**

Temporally Distinct 3D Multi-omic Dynamics in the Developing Human Brain, *Nature*, October 9, 2024



Fluorescent image of a developing human hippocampus.

OLIER PASTOR-ALONSO/UCSF

## New Drug Regimen Can Help Reduce Risk of Breast Cancer Recurrence

**THE FOOD AND DRUG ADMINISTRATION (FDA)** has approved a combination therapy that can help to reduce the risk of recurrence for patients with HR-positive, HER2-negative early-stage breast cancer, which accounts for nearly 70% of breast cancer cases in the United States.

The treatment, using the targeted-therapy drug ribociclib in combination with conventional hormonal therapy, is a significant step forward, UCLA Health cancer experts say. It was approved by the FDA in September 2024.

“This changes how we evaluate and treat patients,” says Dennis Slamon, MD (FEL ’82), PhD, director of clinical and translational research at the UCLA Health Jonsson Comprehensive Cancer Center. “This is a new option that we can now offer patients that can help further minimize their risk of cancer returning.”

Dr. Slamon was involved in the foundational research that led to FDA approval of ribociclib and other related drugs that block the activity of enzymes that promote cell division and cancer growth to treat advanced metastatic breast cancer. Now it has been approved for use in combination with other therapies to treat breast cancer at an earlier stage.

Prior to this, treatment has included endocrine therapy — which blocks or lowers the levels of estrogen production so cancer cells can’t use it to grow and spread — but there is still a risk of the cancer coming back years after the initial diagnosis. For patients with stage 2 disease, there is a 27%-to-37% risk of the cancer returning, and for stage 3 disease



ISTOCK IMAGES

there’s a 46%-to-57% chance of the cancer coming back.

“Endocrine therapy alone has saved countless lives, yet some patients still experience a recurrence of stage 4 disease,” says Rena Callahan, MD (RES ’07, FEL ’11), a UCLA Health oncologist and investigator in the UCLA Health Jonsson Comprehensive Cancer Center. “These recurrences are both devastating and often life-limiting. While ribociclib was already known to extend survival in advanced cases, its potential to prevent recurrence in early-stage breast cancer offers hope for curing many more patients.”

Approval of ribociclib for treatment of early-stage disease followed an international clinical trial, called NATALEE, for which Dr. Slamon was the principal investigator. Participants were randomly assigned to either receive ribociclib plus endocrine therapy, consisting of a nonsteroidal aromatase inhibitor, or to receive endocrine therapy alone. Results of the study were published in March 2024 and showed that the addition of ribociclib with endocrine therapy significantly extended the time a person with stage 2 or 3 HR-positive, HER2-negative

early breast cancer lives without the cancer returning.

“We found that adding ribociclib to the standard hormone therapy resulted in a relative reduction in the recurrence rate by as much as 25%,” Dr. Slamon says. “And that’s huge for this group of patients, who make up a majority of breast cancer cases.”

The study also examined what is called distant disease-free survival — the percentage of patients who are alive and free of metastases at a specific time after diagnosis — and recurrence-free survival. These findings also favored treatment with ribociclib and endocrine therapy. The distant disease-free survival rate was 90.8% for the combination arm, compared to 88.6% for endocrine therapy alone. Patients on the combination had a 91.7% recurrence-free survival compared to 88.6% for endocrine therapy alone. The side effects were similar in both groups, with the most common issues being neutropenia, arthralgia and liver-related events.

— **Denise Heady**

“Ribociclib Plus Endocrine Therapy in Early Breast Cancer,” *New England Journal of Medicine*, March 20, 2024





## Study Finds Potential Link between Statin Use and Increased Risk of Glaucoma

**A STUDY BY UCLA HEALTH RESEARCHERS** found a connection between statin use and cholesterol levels and eye health, suggesting that some people with abnormal lipid levels who use statins might face higher risk of developing glaucoma. The study highlights a significant correlation between the use of statins, which are common cholesterol-lowering drugs, and glaucoma.

Researchers found that among statin users between the ages of 60 and 69, there was a significant increase in the likelihood of developing glaucoma compared to statin non-users, suggesting that statin use may be a risk factor for glaucoma.

The cross-sectional study included 79,742 adult participants aged 40 and older with hyperlipidemia, of whom 6,365 (8%) were statin users. Data was gathered from the All of Us (AoU) Research Program database, an initiative by the National Institutes of Health that began in 2018 and enrolls participants aged 18 and older from 340 recruitment sites across the U.S.

Data revealed that statin users with the highest cholesterol levels may have had worse heart damage, predisposing them to a higher risk of glaucoma. Researchers suggest that while many factors could potentially explain the findings, one possibility is an inverted

U-shaped association, which means that the benefits of statins might increase up to a certain age, peak in middle-to-late adulthood, then potentially decrease. In this case, the highest cumulative effect of statins is seen in the 60 to 69 and 70 to 79 age groups, who may have used statins longer than younger adults.

However, it is possible that in certain age groups, high cholesterol levels — not necessarily the statin use itself — might be a key risk factor for glaucoma. “While the topic has been widely studied, our findings support the hypothesis that the highest severity of high cholesterol levels requiring statin use may be a critical risk factor for glaucoma,” Victoria L. Tseng, MD (RES ’19, FEL ’20), PhD, assistant professor of ophthalmology, says. “Our study may serve as a significant starting point for future research and interventions aimed at reducing glaucoma risk, by prioritizing the control of heart disease.”

— Vanessa Villafuerte

*“Associations between Statin Use and Glaucoma in the All of Us Research Program,” *Ophthalmology Glaucoma*, July 31, 2024*

## VA and UCLA Partner to Revamp Campus Garden for Veterans

**FOR AS LONG AS SHE CAN REMEMBER**, doctors have told U.S. Air Force veteran Cyntrea Cotton that her chances of developing high blood pressure were elevated. With a long family history of hypertension, they warned, she would likely have to manage high blood pressure for the rest of her life. “But today, it’s gone,” says Cotton. “I no longer have high blood pressure, after eating more raw and less processed foods. I’m 48 years old now and healthier than ever.”

Cotton credits the dramatic improvement in her health to a wholesome, nutrient-rich and organic-heavy diet, inspired by the Veteran’s Garden at the West Los Angeles VA Medical Center. “The Veteran’s Garden is the largest farm integrated within a health system in the country,” says Katie Fruin, MD (RES ’23), a preventive medicine fellow in the UCLA Health Department of Clinical Nutrition. “The garden can grow produce for 1,200 veterans. However, when the garden’s directors retired, their positions were never refilled, leaving this amazing campus resource underutilized.”

That is, until 2021, when whole-health program manager and nurse practitioner Jennifer Allen began working to restore the once-thriving 15-acre garden. Led by Allen, a team of VA staff and volunteers — including UCLA Health staff, veterans and students — are working to revive this campus resource. Most of their work in the garden involves growing fresh vegetables, fruits and flowers.

Many of the volunteers, mainly local and student veterans, have noted the emotional and physical impact the project has had on them. With the support of UCLA’s Clinical Nutrition Department, Dr. Fruin is launching a fundraising campaign to hire a full-time garden manager and to purchase additional supplies to cultivate the garden, creating a space where veterans experiencing food insecurity or post-traumatic stress disorder (PTSD) can find a sense of community and safety.

“I think it’s easy to overlook the fact that, in our medical model, life-saving interventions can extend beyond clinic visits and medications,” Dr. Fruin says. “For so many veterans, the time they’ve spent in the garden after their service and the trauma they’ve endured has been the most crucial part of their healing.”

Another driver involves preventive medicine, or in this case, food as medicine. “Preventing diet-related diseases is crucial, especially for veterans, who experience higher rates of food insecurity and preventable conditions,” Dr. Fruin says. “A quarter of veterans face food insecurity — double the rate of the civilian population. Eighty-seven percent have hypertension, 78% are overweight

or obese and one-in-four have diabetes. About half of veterans experiencing food insecurity report suicidal ideation.

“While every health system has a pharmacy, few have a ‘food F-A-R-M-acy,’ though food is the most vital medicine,” Dr. Fruin says. “The garden provides fresh produce and fosters a connection to how food is grown, enhancing understanding and ownership of one’s health.”

After years of battling PTSD following her time in the service, Cotton said the garden has not only inspired a change in her diet, but it also helped her develop a focused awareness and a greater presence in the moment, enabling her to process PTSD-related symptoms more effectively.

Finding a sense of community, hope and healing is at the heart of the Veteran’s Garden, and its momentum is just beginning to grow through the efforts of its volunteers. “As a female veteran with a lot of anxiety, just feeling safe and being able to come here and let my guard down has been priceless,” Cotton says.

— Vanessa Villafuerte



U.S. Air Force veteran Cyntrea Cotton tends to the Veteran’s Garden at the West Los Angeles VA Medical Center near the UCLA campus.

# DR. SANAZ MEMARZADEH

## STEPS INTO THE U MAGAZINE SPOTLIGHT

Since she was a very young girl, Sanaz Memarzadeh, MD (RES '00, FEL '03), PhD '08, could not imagine a life without science. "Maybe since I was, like, 3 or 4 years old," she says. "I really think I was meant to do this." There are other passions in her life, to be sure: dancing, music, sports. But science and medicine take primacy. That passion is her North Star as a physician-scientist, working as an oncologic surgeon in the operating room to cure ovarian cancer and as a researcher in the lab to understand why it so often comes back and to reveal the mechanisms to keep that from happening. "My life's goal," Dr. Memarzadeh says, "is to make sure that when we treat a patient with ovarian cancer, we eradicate the cancer, and if a woman is facing relapse, we provide treatments that can eliminate the cancer so that it does not come back again."

### WHEN DID YOU FIRST START TO THINK ABOUT SCIENCE?

As a little kid growing up in Iran, I loved taking a seed and watching it grow to become a plant. To me that was a wonderful scientific project. Most of the girls would play with Barbies and other toys, but I was really interested in doing experiments. I was very much into mathematics, but I decided early on that I had an interest in medicine and that I wanted to pursue that track.

### WHAT WAS YOUR FIRST EXPERIMENT?

I think my first experiment in a laboratory setting was as a neuroscience major at the University of Pittsburgh. It was a procedure called patch clamping — it was kind of amazing that the professor trusted me, as an undergraduate, to work in his lab — in which I would take little neurons that we had grown and put a small electrode into them, and then give them drugs and measure electrical activity. It was a complex experiment, but I was so determined that I figured out how to do it.

### WHAT HAS BEEN YOUR GREATEST CHALLENGE IN YOUR WORK?

It is very critical for physician-scientists to be able to balance their time, in terms of

their clinical activities and their research. That can be a challenge, and striking that balance has become more difficult in recent years. I don't really know why that is — it surprises me. I'm still trying to figure it out.

### WHERE DOES YOUR INSPIRATION COME FROM?

My patients are my inspiration. I am struck by the bravery of the women who are facing these diagnoses, who come to me diagnosed with ovarian and some forms of aggressive endometrial cancer, they receive chemotherapy, they receive surgery, and we're happy when we think the disease is in remission. But the reality is that in the majority of those cases I know the cancer will come back. And often my patients fear that, too.

### WHO IS YOUR SCIENCE HERO?

Rosalind Franklin. She was a woman scientist who was part of the team whose work led to the discovery of DNA being a double helix. She was the X-ray crystallographer, working with two men, James Watson and Francis Crick, and they were the ones who got all the glory and she got very little credit in her lifetime. But the pictures that she took were essential to

understanding the molecular structure of DNA. She died at a young age, from ovarian cancer. I keep a photograph of her on my desk.

### WHERE ARE YOU HAPPIEST?

I'm very happy when I spend time with my little doggie. That's really relaxing and a lovely thing to do. I'm happy when I'm in the operating room and a surgery is going smoothly and everyone is in their zone doing their thing and the patient has a good outcome. I'm happy when I'm talking with my colleagues about science and we're discussing a complex problem, but we feel that we are finding solutions and we're moving the science forward.

### WHAT DO YOU CONSIDER TO BE YOUR FINEST ACHIEVEMENT?

I don't think I've had a finest achievement. I'm my own biggest critic, and I always think I could do better and that there's more that I can do.

### WHAT ARE THE QUALITIES OF A GREAT SCIENTIST?

Perseverance and the determination to not give up. That's one of the first things I learned as a PhD student — your experiments don't always work, but you have to just keep going. And also being collaborative, because no one can do everything by themselves. It's critical that you work with others, engage the best minds that are around you in the science. And, of course, curiosity. You have to be curious to do science.

### WHAT CHARACTERISTIC MOST DEFINES YOU?

Persistence. I don't give up. I'm trying to solve ovarian cancer, and I'm not going to give up until we do.

### WHAT IS YOUR GREATEST VIRTUE?

Honesty, I think.

### WHAT IS YOUR GREATEST FAULT?

I'm a workaholic. At least my family thinks I am.

### WHAT IS YOUR MOTTO?

Don't give up.

### WHAT DO YOU VALUE MOST IN YOUR COLLEAGUES AND/OR YOUR STUDENTS?

I think it is the passion all of them bring to



their work and, particularly among my clinical colleagues in pathology and radiology and medical and radiation oncology, the caring they have for the patients. I really value that. Among my science colleagues, it is, in addition to their tremendous expertise, their dedication to clinical translation. And my students and my lab team of scientists, it is their honesty, their curiosity and their willingness to work hard and desire to advance the field.

### WHEN DO YOU NOT THINK ABOUT SCIENCE?

If I'm being really honest, I'm either thinking about science or I'm thinking about my patients. The two are connected; my brain almost always is thinking of one or the other.

### WHAT IS YOUR MOST TREASURED POSSESSION?

A statuette of a Greek laurel wreath that was given to me by a patient with ovarian

cancer. She said to me, "I hope you solve this problem. I hope you are the one who makes this discovery." I thought it was a beautiful gift, and I have kept it in my office ever since.

### TO WHICH SUPERHERO DO YOU MOST RELATE?

Honestly, that's not something that I think about. But I do think that we're surrounded by super human beings. It could be a nurse or a medical assistant, a scheduling team or a scribe — people who care deeply about what they do and about others.

### WHAT ARE YOU MOST COMPULSIVE ABOUT?

Everything. I'm just a compulsive person.

### WHAT IS THE BEST MOMENT IN YOUR DAY?

The times when I can go for a run in the morning, because it helps me clear my

mind. And at the same time, it's also when I can think through problems more clearly.

### WHAT IS YOUR DEFINITION OF HAPPINESS?

Having personal peace.

### WHAT'S YOUR DEFINITION OF MISERY?

Conflict and combat.

### WHAT BOOK HAS INSPIRED YOU?

This is going to sound very geeky, but it's Robbins and Cotran's *Pathologic Basis of Disease*. This is a book that I read cover-to-cover two or three times during medical school. And I love this book because it's about pathology, but it's also about pathophysiology of a disease. It breaks down each disease into the basics, and then how the cells look and what the processes are. And I just love that. It's what I love about medicine and science. ●

# RAPID RESPONDERS

With a pair of gifts totaling \$12 million, influential Las Vegas developers and philanthropists donate to expand UCLA Health's Mobile Stroke Unit Program, multiplying its capacity to respond quickly.

**Brett Torino**  
*Founder, Torino Companies*  
*Chair, Brett Torino Foundation*

**Larry Canarelli**  
*CEO, BRUIN Capital Partners*  
*Chair, Canarelli Family Foundation*

**Heidi Canarelli**  
*President, Canarelli Family Foundation*

When UCLA Health launched its Mobile Stroke Unit Program seven years ago — the first of its kind on the West Coast — it was with one specialized ambulance to respond to 911 calls to deliver time-critical treatment to patients experiencing a stroke. “Rapid response is crucial, because the sooner a stroke is treated, the better the patient’s outcome,” May Nour, MD (RES ’13, FEL ’14, ’15),

PhD, medical director of the UCLA Arline and Henry Gluck Stroke Rescue Program, says. “We know from research at UCLA that in a typical stroke, every minute that goes by without treatment, 2 million brain cells die.”

Since then, the program has stretched to cover the geographically expansive Los Angeles County. That is until philanthropists and prominent developers in Las Vegas — Brett Torino and Larry Canarelli and his wife, Heidi — stepped forward to extend their resources through their individual foundations to expand the program with two new units, tripling its capacity.

“Life is a service industry,” says Torino, whose Torino Companies has developed commercial properties along the famed Las Vegas Strip. “It’s not about making and acquiring; it’s about making and giving.”

Until the Canarellis’ and Torino’s gifts, one mobile stroke unit has been covering different geographic areas of Los Angeles County on alternate days. “When we heard that, I thought, ‘Oh, then you need to know what day you can have a stroke on,’” says Larry Canarelli, who as a residential developer has built more than 20,000 new homes in the Las Vegas area. “If you are in Torrance on the day when the stroke unit is operating in Beverly Hills, you’re not going to benefit from it.”

One of the new units will be dedicated to the San Fernando Valley, which has been identified by the Stroke Rescue Program as an area in Los Angeles County with the greatest need, and the UCLA West Valley Medical Center. Torino and the Canarellis spoke with author, podcaster and UCLA Health System Board member Kimberly Friedmutter, who was instrumental in procuring these gifts. Their conversation has been edited for length and clarity. A feature story about the Mobile Stroke Unit Program follows this conversation.



Brett Torino.

I think a nice place to start would be to talk about how your experiences in life have shaped your philosophies and approach to philanthropy.

**Brett Torino:** I've always been a worker, and I think that for people who work hard, who have had the good fortune to be successful and who understand the value of money, there are certain principles that go along with that. And an essential principle, I believe, is giving. I've understood from a very young age that when you do something for someone else, it feels good. That's always been a guiding principle for me as I've gone through life.

**Larry Canarelli:** For part of my life growing up in Oregon and California, I was homeless. We lived in a tent and logging

camp in the forest and on the rivers. The first time I lived someplace with indoor plumbing was in an orphanage when I was 5 years old. But never in my life did I feel that I was less than or different from anyone else. As we've gone through life, Heidi and I have been very fortunate and had wonderful opportunities, and the idea of giving back — to do good for the world because the world has done good for us — is something that is embedded in our hearts.

You live and do business in Las Vegas but have strong connections to UCLA.

**Larry Canarelli:** I spent five years as an undergraduate at UCLA. It was like a fairytale pathway for me, and I still feel that infatuation and dedication to the university.



Heidi and Larry Canarelli

BECCA SCHWARTZ

**Heidi Canarelli:** We were both students and met the day before the start of the third quarter of our senior year. It was love at first sight. And as alums, we feel it's important to give back because we got such a fine education there.

**Brett Torino:** My exposure to UCLA was a little different. First, my father had a liver transplant there, maybe close to 40 years ago, and he couldn't say enough good things about UCLA. Then, about 18 months ago, I had a surgery there, and I spent 14 days at UCLA Santa Monica Medical Center. That gave me an opportunity to see first-hand how people function within that environment, and it really opened my eyes. I had an opportunity to meet incredible young men and women from diverse backgrounds, and to hear their stories. That was very humbling, and also inspiring. Not only did they have a lot of compassion, but there was a fire in them to succeed, and also to do something good for someone else. That resonated with me. The more I interacted with them, and with my doctors and the nurses and staff, the more the thought began to germinate that I wanted to be a part of something like this.

Larry and Heidi, there is a more recent connection for you, as well.

**Heidi Canarelli:** Yes. Our daughter, Stacia, had a very sudden onset of a medical issue, and it was determined she had a rare brain tumor. UCLA was one of the first medical centers we contacted. Dr. Linda Liau [chief of neurosurgery] personally took her case. She did the surgery and was able to remove 75% of the tumor. Stacia is now stable and being followed by the neurology department, and she is on a medication that was developed largely as the result of work done at UCLA.

**Larry Canarelli:** UCLA has meant a lot to our family in many different ways.

There are many opportunities to act on your desire to give back through philanthropy, and your foundations support a number of different causes. What was it about the Mobile Stroke Unit Program that engaged you?

**Heidi Canarelli:** Honestly, as I get older, my biggest fear is having a stroke because it is so incapacitating. I first heard about the program from you, Kimberly, and then I also met with Henry Gluck [whose gift established the program in 2017], and it was very exciting. Although these stroke units are in California and we're in Nevada, I connect to the idea that they can help other people who may have the same fear as me. I love the whole concept.

**Brett Torino:** I also was motivated by knowing Henry Gluck. We have a bit of shared history in Las Vegas. Henry essentially said to me, "How do you feel about putting your name on a building versus putting your name on something that has tangible

results almost instantaneously?" That is the Mobile Stroke Unit Program. Being engaged with this program is doing something directly to save lives and to limit disability. It is quantifiable, and its impact is immediate.

**Larry Canarelli:** When we heard about the Mobile Stroke Unit Program and the success it is having to help people, we felt this would be a great place for us to put our resources. It is wonderful to do something where you can say that you truly are helping people, and, as Brett noted, that is having an immediate result. That is very gratifying.

**Brett Torino:** And it's not just the impact this will have on the individual. Because stroke can be so debilitating, it has a tremendous impact on families. So, there is a multiplication factor to the benefits of this program. When someone has a stroke — especially if it is the breadwinner or the person who stays at home to raise the family — it changes everything. To me, the appeal of having an opportunity to save an individual and to save a family from that grief, that's a big deal.

Do you envision your gifts having an impact beyond the immediate need to expand the program?

**Heidi Canarelli:** We hope the donations we have made to the program will serve as a model to bring it more attention, and that others will be inspired to become involved and that it will continue to grow. It is easy to generate support for high-profile programs like cancer or for a children's hospital, but there are other programs, like this one, that perhaps are not as much on people's radar but still have a dramatic and life-changing impact on people's lives.

**Brett Torino:** Exactly. Anything you do that inspires somebody to take action is a good thing. Our gifts are not an end unto themselves; we hope they are a catalyst to help continue to grow the program. They are stepping-stones toward a larger goal. ●



One of the new mobile stroke unit ambulances was featured in February at the American Heart Association's International Stroke Conference in Los Angeles.

JESSICA PONS

# WHEN EVERY MINUTE COUNTS

Time is brain, the saying goes, and for every minute that passes following a stroke, some 2 million brain cells die. When the call comes, UCLA Health's mobile stroke unit hits the streets to get help to patients as quickly as possible, saving lives and preserving futures.

**By Sandy Cohen**

Paramedics responding to a stroke call in Torrance move a patient to the waiting UCLA Health mobile stroke unit ambulance.



**IT WAS LUNCHTIME, AND ROBERTA GRADY HAD JUST GRABBED** a sandwich and a cup of coffee during her volunteer shift at Calvary Chapel South Bay in Gardena when she collapsed. Someone dialed 911, and within minutes two ambulances arrived. One was the local paramedic. The other was a UCLA Health mobile stroke unit (MSU), a specialized rig with a compact brain scanner and UCLA Health stroke experts on board.

The first responders quickly determined that Grady was experiencing a stroke and brought her into the mobile stroke unit, where they immediately began the kind of diagnostic assessments and treatments that normally take place in a hospital's Emergency Department. Inside the MSU, she underwent a computed tomography (CT) scan and CT angiography, which showed the precise location of the thrombus in the blood vessel that was impeding blood flow. Under the clinical direction of a UCLA Health vascular neurologist connected to the ambulance by state-of-the-art telemedicine, a nurse on board administered a thrombolytic medication to start breaking up the clot. Meanwhile, the MSU paramedic notified the closest, most appropriate center for stroke care that they were bringing an acute stroke patient who would need emergent, endovascular thrombectomy — a minimally invasive surgical procedure to remove the blood clot.

Within a half-hour of the stroke, Grady was undergoing treatment at Providence Little Company of Mary Medical Center in Torrance.

Grady, 70, doesn't remember the ambulance ride or the surgical procedure, but she clearly recalls walking out of the Torrance hospital on her own two feet eight days later, in May of 2024. She has since made a full recovery and is back to volunteering at her church.

"It's because the mobile stroke unit was able to get to me as fast as they did," Grady says. "I'm walking. I'm talking. I'm driving. I'm 100%."

## Stroke is a leading cause of long-term disability, with associated annual costs in the tens of billions of dollars.

**TIME-TO-TREATMENT IS CRITICAL. FOR EVERY MINUTE THAT** passes following the onset of a stroke, 2 million brain cells die, says Jeffrey L. Saver, MD, director of UCLA Health's Comprehensive Stroke and Vascular Neurology program. Though there are some 86 billion neurons in the human brain, studies show that a typical large-vessel ischemic stroke — one involving a clot, like Grady's — kills 120 million neurons and 830 billion synapses an hour. In terms of normal neuron loss in brain aging, ischemic stroke ages the brain 3.6 years for each hour without treatment.

"With the mobile stroke unit, we can give the blood-vessel-opening thrombolysis drugs far earlier than if we have to wait until the patient arrives at the hospital," Dr. Saver says. "This is a situation where bringing the hospital to the patient makes a tremendous amount of sense."

A study published in 2021 in the *New England Journal of Medicine* found that treatment in a mobile stroke ambulance leads to better patient outcomes, both immediately and three months later. The study looked at data from seven urban centers in the United States and found that patients treated in a mobile stroke unit experienced less disability 90 days later compared with those receiving standard emergency medical treatment.

Nationwide, nearly 800,000 people experience a stroke each year — one every 40 seconds, according to the U.S. Centers for Disease Control



(From left) Curtis Morgan-Downing, RN; CT technologist Lubna Mall, CRT; and MSU nurse manager Kayla Kilani, RN, MPH, begin assessment and treatment of the patient inside the mobile stroke unit ambulance.

and Prevention (CDC). Around 87% of these are ischemic strokes, in which blood flow to the brain is blocked by a clogged artery or blood clot. The remainder are hemorrhagic strokes, which occur when a blood vessel in the brain ruptures and bleeds. Mobile stroke ambulances have the capabilities to treat both types.

Risk of stroke increases with age; studies show more than 70% of strokes occur in people 65 and older. Certain populations are also at greater risk. For instance, the risk for Black adults is nearly double that of white adults, according to the CDC. High blood pressure, high cholesterol, smoking, obesity and diabetes are all associated with stroke. One-in-three adults in the U.S. has at least one of these risk factors, the CDC says.

Stroke is a leading cause of long-term disability, with associated annual costs in the tens of billions of dollars. Stroke survivors may experience paralysis and difficulty with speech and cognition, as well

as emotional challenges. Some people, like Grady, recover completely, while others experience ongoing disability. Quick treatment can make a huge difference.

For the nearly 15,000 Angelenos who each year experience a stroke requiring ambulance response, “the mobile stroke unit gives them the chance to be treated in the time frame when there is the most brain to save,” Dr. Saver says.

**THE WORLD’S FIRST MOBILE STROKE UNIT HIT THE STREETS OF** Homburg, Germany, in 2011. Physicians are part of the emergency-response team there, and two doctors had the idea to install CT scanners in ambulances to expedite treatment for stroke patients.

Three years later, the University of Texas Health Science Center at Houston established the first mobile stroke unit in the United States. UCLA Health launched its Mobile Stroke Unit Program — the first in the West — in 2017, with support from the UCLA Arline and Henry Gluck Stroke Rescue Program. Dr. Saver tapped May Nour, MD (RES ’13, FEL ’14, ’15), PhD, who had recently completed her fellowship in vascular neurology and interventional neuroradiology at UCLA Health, to build and direct the Arline & Henry Gluck Mobile Stroke Rescue Program.

This sent Dr. Nour on a deep dive into ambulance construction and understanding the web of emergency medical services that operate within Los Angeles County’s 88 cities and 140 unincorporated areas, devising how a specialized stroke ambulance could be used across the vast area, within different EMS rules and jurisdictions.

With support from the Los Angeles County Board of Supervisors and Emergency Medical Services Agency, the first UCLA Health mobile stroke unit was designated a shared regional resource, working with fire department paramedics in Santa Monica, Los Angeles city and county, Torrance, Beverly Hills and Long Beach.

“That was an important milestone in being able to serve the citizens of the L.A. County community,” Dr. Nour says. It also helped complement stroke-specific training and stroke recognition for paramedics countywide, she says.

The partnership between UCLA and the local fire departments has been essential to the program’s success, says Kayla Kilani, RN, MPH, nurse manager of the mobile stroke unit. “Working together seamlessly ensures that we can get to patients as quickly as possible, deliver advanced stroke care on scene and truly make a difference in outcomes,” she says.

The mobile stroke unit rotates among participating agencies six days a week, spending a day or two responding to stroke calls that come via 911 at each. Though the unit is a program of UCLA Health, it is agnostic in its hospital response, bringing patients to 15 designated stroke centers across the county.

“We bring them to Kaiser hospitals, to Cedars-Sinai, to many different health care systems,” Dr. Saver says. “We’re operating as a service to the people of Los Angeles; our goal is to improve care for everybody.”

**ON A TYPICAL FRIDAY AT THE TORRANCE FIRE DEPARTMENT,** firefighter-paramedic Mike Buchs monitors three radios, listening for calls indicating possible stroke symptoms: sudden numbness or paralysis on one side of the body, facial drooping, confusion, trouble speaking.

“We got a call,” he tells a visitor on a recent morning, while his UCLA Health colleagues — Curtis Morgan-Downing, RN, and CT technologist Lubna Mall, CRT — calmly but quickly head out to the rig, which is plugged in near the fire engines to keep its onboard CT scanner charged.

continued  
on p. 28 —

# One Family’s Stroke-Rescue Mission

By Marina Dundjerski

IT WAS A RIVETING STORY, AND AS businessman and philanthropist Henry Gluck listened, his conviction grew that he needed to do something to bring this recent innovation he was hearing about to the Los Angeles region. A patient had suffered a hemorrhagic stroke, a sudden bleeding into the brain, and a highly specialized ambulance with equipment and staff trained to manage such cerebrovascular events had been dispatched. The medical team acted quickly to assess the patient, using a compact CT scanner in the vehicle to pinpoint the location of the bleed. They inserted IVs and prepped the patient with contrast and other necessary protocols so that he would be ready for treatment when they got to the hospital. Such rapid response is essential; for every minute that ticks by as the brain is deprived of blood, an average of 2 million brain neurons die, which can lead to permanent incapacity, brain damage or death.

Gluck also watched a video of a life-saving procedure on a patient who had been transported after suffering an ischemic stroke, one involving a clot. The result, he recalls, was near miraculous. “The second he opens his eyes and starts talking, everyone starts applauding. It was immediate,” he says. “That was really rewarding.”

Witnessing the real-time impact of a rapid-response stroke unit impressed Gluck beyond words. “How can I not support this?” he says firmly.

When Gluck was approached by UCLA Health leadership about making a foundational gift to bring such a program to UCLA, he first talked it over with his family — his wife, Arline (who passed away in March after 71 years of marriage); their

daughter, Tracey; and son, Ron. The choice was clear, he recalls. “We were already involved in so many causes. But I said to them, ‘The stroke thing is different. We are going to be involved in something with the knowledge of it saving lives every day.’ I explained to them the emotional significance, and that if someone is suffering from a stroke and they call 911 we go there even if they are on the street.”

It didn’t take long for the family to decide they wanted to help UCLA Health launch a rapid-response stroke program in Los Angeles, and the Arline and Henry Gluck Stroke Rescue Program — the first program of its kind in California — was established in 2017.

Now, hardly a week goes by that someone doesn’t mention to him that they saw the program’s mobile stroke unit, says Gluck, the founding and current chair of the UCLA Health System Board. “Every time somebody tells me that, I know that there’s a life that’s being saved,” Gluck says. “My family and I will never know who, and we will never see the results, but we’ll know it’s making a difference. I don’t know what else you can do where you get that immediate satisfaction. It gives me and my family a lot of joy because our name is on that vehicle,” Gluck says, noting his wife would be proud of the program’s ongoing work.

And it’s not just about saving lives, but also preserving quality of life, says Tracey Gluck, managing director of the Gluck Group for J.P. Morgan. The quick response helps survivors avoid potential paralysis, brain damage and speech loss. “To see a patient receive treatment within minutes is amazing,” Tracey Gluck says. “There are situations where people can’t move their arms and the team does its work in the mobile stroke unit to get treatment started, and then at the hospital they use the instrument to go up the groin through the blood vessels to pinch out the clot, and all of a sudden the person’s moving their arm.”

Henry Gluck, a former CEO of Caesars World who helped bring the first upscale shopping mall to the Las Vegas Strip, recites stroke statistics with the passion and ease of a businessman who is deeply committed to his investment. The factoid that resonates with him most: One in every four individuals in the U.S. will, at some point in their life, suffer a stroke. “That is huge,” he says. “That’s an incredible statistic.”



Henry Gluck and his daughter, Tracey Gluck, with Los Angeles Dodgers manager Dave Roberts during National Stroke Awareness Month in May 2023.

And it’s one that hits close to home. In 1969, Gluck’s father died at the age of 70 after suffering a series of strokes. “We lost him relatively early — they didn’t know much in those days,” Gluck, who is 96 years old, says wistfully. “Medicine is exponential.

now,” she adds, “is that there are two more units coming.”

Philanthropy remains essential to the UCLA Arline and Henry Gluck Stroke Rescue Program and the expansion of its lifesaving work. The Glucks continue to

## “My mission, before I write the final chapter, is to blanket the city with these specialized stroke units.”

The advancement of today is beyond the way they dealt with it then. The medications available, the expertise we have today, the education about lifestyle. All of it is part of a formula to discourage strokes.”

Both father and daughter continue to actively spread the word about stroke awareness, and they say this meaningful work with the stroke program is a permanent piece of their lives. In May 2023, as part of National Stroke Awareness Month, they were invited to throw out the ceremonial first pitch at Dodger Stadium. And the UCLA mobile stroke unit was on hand in the parking lot at the stadium entrance, as well. “People were enamored with it,” Tracey Gluck says. “They’d never seen anything like this. The exciting thing

network to recruit new donors and work behind-the-scenes to help overcome regulatory complexities and other red tape.

“My mission, before I write the final chapter, is to blanket the city with these specialized stroke units,” Henry Gluck says, “particularly in those areas where there is a lower socioeconomic status and a higher prevalence of strokes.”

Adds Tracey Gluck: “I know that my involvement is helping save lives today, tomorrow, the next day. It doesn’t matter what time or what day of the week, it’s about helping people, and that’s a great feeling to have.”

*Marina Dundjerski is a Los Angeles-based writer and author of UCLA: The First Century.*



continued  
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The mobile stroke unit responds to locations it can reach within about 20 minutes. Dr. Nour's research determined this would allow the team to serve as many communities as possible within a 10-mile radius of each participating fire department. The Torrance team, for example, can reach stroke patients as far north as Inglewood, as far east as Carson and Compton and west to the South Bay beach cities.

Buchs, a 29-year Torrance Fire Department veteran, drives the rig, which is significantly heavier than an ordinary ambulance — the CT scanner alone weighs nearly 1,000 pounds. The vehicle is also equipped with cameras and computers to facilitate telemedicine connection with a vascular neurologist, who directs patient care in real time when not traveling with the team. Digital technology also allows for instantaneous transfer of CT scan results to remote physicians and receiving hospitals.

Diagnostic scanning onboard the ambulance is the game-changer in stroke treatment, Dr. Nour says. Symptoms can look the same whether a stroke is ischemic or hemorrhagic, but the in-ambulance treatment and level of hospital care required differ depending on stroke type. A patient experiencing an ischemic stroke can receive clot-dissolving medication en route to the receiving hospital. Patients experiencing a hemorrhagic stroke may receive drugs to reduce blood pressure and reversal agents for blood-thinning medications even prior to their arrival at a comprehensive stroke center.

"Accurate diagnosis in the field directs patients toward the most appropriate hospital," Dr. Nour

says. "Saving half an hour can make a difference in someone's life, and afterward in someone's quality of life."

By the time the mobile stroke unit arrives on scene at a call, a traditional ambulance from the nearest fire department is usually already there. Paramedics from both units, along with the nurse or doctor from the stroke team, assess the patient. Are the patient's deficits disabling? When was their last known well time? When did symptoms begin? The initial inquiry is about quickly assessing the patient so as not to delay care or the paramedics' work, says Morgan-Downing, who has been working with the UCLA Health mobile stroke unit for two-and-a-half years.

The time since onset of symptoms is important because clot-busting medications for stroke can only be given within a strictly observed window. If too much time has passed, irreversible damage to the brain tissue will not allow patients to benefit from care and may lead to harm, Dr. Nour says. Every paramedic in L.A. County assesses potential stroke patients with the Los Angeles Motor Scale, which was developed by Dr. Saver and is used worldwide. It looks for facial droop, weakened grip strength and "arm drift," or the inability to hold both arms up at the same level.

Within minutes, a patient who appears to be having a stroke can be inside the mobile stroke unit's CT scanner, which resembles a large

The patient undergoes a computed tomography scan of the brain inside the mobile stroke ambulance.



Dr. May Nour, director of the Arline & Henry Gluck Mobile Stroke Rescue Program, remotely reviews the patient's results and consults with medical staff in the MSU ambulance.

metal donut. The machine provides 3D images of what's happening inside the patient's brain and can reveal the precise location of a blood clot or area of bleeding. The scan takes about five minutes, says Mall, a CT technologist who joined the mobile stroke unit after decades working in hospital emergency rooms. She digitally transmits the images to the consulting physician, who can also observe the action inside the rig through its webcams. While the initial scan shows the tissue of the brain, a second scan performed with contrast reveals the health of the brain's blood vessels and identifies blockages prior to the patient arriving at the hospital. Meanwhile, the nurse on duty establishes an IV line and begins administering the appropriate medication while traveling to the nearest stroke center.

With traditional ambulance response, none of these stroke-specific responses happen until the patient reaches the hospital. Studies show the

UCLA Health mobile stroke unit treats patients on average 30 minutes faster in Los Angeles County compared to standard ambulance response.

"You may be seeing patients 15 minutes after the start of the stroke, when virtually the entire brain is still salvageable, and you have a chance to make a greater difference than you can in the hospital," Dr. Saver says. "It's very exciting."

Buchs shares the story of one patient who was experiencing paralysis on half of his body when the mobile stroke unit arrived on scene. By the time they reached the hospital, after clot-busting medications had been administered, the patient was able to wave to the crew with his previously paralyzed arm.

**LOS ANGELES COUNTY SPANS MORE THAN 4,000 square miles — too much area for a single stroke van to cover. Still, the UCLA Health mobile stroke unit has, since its launch, responded to more than 1,900 calls and treated more than 320 patients.**



The need, however, is far greater. “Los Angeles is a big area, with 10 million people, and the one stroke unit that we’ve been using has been able to reach only a small fraction of them at any given time,” Dr. Saver says.

Dr. Nour envisions a day when mobile stroke units “are part and parcel of the fabric of EMS care across Los Angeles County.” To that end, she and her team created a geospatial map of where strokes occur most in the county so future units can be placed in areas of greatest need. The map shows seven-to-10 units are needed to cover the entire area, she says. “With the help of philanthropy, we’re now on our first step of expanding that fleet.” UCLA Health is launching two new mobile stroke vehicles in 2025, thanks to donations from a pair of Las Vegas-based philanthropists and their family foundations. (See “Rapid Responders,” page 18). One of these new units will be dedicated to serving the San Fernando Valley. The other will join the existing rotation of participating fire departments across the county. The new vehicles are equipped with state-of-the-art CT scanners that deliver faster imaging and higher image resolution, Dr. Nour says.

Having two additional units means “we’ll be able to position them in the stroke hot spots of the county,” Dr. Saver says. “We’ll be able to go to those areas where it’s most needed and ensure we can treat as many patients as possible.”

Philanthropy is essential to the Mobile Stroke Unit Program because most of the services it provides are not yet eligible for reimbursement through Medicare or other insurance carriers. Although the care provided by the unit is the same provided in a hospital, the novel setting means no billing “place of service” currently exists, Dr. Nour says. “This is a new paradigm.”

## Dr. Nour envisions a day when mobile stroke units “are part and parcel of the fabric of EMS care across Los Angeles County.”

It is philanthropic funds and county support that make operation of the mobile stroke unit possible. The hope, Dr. Nour says, is that health insurance ultimately adapts to this new model, which a 2023 study shows is clinically effective for patients and cost-effective for health care systems. “Reducing debility and disability means reducing health care costs,” Dr. Nour says.

Both Dr. Nour and Dr. Saver say they’re proud to spearhead such innovative and effective care for stroke patients across Los Angeles County. “One thing that I really value is innovation, and also thinking outside of the box and building new infrastructures,” Dr. Nour says. “I was very fortunate to come upon this project — a project that bridges gaps between different groups of people and is very multidisciplinary, just like my training. This really fueled in me the ability to see how we can revolutionize the landscape of pre-hospital stroke care.”

Dr. Saver says the Mobile Stroke Unit Program “continues a long line of innovation in stroke care at UCLA.” Pioneering early studies of clot-busting thrombolysis drugs were done at UCLA, he notes, and the thrombectomy catheters that pull clots from brain arteries were invented at UCLA Health.

“Now we have the mobile stroke units bringing to patients both of those therapies more quickly,” Dr. Saver says.

These advanced approaches are worlds away from how strokes were handled when he first joined the UCLA Health medical staff in

1994. At that time, there was no established treatment for acute stroke. “Now, it’s a highly treatable neuro-emergency,” he says. “You have these Lazarus-like cases where patients come in with what in the past would have been a life-ending stroke and they walk out of the hospital because we’ve opened the artery in time.”

This was Grady’s experience. She thanks God that the mobile stroke unit was in her neighborhood the day she collapsed at Calvary Chapel. “Only God could do this kind of stuff,” she says. “It was the right day, right place, stroke unit on its way. They had the right medicine, and eight days later I walked out of the hospital.” ●




**Sandy Cohen** is a senior writer for UCLA Health Marketing Communications and a former national writer for *The Associated Press*.

Within a half-hour, the MSU has delivered the patient to the Emergency Department at Providence Little Company of Mary Medical Center in Torrance.

For more information about the UCLA Arline and Henry Gluck Stroke Rescue Program, scan the QR code or go to: [www.uclahealth.org/departments/neurology/mobile-stroke](http://www.uclahealth.org/departments/neurology/mobile-stroke)





# IS TRAUMA- INFORMED CARE *THE* *NEXT STEP* *FORWARD* IN HEALTH EQUITY?

By Dan Gordon

Sofia Ruiz and her daughter, Maya, have benefited from trauma-informed care.

Childhood adversity can have lifelong impact on the mental and physical health and well-being of a child and family. By addressing it early, potentially millions of new cases of heart disease and depression can be avoided.

For confidentiality, patient names have been changed.

**SOFIA RUIZ KNEW SOMETHING WAS AMISS** with her daughter, Maya, but she wasn't getting any answers. The alarming behaviors started before Maya's second birthday. She stopped eating solid foods and no longer spoke. She began to fixate on soft textures and to recoil at anything sticky or with a strong scent. Her anxiety levels soared — particularly when she saw insects or other flying objects. On multiple occasions, this extreme fear prompted the toddler to dart into the street, jeopardizing her safety. Ruiz didn't know how to best support her daughter, but she knew she needed help from her pediatrician to sort things out.

## CALIFORNIA'S ACEs AWARE INITIATIVE AIMS TO IDENTIFY CHILDHOOD ADVERSITY, AS WELL AS OTHER SOCIAL FACTORS, CONTRIBUTING TO POOR HEALTH ACCESS AND OUTCOMES, AND TO ADDRESS THESE ISSUES WITH A TRAUMA-INFORMED APPROACH.

Complicating matters were Ruiz's own life circumstances. As Maya's worrisome behaviors progressed, Ruiz felt helpless to intervene, and devoid of professional allies who could advocate for her and address her daughter's needs. She was just 19 when she came to the U.S. from Mexico, and she spent two weeks at the border, sometimes going as long as two days without food. Once in Los Angeles, economic hardships compelled her to live with people she didn't know well, and after one of her housemates attempted to sexually assault her, Ruiz found herself constantly looking over her shoulder, unable to

trust anyone but those closest to her. One of those individuals she felt she could trust, her brother, had been her main source of support, but he died when Maya was just five months old. Through all of the turmoil, Ruiz's inability to speak English and her undocumented status left her uncertain about where to turn and what resources might be available to help her daughter.

Everything changed after Maya was referred to the Strong, Healthy and Resilient Kids (SHARK) program, a trauma-focused primary care and consultation clinic for children with complex medical, developmental and behavioral health needs, many of whom have experienced significant childhood adversity. The program, based at the Los Angeles County Department of Health Services' Rancho Los Amigos facility, aims to meet the needs of children and families affected by cumulative adversity. It includes screening for 10 adverse childhood experiences (ACEs) that undermine the child's sense of safety, stability and bonding, and it delivers care that takes into account past or present trauma experienced by parents and their children. SHARK is one of several programs that have received funding through California's ACEs Aware initiative, a first-in-the-nation effort to identify and respond to toxic stress, which is defined as chronic dysregulation of the body's stress-response system.

As a growing body of research points to the potential long-term health consequences of early-life adversities and the importance of parental and other supports in buffering against these negative impacts, California is leading the way in delivering what's known as trauma-informed pediatric care — recognizing the role of previous and current life circumstances in the mental and physical health and well-being of the child and family, and responding in a way that builds resilience and promotes healing. California's ACEs Aware initiative aims to identify childhood adversity, as well as other social factors, contributing to poor health access and outcomes, and to address these issues with a trauma-informed approach.

UCLA pediatrics professor Shannon Thyne, MD, who also is director of pediatrics for the L.A. County Department of Health Services, is co-principal investigator of the UCLA/UC San Francisco ACEs Aware Family Resilience Network (UCAAN), which since 2021 has been funded by the California Department of Health Care Services to implement ACEs Aware. The initiative offers health care provider training, clinical protocols and added reimbursement to licensed providers who screen children and adults for ACEs. UCAAN also supports academic pilot projects and community grants focused on identifying how to optimize care for children and adults affected by toxic stress. SHARK, where Ruiz and her daughter were referred for care, is one example of ACEs Aware's programs.

Trauma-informed care puts the onus on health care providers to recognize the adverse life experiences children and their families bring to the health care setting and how these experiences contribute not only to their symptoms, but also to their relationship with the clinical team and their response to care. "A lot of people have their ideas of what trauma-informed care is or what adversity is, but putting a framework around what's going on for an individual gives providers a better opportunity to respond in a more tailored way," Dr. Thyne says. "It's asking whether or not the family has access to a car before you send them across town for an appointment that might require four buses to get to. It's asking if there has been trauma that would make it harder to answer questions about sexual identity, or if it's OK to lift up the patient's shirt to listen to their heart during an examination. These are things most of us have known were important for our entire careers, but we didn't have the language for it," she says.

**THE LINK BETWEEN CHILDHOOD ADVERSITY** and poor health outcomes can be traced to an adult obesity clinic at Kaiser Permanente San Diego in the mid-1980s. There, an internist, Vincent J. Felitti, MD, had worked with a female patient who lost nearly 300 pounds in a year, but one day she came in for a follow-up appointment having backslid significantly — gaining almost 40 pounds in three weeks. When Dr. Felitti asked what had triggered the reversal, she attributed her binge eating to the trauma she experienced following an unwanted sexual advance by a coworker, which had reminded her of having been sexually abused as a child.

After seeing similar patterns with other patients who described early-life adversities, Dr. Felitti secured funding from the U.S. Centers for Disease Control and Prevention (CDC) for a study of thousands of patients designed to determine the connection, if any, between adverse childhood experiences and later-life health and well-being. The landmark CDC-Kaiser Permanente Adverse Childhood Experiences Study, published in 1998, asked Kaiser patients to fill out a confidential questionnaire about 10 ACEs, covering experiences of physical, emotional and sexual abuse; neglect; having witnessed violence in the home or community; having a family member attempt or die by suicide; and growing up in a household with substance-use problems, other mental health problems or instability resulting from parental separation or imprisonment. In the study, nearly two-thirds reported having at least one ACE, and nearly one-in-six had four or more. Among the latter group, the researchers found a four-to-12-fold increased risk, decades later, of alcoholism, drug use, depression and suicide attempts, among other negative outcomes.

By demonstrating how common these early-life stressors were — even in a relatively



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affluent population — and drawing such a clear association between these events and many of the most common health and social conditions in adulthood, the study sent a strong signal that pediatricians had to do more to identify children at health risk due to ACEs and help to prevent these negative outcomes.

"We always had an innate sense that what happens in childhood doesn't stay in childhood," says Moira Szilagyi, MD, PhD, division chief of developmental/behavioral pediatrics at UCLA Mattel Children's Hospital and the Peter Shapiro Professor for Enhancing Children's Developmental and Behavioral Health. "But to see all of the data was really a clarion call to a lot of us."

Importantly, Dr. Szilagyi notes, high ACEs scores in the Kaiser/CDC study didn't guarantee poor later-life outcomes. Subsequent research on early brain development and the biology of the stress response showed that long-term changes in the brain's structure and chemistry could occur as a result of early trauma, but also suggested that it didn't have to. "ACEs are not destiny. Kids handle stress pretty well, as long as they have supportive caregiving," Dr. Szilagyi says. "When they don't have that, it becomes toxic."

"A lot of people have their ideas of what trauma-informed care is or what adversity is, but putting a framework around what's going on for an individual gives providers a better opportunity to respond in a more tailored way," says Dr. Shannon Thyne.



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"ACEs are not destiny. Kids handle stress pretty well, as long as they have supportive caregiving," says Dr. Moira Szilagyi.

When approaching patients with a trauma-informed lens, pediatricians are to not just treat the symptom in front of them, but also address them within the context of the child and the child's family. "The revolution in medicine has involved changing the question when a patient comes in from, 'What's wrong with you?' to 'What has happened to you?' so we can help them heal," Dr. Szilagyi says.

Adam Schickedanz, MD (FEL '16, '18), PhD, assistant professor of pediatrics, notes that traditionally, interactions with patients and families have been oriented around providing information and treatment directives, with little consideration for how patients' past experiences and current circumstances affect their ability to benefit from them. "Trauma-informed care centers the relationship in a way that the more transactional approach to medicine hasn't always done," he says. "If you're going to ignore someone's past abuse, for example, you're not really treating a central issue affecting that patient. By adopting the trauma-informed care approach, we acknowledge that the work of serving our patients is inseparable from supporting them through their journey of personal growth — and that considerable opportunity for healing occurs when the care team takes

into account the person's history of trauma and psychological distress."

For health care providers, focusing on the relationship also means acknowledging and seeking to overcome the mistrust among some patients, stemming from the health care profession's legacy on issues that include racism, language barriers and other forms of discrimination and marginalization. "It's incumbent on us to recognize that many patients may have had traumatic experiences with the health care system itself, and we must work to help people feel safe as their full selves in medical spaces," says Dr. Schickedanz, who chairs the Adverse Childhood Experiences Committee of the American Academy of Pediatrics' Southern California Chapter and was a UCAAN pilot-project principal investigator. "If patients can't feel safe in clinic because of how they're processing their past experiences of trauma in the context of the health care system, often very little can be accomplished through their health care."

**IN THE YEARS AFTER THE KAISER/CDC FINDINGS**, Nadine Burke Harris, MD, a San Francisco-based pediatrician, emerged as a leader in screening children as a way of preventing ACEs through early identification of potential risks. "Dr. Burke Harris was a champion for children who developed a pioneering trauma-informed-care clinic for kids," Dr. Thyne says. That leadership led to Dr. Burke Harris' appointment in 2019 as the first Surgeon General of California, a position she held until February of 2022. In that role, Dr. Burke Harris, in collaboration with the California Department of Health Care Services (DHCS), helped establish ACEs Aware, and in October 2021, DHCS contracted with UCAAN to implement the initiative, with Dr. Thyne, who had already instituted ACEs screening at UCLA-affiliated clinics in L.A. County's safety net hospitals, as the co-principal investigator.

In the initiative's first few years, more than 42,000 health care providers completed ACEs Aware training, and Medi-Cal clinicians conducted nearly 3 million ACEs screenings. Nearly two-thirds of the providers trained said they intended to implement changes in their practice.

Christine K. Thang, MD '15 (RES '18), a UCLA assistant clinical professor of pediatrics, says she has seen significant changes even since she was in medical school and residency. "In medical school, we learned a lot about whole-person wellness and social determinants of health, but we didn't really discuss ACEs or toxic stress," she says. "It was still very problem-focused. Now, at UCLA, these topics are integrated into the curriculum beginning in the first year."

During her own training, Dr. Thang took a Pediatric Approach to Trauma, Treatment and Resilience (PATTeR) course from the American

Academy of Pediatrics. The course was developed by Dr. Szilagyi and her colleagues. "It really spoke to me that promoting safe, stable, nurturing relationships is the foundation of what we do in pediatrics," Dr. Thang recalls. As director of education and training for UCAAN, Dr. Thang now uses both that training course and the state's "Becoming ACEs Aware in California" training to teach UCLA medical students and pediatric residents about trauma-informed care. "Just as we conduct surveillance of developmental milestones, we do trauma surveillance by asking if anything has changed since the last time the child was in the clinic, and whether anything scary or upsetting has happened," she explains.

By supporting evidence-based practices through its pilot projects and training clinicians in trauma-informed care, UCAAN has helped move the focus beyond identifying ACEs to determining how best to mitigate their impacts. In addition to identifying and responding to ACEs, this approach includes identifying social factors that affect health. "If we prescribe the antibiotic amoxicillin for a bacterial infection, it needs to be refrigerated. But if the family doesn't have a refrigerator, it's not of any use," Dr. Thyne says. "And it's not just the issue of the amoxicillin in the fridge that can impact health outcomes; it's the trauma that happened in your household when you were younger, the stress you've been under, your housing instability, irregular sleep, danger in the neighborhood. It is all of the things that make it harder to face your day that can affect your health."

**ACEs AWARE EMPLOYS A TOOL THAT GOES** beyond the traditional 10-question ACEs survey. The PEARLS (Pediatric ACEs and Related Life Events Screener) includes both a screening for ACEs and an additional screening for other adversities, such as food insecurity, housing instability and discrimination. The caregiver completes the survey for children ages 11 and under; for adolescent patients, PEARLS is completed both as a self-report and by the caregiver. "ACEs are things that we can't undo, but trauma-informed care can help to mitigate the effects of these related life events," Dr. Thyne says. "Quantifying them together has helped us move toward a more anticipatory approach where we acknowledge what we can't change and address what we can, aiming to prevent the potential consequences."

Although certain groups are known to be at higher risk, ACEs Aware emphasizes the importance of a universal approach. Experts note that the original Kaiser/CDC study, which surveyed a relatively affluent, well-educated population, underscores the reality that children in every community can face adverse experiences. "Anyone can experience adversity, and it isn't necessarily visible from the outside," Dr. Thyne says. Moreover, she notes, when

all patients are routinely asked about ACEs, it helps to normalize and destigmatize the questions and open opportunities for connecting with care-team members who can help support healing from early-life emotional trauma.

Even so, some children or caregivers may be reluctant to reveal adverse experiences. Training providers in trauma-informed care emphasizes the importance of fostering a welcoming and nurturing environment in which patients and families feel safe to share intimate details of their lives. For younger children, screenings are typically timed to coincide with those for developmental milestones; because adolescent life tends to be so dynamic, teens may be screened as often as every year. "Ideally, the patient or caregiver fills out the questionnaire in advance, which allows the provider a chance to review it before meeting with them," Dr. Thyne says. "During the visit, we explain why we're asking the questions, and the conversation tends to flow from there."

"Most families are actually quite relieved that someone cares," Dr. Szilagyi says. "Often, just asking the question, listening with empathy, validating that you have heard them and normalizing the response can be the first step toward healing."

"Just as we conduct surveillance of developmental milestones, we do trauma surveillance by asking if anything has changed since the last time the child was in the clinic, and whether anything scary or upsetting has happened," says Dr. Christine K. Thang.



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Dr. Schickedanz notes that providers must consider the context in which potentially sensitive questions are raised, and the readiness of the patient and family to have the conversations. “There is a lot we can do to set the stage and connect these topics to what people are expecting out of health care,” Dr. Schickedanz says. “On the other hand, if you begin to ask questions where there isn’t readiness, it can be perceived as threatening, stressful and potentially re-traumatizing.”

“PEOPLE OFTEN ASSUME TRAUMA HAS TO BE A CATASTROPHIC LIFE EVENT, BUT IT’S HOW THE INDIVIDUAL EXPERIENCES IT. EVEN SMALL CHANGES WITHIN THE HOUSEHOLD CAN BE TRAUMATIC FOR A CHILD.”

**ACEs DON’T TELL THE WHOLE STORY.** “NOT every child who experiences these events is destined to end up with the long-term health implications associated with them,” Dr. Thang says. And on the flip side, an individual may experience trauma from an event that someone else may not experience as traumatic. “People often assume trauma has to be a catastrophic life event, but it’s how the individual experiences it,” Dr. Thang explains. “Even small changes within the household can be traumatic for a child.”

What allows some individuals to emerge from ACEs without long-term negative impacts? Dr. Schickedanz points to the buffering effects of positive childhood experiences and resilience building. “That’s where we need to do a lot more work,” he says.

Recent research on stress physiology has made a strong case for the vital role played by caregivers and other social supports in buffering children against toxic stress. Dr. Szilagyi views the discovery of what’s

known as the affiliate response to stress as one of the most exciting scientific findings for pediatricians in recent years. She explains that the “fight-or-flight” response triggered by stress releases cortisol, the body’s main stress hormone; chronic stress can result in dysregulation of the hormone, preventing it from returning to normal levels. But during the affiliate response, which is activated by social support, oxytocin is released during a significant stressor, increasing an individual’s ability to assess their safety. “If a child isn’t safe, they go into fight-or-flight and the usual stress responses,” Dr. Szilagyi explains. “But if the child looks around and has a supportive caregiver or social network, they get a flood of oxytocin, which helps them develop a more adaptive response.”

To Dr. Szilagyi, this understanding highlights the importance of pediatricians nurturing caregiver-child relationships as a foundational part of their trauma-informed care. “It changes you from going through the usual medical diagnostic process when someone presents with a symptom to asking about the person’s life, their stressors and strengths and the resources they have,” she says. “And it’s a reminder that the relationship between the caregiver and the child is also my ‘patient.’”

The CDC has stated that safe, stable and nurturing relationships and environments for children can mitigate the impact of ACEs. The potential payoff is substantial — as many as 1.9 million cases of heart disease and 21 million cases of depression could be avoided, the agency has estimated. And, while resilience was once thought of as an inherited trait, recent studies have shown it can be developed.

In advising parents and other caregivers on how they can help build their child’s resilience against the long-term impact of adverse experiences, pediatricians increasingly promote what’s known as the three “R”s. The first is reassurance. “Reassuring children that they’re safe and that you’re there to take care of them after something bad has happened is crucial,” Dr. Szilagyi says. The second is the establishment of routines, so that children know what to expect. This can involve regular meal and bedtime rituals, as well as joint activities that also have the benefit of building the relationship. The third R involves developing the child’s regulation skills, largely by setting an example. Dr. Szilagyi urges caregivers to contain their own emotions when around their children as a way to soothe and calm their stress responses. “Young children can’t modulate their emotions unless the adults in their presence are modulating theirs,” she says. “We all get dysregulated at times, but if that happens, the parent or caregiver can explain that they need a minute to settle themselves, then model healthy ways to cope.”

It’s not easy, particularly when many parents and caregivers are themselves struggling. Early in her tenure as California’s first surgeon general, Dr. Burke Harris set a bold goal: cutting ACEs and



JESSICA PONS

toxic stress in half within a generation. That was in February 2020 — a month before the COVID-19 pandemic severely compounded an already brewing mental health crisis. “From the get-go, it was acknowledged that the adversity experienced by an adult is conferred upon the child,” Dr. Thyne says. “The big challenge for those of us who see younger children who don’t yet have their own ACEs, but who live in an environment that has been impacted by adversity, is how we can help disrupt the intergenerational transmission of toxic stress.” Often, that means helping the parent as well, whether through a referral or by pointing them toward resources available to assist them. “If we can help the parent emerge from their toxicity, that’s benefiting the entire family,” Dr. Thyne says.

Despite the barriers to implementation that came with the COVID-19 pandemic, ACEs Aware continues to advance screening and response to childhood adversity and had extended its reach across the state over the past 18 months. More than 20 funded pilot projects from UCLA and UCSF have helped identify strategies to increase awareness and improve management of ACEs-related health conditions, and more than 25 community-based organizations have received funding to implement screening and response activities. These efforts have aligned with California’s Medicaid reform efforts, and now patients identified with ACEs have improved access to funded programs to support their health and social needs, including access to doula services, community health worker supports and engagement in expanded mental health and case management services.

**AFTER HER DAUGHTER VISITED THE SHARK** clinic for a consultation designed to secure behavioral services, Sofia Ruiz was so pleased that she ultimately switched to the clinic and its director, Laura Figueroa-Phillips, MD, for her daughter’s primary care. Maya, now 4, is being evaluated for autism spectrum disorder. To be clear, ACEs are not a risk factor for the development of autism spectrum disorder, but children with autism spectrum disorder are more likely to experience ACEs. “Dr. Figueroa-Phillips listened to me, and was proactive in connecting me with resources,” Ruiz says through an interpreter.

While her struggles haven’t ended, the clinic’s trauma-informed approach has given Ruiz a sense of agency as she seeks to support Maya. Joining the clinic’s family advisory board allowed her to meet other parents experiencing similar challenges and learn about how to access resources she didn’t realize were available to her. And at the clinic’s recommendation, Ruiz has started receiving mental health services to address her own trauma so that she can become a more effective parent.

“Here, I am reminded that I have a voice, and that I am my child’s advocate,” Ruiz says. “Before, I felt frustrated and hopeless. Now I feel heard.” ●

**Dan Gordon** is a frequent contributor to U Magazine. His two-part story, “Amara Yad: Erasing the Stain of a Dark Legacy,” received the Robert G. Fenley Gold Award for Excellence in Writing from the Association of American Medical Colleges.

For more information about the UCLA/UCSF ACEs Aware Family Resilience Network, scan the QR code or go to: <https://ucaan.ucla.edu>

“Here, I am reminded that I have a voice, and that I am my child’s advocate. Before, I felt frustrated and hopeless. Now I feel heard,” says Sofia Ruiz.



# His Garden of Wellness

By Kelsie Sandoval



"My garden is a parade of beauty that has remained foundational to my personal well-being and my mental health," says Dr. Edward Zaragoza.

**WHEN EDWARD ZARAGOZA, MD '87 (RES '92, FEL '92)**, has a jam-packed day of Zoom meetings pulling him in multiple directions, he escapes, if even for just a few minutes, to his roof-deck garden. Taking a deep breath and appreciating the carefully manicured bonsai Chinese elm, leaf maple and olive trees, as well as a multitude of cactus plants, gives him a boost to get through the day.

"Taking a micro break to center myself, disconnect from work and breathe in the garden exponentially increases my productivity when I go back to work," he says.

The art of bonsai gardening requires meticulous pruning and shaping to give the appearance of a miniature tree in

a pot. The practice originated in China more than 2,000 years ago and was later introduced in Japan. While Dr. Zaragoza has collected and cultivated bonsai plants for years, he leaned into the hobby during the COVID-19 pandemic. He found that nurturing something outside of himself was incredibly healing during a time of so much isolation.

"My garden is a parade of beauty that has remained foundational to my personal well-being and my mental health," he says.

His garden overflows with tiny greenhouses to protect succulents from the rain, hand-crafted vases and bonsai plants everywhere you turn. Dr. Zaragoza says maintaining the garden is a daily effort,

but it's part of his wellness practice to stay calm and curb stress.

The ever-changing nature of the bonsai trees and plants is one of Dr. Zaragoza's favorite aspects of gardening at his condominium in West Hollywood. He looks forward to the mammillarias, gymnocalyciums and rebutias flowering in the spring; the La'amia tree sprouting leaves in the spring and summer; and the roses' floral aroma in the fall.

But his roof-deck garden isn't the only hobby that draws Dr. Zaragoza's devotion. Every Sunday morning, he teaches a virtual class in yoga to students living in Los Angeles and remote locations including Arizona, Palm Springs and China.

As a former circus aerialist, Dr. Zaragoza

has a life-long commitment to an active lifestyle. But the physical demands of performing acrobatics in the air while hanging onto ribbon-like bands of silk fabric leads to wear and tear and potential for an injury, causing him to reflect on its enduring impact on his quality of life. His response was to choose to solely practice yoga. He started teaching yoga around 2017, and he underwent 300 hours of advanced teacher training in Austria.

Dr. Zaragoza, whose working hours as a diagnostic radiologist are spent examining diverse medical images from routine radiographs to PET/CT looking for any anomaly that signals trouble, is a devoted yogi for the multitude of benefits the practice conveys. He enjoys maintaining his flexibility and strengthening his muscles, especially the core truncal muscles, from the pelvis to the head. He attributes healthy aging to maintaining a strong core.

"If somebody assumes a more upright, dancer's posture with the shoulders down and the heart pressed forward, that is a statement of who we are and how we feel," he says. "And the ability to manifest these postures and these feelings really depends on how we 'grow' our bodies, and how we maintain our bodies over decades."

He encourages his yoga students to not compare themselves to others, and he meets them at their skill level. Everyone was once a beginner, and it takes repetition and diligence to reach deep postures. Every acorn needs time to become a mighty oak, he says.

"We take our bodies from a place of seeing the impossible to doing the impossible," Dr. Zaragoza says. "That's what's really beautiful about yoga practice; it supports us in exploring ourselves."

Aside from dutifully taking care of oneself, Dr. Zaragoza says there's a joyful element to teaching yoga, too. One of his favorite poses to teach is the Simhasana, in which the practitioner sticks out his tongue and roars like a lion. This playful pose releases endorphins and reminds yogis not to take themselves too seriously, Dr. Zaragoza says with a smile.

Teaching yoga and gardening ties into Dr. Zaragoza's commitment to being a role model for patients. "As proponents of health, we can't talk the talk and not walk the walk ourselves as individuals," he says, adding that his two hobbies enable

him to be rested, prepared and adaptable to whatever the day brings him.

In his nearly four decades at UCLA Health, Dr. Zaragoza has shifted through many roles. He helped launch the Acute Care Imaging section at UCLA Health, and he now is vice chair of information technology for UCLA Health Radiological Sciences, working to sustain a state-of-the-art image-interpretation environment and to deploy artificial intelligence (AI) to process images for a speedier diagnosis. He also supports radiology IT at Martin Luther King Jr. Community Hospital, where he is the immediate-past chief of staff.

Whatever his professional responsibility, Dr. Zaragoza says taking care of himself is fundamental to handling his various, wide-reaching responsibilities.

"Everything is connected," he says. "Being in the garden, practicing yoga or just being mindful and ultimately grateful for what's been given to us plays into a state of well-being that contributes to providing excellent care to patients." ●

*Kelsie Sandoval is a senior media relations officer for UCLA Health. Before coming to UCLA, she was a member of the health-reporting teams for NBC News and the online news site Insider.*

## AWARDS & HONORS

**Dr. Liz Barnert (FEL '14)**, associate professor of pediatrics, received the 2024 Southern California Regional Chapter Recognition Award from the Society for Adolescent Health and Medicine.

**Dr. Aparna Bhaduri**, assistant professor of medicine and biological chemistry and a member of the UCLA Health Jonsson Comprehensive Cancer Center and the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA, was selected to the 2024 class of Pew-Stewart Scholars for Cancer Research by the Pew Charitable Trusts and the Alexander and Margaret Stewart Trust.

**Dr. Russell Buhr (FEL '17, PhD '19)**, assistant professor of pulmonary and critical care medicine, received the Respiratory Health Association's Solovy Award for Advancement in COPD.

**Dr. Ronald Busuttill (RES '77)**, Distinguished Professor of Surgery emeritus, received the 2024 Medawar Prize from The Transplantation Society.

**Dr. Stuart Conway**, professor of medicinal chemistry in the Department of Chemistry and Biochemistry and a member of the UCLA Health Jonsson Comprehensive Cancer Center, received a Translational Melanoma Research Alliance Team Science Award.

**Dr. Robert Damoiseaux**, professor of molecular & medical pharmacology and a member of the UCLA Health Jonsson Comprehensive Cancer Center, received a Translational Melanoma Research Alliance Team Science Award.

**Dr. Juliet Beni Edgcomb (MD '13, RES '20, FEL '23)**, associate director of the Mental Health Informatics and Data Science Hub in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA, received the 2024 Klerman Prize for Exceptional Clinical Research from the Brain & Behavior Research Foundation.

**Dr. John Lee (FEL '13)**, associate assistant professor-in-residence of hematology/oncology and a member of the UCLA Health Jonsson Comprehensive Cancer Center, received the Acceleration Initiative Award from CureSearch for Children's Cancer.

**Dr. Linda Liao (RES '97, FEL '98, PhD '99)**, chair of neurosurgery, was elected as an academician of Academia Sinica, Taiwan's equivalent of the National Academy of Sciences.

**Dr. Matthew Rettig (FEL '96)**, professor of urology and medical director of the prostate cancer program, received the John B. Barnwell Award from the Department of Veterans Affairs' Office of Clinical Science Research and Development.

**Dr. Amy Rosenman (RES '79)**, clinical professor of obstetrics and gynecology, received the Jack Robertson Lifetime Achievement Award from the American Urogynecologic Society.

**Dr. Moira Szilagyi**, professor of pediatrics, and Dr. Peter Szilagyi, pediatric health services and clinical researcher, were honored with the Pediatric Academic Societies' 2024 George Armstrong Lecture Award.

**Dr. Zhentao Yang**, project scientist in the Division of Dermatology and a member of the UCLA Health Jonsson Comprehensive Cancer Center, received a Translational Melanoma Research Alliance Team Science Award.

**Dr. Ching Zhu**, a clinical cardiac electrophysiology fellow, received the American Society for Clinical Investigation Emerging-Generation Award.

## UCLA Health System Board Meeting Spotlights AI in Medicine

By Allie McFarland



(From left) Johnese Spisso and panelists Paul Farr, R. Martin Chavez, Jennifer McCaney and James Manyika.

The UCLA Health System Board gathered for its 12th annual meeting at the UCLA Meyer and Renee Luskin Conference Center on October 30, 2024. The event centered around artificial intelligence (AI) in medicine. Board Chair Henry Gluck opened the meeting with a warm welcome for guests and event speakers.

The program featured a panel discussion among industry and thought leaders in the space, as well as an audience Q&A session. Invited speakers were R. Martin Chavez, PhD, partner and vice chairman of global investment firm Sixth Street Partners; moderator Paul Farr, co-founding partner of Anthos Capital, a Los Angeles-based investment firm focused on growth-stage

private companies; James Manyika, senior vice president of research, technology and society at Google; and Jennifer McCaney, PhD, chief of innovation at UCLA Health and executive director of UCLA Biodesign, a university-based program for the acceleration of novel health care technologies.

The meeting employed the “Chatham House Rule,” a guideline developed by the eponymous London thinktank to encourage free and open exchange. Essentially, participants may share what was discussed but not the identity or the affiliation of the person who said it. In keeping with the rule, the program was not recorded, and guests were asked to refrain from sharing the specifics of the conversation.

Topics varied widely and began with how AI is currently augmenting research capabilities. Panelists were especially interested in AlphaFold, as its developers were recently awarded a Nobel Prize for the technology. AlphaFold allows investigators to create highly detailed and interactive images of DNA and its proteins. It was seen by the group as a significant milestone in the history of AI, as it has major implications across medicine, such as vaccine development and treatments for neurological disorders.

The panel also explored the practical applications of AI in health care today and the ways in which patients and providers may interact with the technology, including the use of

“digital twins,” virtual representations of existing organisms, objects or processes. Digital twins enable investigators to simulate real situations and their outcomes, potentially reshaping the approach to personalized medicine.

In addition, panelists addressed challenges associated with AI, like its short- and long-term sustainability, as well as moral and ethical considerations in health care. The discussion concluded with predictions from the panelists about the future of this technology and its impact on lifespan and healthy aging. They emphasized the importance of using technical advances to improve health, continuing to seek the expertise of health care providers and practicing known wellness strategies to promote longevity.

Following numerous questions from the audience and a lively dialogue, Johnese Spisso, MPA, president of UCLA Health, CEO of the UCLA Hospital System and associate vice chancellor of UCLA Health Sciences, closed the program by again thanking board members for their support and acknowledging UCLA’s commitment to the responsible implementation of AI and machine learning.

Board members then attended a reception hosted by Spisso; Steven M. Dubinett, MD (RES ’84), dean of the David Geffen School of Medicine at UCLA; Board Chair Gluck; and Co-Chair Beth C. Friedman. Volunteer teams from the UCLA Health People-Animal Connection added to the festive atmosphere. ●

For more information, contact Danielle Barr at: 310-267-0050

**Allie McFarland** is a senior writer for UCLA Health Sciences Development.

(Top right) The UCLA Health System Board meeting featured an interactive panel with thought leaders in AI and health care. (Middle right) Panelists flank (third from left) Tracey Gluck, UCLA Health System Board; UCLA Health System Chair Henry Gluck; UCLA Health System Board Co-Chair Beth C. Friedman; and Johnese Spisso. (Bottom right) Spisso closed the program by reaffirming UCLA Health’s commitment to responsible use of AI.



CHRIS FLYNN



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## Fellowship in Head and Neck Surgery Named for Pioneering Surgeon, Educator and Mentor

By Jacqueline Mazarella

The UCLA Department of Head and Neck Surgery was recently ranked No. 1 by *U.S. News & World Report*. Among other firsts, the department has achieved a success rate that exceeds 99% in performing approximately 1,500 head and neck cancer and microvascular reconstructive surgeries during the 20 years since the program was established. In many ways, this distinction rests on the shoulders of Dr. Thomas C. Calcaterra, one of the founders of the department who spent his career fostering an environment of constant innovation, leadership and mentorship, always with the goal of patient-focused excellence.

This year, the Thomas & Ellen Calcaterra Revocable Trust gifted \$2 million to establish the Thomas C. Calcaterra, M.D., Endowed Clinical and Research Fellowship in Head and Neck Surgery. Dr. Calcaterra and his wife, Ellen, who met while she was earning her master's degree from the UCLA Anderson School of Management, were married for 36 years until his death in 2021. This generous contribution

expands Dr. Calcaterra's legacy.

"Tom's passion was excellence in clinical care and research for head and neck cancers," Mrs. Calcaterra said. "My hope is that physicians who receive this fellowship are inspired by Tom's leadership, his commitment to patients and his dedication to advancing the discipline."

The fund will support advanced training in the UCLA Department of Head and Neck Surgery for clinicians who work to advance the head and neck cancer field, improve outcomes for these patients and educate and mentor generations of head and neck cancer surgeons and scientists.

Dr. Calcaterra, a world-renowned



(From left) Ellen Calcaterra and Dr. Thomas Calcaterra.

"TOM'S PASSION WAS EXCELLENCE IN CLINICAL CARE AND RESEARCH FOR HEAD AND NECK CANCERS."

"MY HOPE IS THAT PHYSICIANS WHO RECEIVE THIS FELLOWSHIP ARE INSPIRED BY TOM'S LEADERSHIP, HIS COMMITMENT TO PATIENTS AND HIS DEDICATION TO ADVANCING THE DISCIPLINE."



(From left) Ellen Calcaterra, Dr. Thomas Calcaterra and Dr. Maie St. John, chair of the UCLA Department of Head and Neck Surgery.

surgeon, educator and mentor, served as a faculty member at the David Geffen School of Medicine at UCLA for almost four decades and retired as professor emeritus. During his tenure, he is credited with training more than 175 surgeons, publishing over 220 papers and more than 20 textbooks and receiving international recognition and awards for his visionary work. Mrs.

Calcaterra says he never spoke of the awards, but rather that he was proudest of training the residents whom he loved and publishing the papers with them.

After his retirement, the Calcaterras made a \$2 million contribution to create the Thomas C. Calcaterra, M.D., Recruitment Fund for Head and Neck Surgery to help recruit and support the chair of the department. At the time

of the gift, Dr. Calcaterra was quoted as saying, "I was on the UCLA faculty for more than 35 years. This donation is our way of returning something to a department that was very good to me."

The recruitment fund was later converted to the Thomas C. Calcaterra, M.D., Chair in Head and Neck Surgery, currently held by Dr. Maie St. John (RES '05), a mentee of Dr. Calcaterra. An internationally renowned surgeon, scientist and educator, Dr. St. John is professor and chair of the Department of Head and Neck Surgery, co-director of the UCLA Head and Neck Cancer Program and professor of bioengineering.

"Having been mentored by Dr. Calcaterra, I experienced firsthand the power of developing relationships and interdisciplinary research to better serve our patients and the global community," said Dr. St. John. "The department that he helped found and foster continues to pioneer groundbreaking treatments. The power of this philanthropy allows us to continue his legacy of developing novel treatments, training generations of leaders in the field and delivering the best possible care to our patients."

"It gives me great joy to honor the many contributions and lifelong commitment to the field of head and neck surgery of my dear husband," Mrs. Calcaterra said. "He was a pioneer in shaping the field. I am grateful his legacy will continue to be an integral pillar of the UCLA Department of Head and Neck Surgery and the field at large. Tom loved his patients, and he always wanted to give back to them. This is my way of fulfilling his dream."

Mrs. Calcaterra hopes her philanthropy will inspire others to invest in this community. She describes contributing to the David Geffen School of Medicine at UCLA and giving to UCLA as offering a "double-bonus" of supporting human health care as well as education. ●

For more information, contact Ellen Haddigan-Durgun at: 310-321-8366

Jacqueline Mazarella is a writer for UCLA Health Sciences Development.



## UCLA Alums Bolster Groundbreaking Pulmonary Research and Compassionate Care

By Jacqueline Mazarella



Timothy and Melissa Pennington and their grandchildren.

**M**elissa and Timothy M. Pennington III have made a \$1 million gift to the Lung Health Innovation Fund of the UCLA Division of Pulmonary, Critical Care, Sleep Medicine, Clinical Immunology and Allergy. The fund bolsters the work of Dr. John Belperio, the Guitiara Pierpoint Endowed Chair in Interstitial Pulmonary Fibrosis, interim chief of the division and professor of pulmonary and critical care medicine at the David Geffen School of Medicine at UCLA. Dr. Belperio is a trailblazer in clinical and translational research to discover, treat and prevent pulmonary disorders.

“This donation reflects our sincere admiration and desire to support Dr. John Belperio,” the Penningtons said. “His research in advanced lung disease and post-transplant treatment has the potential to offer hope to those with severe pulmonary conditions, something that we have become acquainted

with.” The Penningtons chose to show their appreciation for Dr. Belperio and his team by helping to foster his investigations to improve the lives of more patients and their families.

“I am tremendously grateful to Melissa and Tim for their transformational support,” Dr. Belperio said. “Philanthropy plays a crucial role in enabling the lab to accelerate lifesaving research. A gift like this means we can hire additional researchers and perform costly yet vital tests on samples. The more tests we run, the faster we know what directions to go in, and the closer we get to the next breakthrough.”

Long-time champions of their alma mater, the Penningtons have been deeply committed to various schools and programs within UCLA, including the UCLA Health Jonsson Comprehensive Cancer Center (JCCC), where Tim Pennington served on the board for nearly 20 years. In 2018, they were recognized for their meaningful

investment in the leading-edge research of Dr. Noah Federman (RES '05, FEL '08) in pediatric sarcoma and his efforts to advance patient care within JCCC. The Penningtons also invested in the UCLA Department of Pediatrics to establish the Pennington Family Foundation Endowed Term Chair in Pediatrics, and the Pennington Conference Room at UCLA Health Children's Hospital was named in their honor. Additionally, Tim Pennington serves on the Board of Visitors of the David Geffen School of Medicine at UCLA and the Fink Center for Finance at the UCLA Anderson School of Management.

The Penningtons said their contribution to the Lung Health Innovation Fund reflects their appreciation not only for Dr. Belperio's investigations, but also for the compassionate care they experienced. “We are honoring an exceptional man and physician,” they said. “He is always accessible and gives his full attention to a patient, making them feel as if they are his only responsibility. His manner of patient care is a model that should be taught in medical school and emulated by all physicians.”

In conjunction with research, Dr. Belperio's lab also trains students, fellows and junior faculty. These future innovators of science and medicine work alongside Dr. Belperio and his team to better understand the underlying causes of lung conditions and develop potential life-saving therapies. *U.S. News & World Report* consistently ranks UCLA pulmonology and lung surgery among the top five in the nation.

“It is a privilege to serve patients in the clinic, conduct research on the very conditions I treat and bring findings back to patients,” Dr. Belperio said. “Patients inspire this work every day. The power of philanthropy allows for high-risk, high-reward studies that may translate quickly to the bedside and in addition, it helps train the next generation of physician-scientists.” ●

For more information, contact Larissa Harrison at: 310-592-5613

Jacqueline Mazarella is a writer for UCLA Health Sciences Development.

## Grateful Bruins Donate Vital Resources to Advance Brain Tumor Research

By Jacqueline Mazarella



(From left) Larry Canarelli, Shaye Lemke, Stacia Lemke, Cameron Lemke and Heidi Canarelli.

**H**eidi and Larry Canarelli met in 1969 when they were both seniors at UCLA. When their daughter, Stacia Lemke, was diagnosed with a rare form of brain cancer in 2023, they returned to UCLA for her care.

Lemke explains she came to UCLA for a second opinion, after having been diagnosed in her home state of Nevada. “Dr. Linda Liau [chair of the Department of Neurosurgery] met with me and said surgery was a possibility,” she said. “There was a lot of comfort and calm, knowing I had a whole team working for me. Dr. Liau wasn't afraid to take on a challenging case, and I think that says a lot for the confidence and the care that UCLA offers.”

This year, through their Canarelli Family Foundation, Heidi, Larry and Stacia donated \$4 million to establish the UCLA Canarelli Family Oligodendroglioma (OG) Brain Tumor Research Fund in the UCLA Department of Neurosurgery. These vital resources will fuel a comprehensive and dedicated OG research program to advance the understanding and development of novel treatments for OG. The fund will also support a fellowship to enable postdoctoral fellows and/or graduate students to focus full-time on OG.

The program will be led by Dr. Liau (RES '97, FEL '98, PhD '99), W. Eugene

Stern Chair in Neurosurgery, and Dr. Timothy Cloughesy (RES '91, FEL '92), founding director of the UCLA Neuro-Oncology Program and co-director of the UCLA Brain Tumor Center. Dr. Cloughesy has had great success getting therapies approved for malignant brain tumors, including the first-ever approval of a targeted therapy for OG. As each OG research track progresses, the most promising drug candidates will be translated into novel, early-phase clinical trials overseen by Dr. Robert Chong (RES '20, FEL '22), whose expertise is in developing clinical trials for patients with brain tumors. All three faculty are also members of the UCLA Health Jonsson Comprehensive Cancer Center.

“I have a lot of faith in Dr. Liau and the team there at UCLA, and I am hopeful that they will be able to make a lot of progress, if not a complete cure, for my kind of glioma for patients all over the world,” Lemke said. “I think that everyone dealing with something so life-altering should be given the kind of care I received at UCLA. They were extremely thoughtful and made me feel like a priority. We are in a place with the foundation — and not just because of my cancer, but also because of my parents' history at UCLA — to come full circle and give to various needs. It's really exciting that we're able to do this.”

“I call Dr. Liau and Dr. Chong ‘Stacia's angels,’” Heidi Canarelli said. “They changed our lives, and with this gift, we are hoping more families will benefit from their extraordinary work.”

Serving as a tribute to the family's meaningful and far-sighted philanthropy, the Canarelli Neurosurgery Check-in Waiting Area in the Edie & Lew Wasserman Building has been named in honor of this gift. ●

For more information, contact Christopher L. Carbedo at: 310-562-6498

Jacqueline Mazarella is a writer for UCLA Health Sciences Development.

## Bolstering Access for Populations at Risk for Heart Disease

**D**rs. Jayashree and Vinod Jivrajka, proud parents of three UCLA alumni, and their Jivrajka Family Foundation have pledged \$2 million to establish the Jivrajka Family Foundation Chair in the Division of Cardiology at the David Geffen School of Medicine at UCLA. The chair will support a faculty member who is board-certified in interventional cardiology and has expertise in community cardiology practice leadership with a focus on delivering care to patients who are disproportionately affected by heart disease, including South Asian communities. Under the guidance of Dr. Ravi H. Dave, director of interventional cardiology at UCLA Health, funds will also support activities that will help develop cardiovascular health programming for this demographic.

“I am deeply grateful to the Jivrajka family for the trust they put in UCLA Health,” Dr. Dave said. “Their generosity allows us to enhance our efforts to deliver care where it is most needed.”

“It gives us great pride to be able to support UCLA's mission of research, education and public service,” said Dr. Vinod Jivrajka, president of the Jivrajka Family Foundation and an interventional cardiologist. “We are grateful to Dr. Dave and his team for their dedication and ability to bring access and improve care for South Asian populations and others excessively at risk. We hope our philanthropy inspires more individuals to give in hopes of creating healthier communities.” ●

For more information, contact Lindsey Walton at: 424-946-6102



COURTESY OF NEHA PAI

Neha Pai experienced an extensive brain hemorrhage while a junior at UCLA, but she was determined to recover and get her degree.

# Rebirth Day

By Neha Pai

I DON'T REMEMBER ANYTHING ABOUT MY BRAIN hemorrhage or the emergency surgery I had that saved my life. I couldn't remember anything for months after it happened, either. Learning about the events that led to my hospitalization that night was one of the first mental challenges of my recovery. When I reflect on what happened and where I am now, it boggles my mind. It's nothing short of a miracle.

It was finals week during my junior year — our first quarter back in-person after the pandemic — December 2021. I was stressing about my coding final and had just clicked "submit" and plopped down on the couch. My roommate turned to ask me a question and saw I was having a seizure. I'd never had any medical issues before. I was perfectly healthy — on track to graduate the following year with a bachelor's degree in bioengineering.

Recognizing the severity of the situation, she called 911, and I was taken by ambulance to Ronald Reagan UCLA Medical Center. As the doctors and staff there were trying to figure out what might have caused the seizure, I had a second one. They did a scan of my brain and found a bleed. I needed surgery right away.

Dr. Anthony Wang was my surgeon, and he called my parents that night in Wisconsin, waking them up. He told my dad, "I need permission to do this surgery on your daughter because, if I don't, she's going to die." I had a ruptured aneurysm that was causing a severe hemorrhage.

As I was undergoing surgery, my dad got on the first flight to L.A. When he got to the hospital, Dr. Wang met him, and right away he said, "Your daughter's going to make a full recovery." At that moment, I was in a coma. But those words ended up carrying me through my recovery.

I had three surgeries during the month I was in the hospital. Then I went to an inpatient rehab center in downtown L.A. That's where I "woke up." I was, like, "Mom, where the hell am I?" Thirty seconds later, I would ask her again because I had no recollection of what she said. My memory was gone. I kept waking up at this rehab center and asking what was going on. That's when my mom made a timeline for me of what had happened. It felt like a random series of events. I didn't have any concept that this happened to me.

After a month at the rehab center, I went home to Wisconsin, and for the next six or seven months, we drove to Chicago every day for long-term rehab.

There are three types of therapy for brain injuries:

physical therapy, occupational therapy and speech therapy. Speech therapy was the big one for me, because it also includes memory. I had to rebuild my ability to form memories. I couldn't hold onto a piece of information for more than 10 seconds. And, obviously, learning and memory is important when you're in college and trying to get a degree.

I was determined to come back to UCLA and finish my degree. But so many of my outpatient therapists were trying to convince me that it wasn't a good idea — to be so far from home, pursuing such a challenging degree. Still, I felt I could do it. My mom did, too. When I was fresh out of a coma, she pulled out some of my AP calculus books and started quizzing me, and I could still do the math!

The coolest thing ever was that my neurosurgeon said all my old memories, my intellect, my intelligence, were all still intact. It was just a matter of access. I figured if the man who opened my skull and did surgery on my brain said I'm going to be fine then why wouldn't I go for it?

After a year of recovery, I came back to UCLA. And in June of 2024, I graduated with my bioengineering degree. When I went to pick up my diploma, I thought, "There are so many more names that belong on this thing. Can I get 30 honorable mention lines?"

I went to thank Dr. Wang and the residents who took care of me, wearing my graduation sash. I've been writing them thank-you letters every year. One of the residents told me he has the letters posted on his fridge. I call December 5 my rebirth day.

Before all of this happened, I was so focused on getting an engineering degree and having a successful career that little else mattered. Now, I still want all of that, but what's more important to me is that I'm happy and healthy, that I have a loving family and warmth in my heart. The important part about life is the things you experience, your family and friends, the relationships you have. That was never a feeling that was in my head before.

I believe that everything happens for a reason. Dr. Wang said a million things had to line up just right for me to make a full recovery. Even my decision to come to UCLA. Once I was admitted, I came to Bruin Day to check it out, and as soon as I walked on campus, I knew this was the school I had to go to. I think something in the universe was telling me this was where I needed to be. ●

**Neha Pai** earned her BS degree in bioengineering from UCLA.

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