

THE RECKONING

Spurred by the COVID-19 pandemic and movement toward racial justice, health care institutions like UCLA Health are examining past inequities and taking necessary steps to create change.



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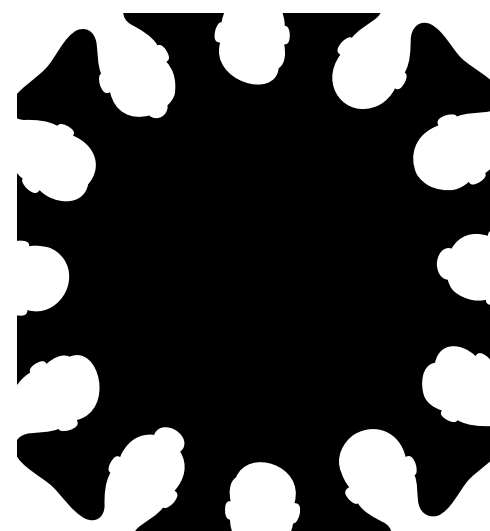


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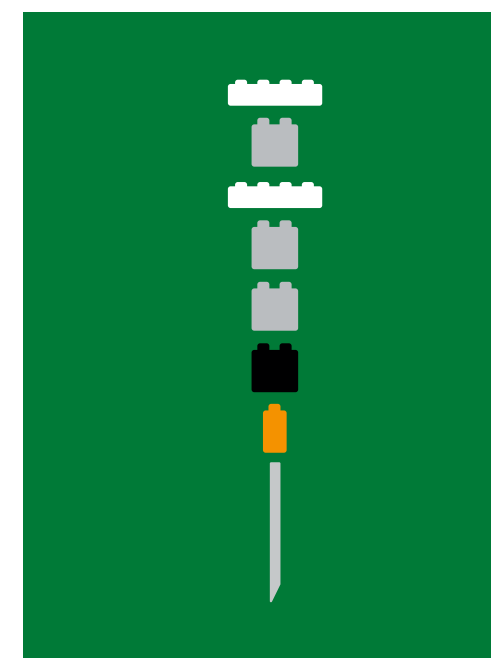


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Printed on recycled paper.

Now Is the Time

In the effort to undo systemic racial inequity in health care, the time for half-measures is over. Undoing these injustices will not happen overnight. It is the work of a lifetime.

It is stunning, and immeasurably sad, that 55 years after Dr. Martin Luther King, Jr., spoke before the Medical Committee for Human Rights and proclaimed, “Of all the forms of inequality, injustice in health care is the most shocking and inhumane,” we as a nation still are wrestling with discrimination.

There is a lot of work that needs to be done to right these wrongs. The legacy of racial inequality and, in some cases, outright racism in health care of which Dr. King spoke has not only undermined the health of vast numbers of people, it has created fear and suspicion among many in our communities. This is exacerbated in the current climate, in which, for many of our fellow citizens, science itself has become suspect. Even now, as we roll out vaccines to address the horrendous COVID-19 pandemic, which we all have endured over this past year, people in Black and Latino communities — the communities that have been hit hardest by this pandemic — are, after a long and tortured history of unequal access to care and unethical medical experimentation, among those least likely to choose to get vaccinated.

As a coordinator in the global student advocacy group Universities Allied for Essential Medicines, of which UCLA has a branch, said in a

recent *NBC News* report: “The people who need it the most are the same who don’t trust it. Without considering racial equity, we deepen the cracks that systemic racism has already created in our health care system.” To which UCLA’s Vickie Mays, director of the UCLA Center on Research, Innovation, Training and Education for Minority Health Disparities Solutions, added: “Disparities beget disparities.”

The medical community has come to recognize the damage that has been caused by our past inequity. In November, the House of Delegates of the American Medical Association (AMA) adopted a new policy acknowledging that racism and unconscious bias within medical research and health-care delivery have caused, and continue to cause, harm

to marginalized communities and society as a whole, and that racism, in its systemic, cultural, interpersonal and other forms, is a serious threat to public health and the advancement of health equity, and a barrier to appropriate medical care. It further vows to support the development of a broader policy to combat racism and its effects. The AMA’s policy statement honors the words of Kathleen Sebelius, who, as secretary of health and human services under President Barack Obama, said, “It is time to refocus,



Photo: Nick Carranza

reinforce and repeat the message that health disparities exist and that health equity benefits everyone.”

These are concerns of national scope. What can we do at an institutional level? UCLA Health System and the David Geffen School of Medicine at UCLA are taking significant steps to address these issues. As leaders, we begin by acknowledging our past failings, that we collectively have not done enough to actively address and dismantle the structures and processes that perpetuate inequality. We have started by creating equity and anti-racism frameworks within both the health system and school of medicine; we are examining and revising our approaches to health-care delivery to underserved populations; developing and implementing new policies guiding how we build a more diverse workforce through recruitment, retention and promotion of faculty and staff of color;

This is a moment of opportunity, one that opens the door wider for us to deliver on our mission of providing leading-edge clinical care, research and education through a lens that looks more closely at the issues and challenges of health-care disparities that exist in Los Angeles and our broader community.

and creating structures to train students and implement workplace reforms within an anti-racism framework. You can read more about these efforts in this issue (“The Reckoning,” page 26).

Bringing about cultural change is difficult, but it is necessary. Each year in August we tell our incoming medical students that they should be a thermostat and not a thermometer. Today, that is as true for all of us throughout the institutions of the UCLA Health System and David Geffen School of Medicine at UCLA as it is to those students. It is not enough for us to simply monitor the environment and the climate; we now must be a part of the process that sets the climate and defines the environment.

This is a moment of opportunity, one that opens the door wider for us to deliver on our mission of providing leading-edge clinical care, research and education through a lens that looks more closely at the issues and challenges of disparities in health care that exist in Los Angeles and our broader community. In partner-

ship, the health system and school of medicine are working to knit together our common concerns and goals to achieve the broadest possible impact.

It is a time for us to ask ourselves a critical question: “What have we done today to dismantle injustice and inequity?” Such a question is front and center in the work that we do as a public institution to ensure that patients from all walks of life have access to care and quality health outcomes, that we build a diverse workforce reflective of our community within a workplace structure that is fair and equitable, and that we train the next generations of physicians and medical scientists in the core values of diversity and inclusion.

Change will not happen overnight. This work we commit to now will be the work of a lifetime, an ongoing, evolving effort during which we must continually examine where we can best work to make the biggest difference, both internally at an institutional level, as well as for the community.

Now is the time for us — as an institution and as individuals — to step up to address these critical issues of racial inequity and injustice within our society. We at UCLA Health System and the David Geffen School of Medicine at UCLA pledge to do our part.

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In the Quiet of the Holiday Season, the City of Angels Burns

In the wake of pandemic fatigue and the fallout from highly politicized public health interventions, Los Angeles reaches a crisis moment.

By Tara Vijayan, MD

This holiday, like every holiday in years past, I drive to the hospital on the quietest of days. After a day of torrential winter rain, the sleeping giants that surround Los Angeles, the verdant Santa Monica and snow-capped San Bernardino mountain ranges, rise crisply against the clear blue skies. The 405, our country's most famous highway, is unobstructed, with few cars on the road. The surfers hang low, unable to paddle out, given the post-storm coliform counts.

There is a sacredness in this quiet, which is particularly conspicuous in the hospital during the holiday season. And still, the city of Los Angeles burns in a way it never has before.

Just nine months ago, my infectious-diseases colleagues and I had our first emergency Zoom meeting when we rapidly reassessed our triage process for the onslaught of pages we were getting on a still unknown virus. Back then, everyone mobilized, creating several layers of “back-up” physicians who would be on-call at all times. It was simply untenable for a single person to manage the constant questions of our fellow health care workers, while doing our best to allay the apprehension and the uncertainty. On more than one occasion, I would retreat to the bathroom stall to temper my own anxiety, fear and immense sorrow for all that we had already lost.

Much of our fear in March was the fear of not knowing how many people in Los Angeles were infected and if we would see the volume seen in New York City's hospitals. The depth of New York City's socioeconomic disparities was one that we also knew in our city and saw proof of daily. Historical redlining has perpetuated segregation well after the dissolution of Jim Crow laws. During the pandemic, study after study has shown how great a risk factor racism — with its multiple downstream effects, including overcrowding and food insecurity — is for



“Much of our fear in March was the fear of not knowing how many people in Los Angeles were infected and if we would see the volume seen in New York City's hospitals,” writes Dr. Tara Vijayan, referring to scenes like this one in the emergency department at Mount Sinai South Nassau Hospital, in Oceanside, NY.

Photo: Jeffrey Basinger/Newsday via Getty Images

COVID-19. Why would we not experience the same devastation in L.A.?

Somehow, the idea of truly scarce resources remained just an idea through the summer and fall. Before long, we knew most of the time who was infected, and we had a

general approach for treating them. Enrollment in trials to get better data remained a priority. We held our breaths as our communities, largely masked, took to the streets, weary of centuries of racial injustice now magnified. We waited for the peak. It never came. Instead, what we saw was a steady flow of new infections. The rates had never truly ebbed.

By November, however, we began watching the county numbers steadily rise. The pleas of our public health institutions rang hollow for many as our leadership failed to set an example. Our fellow Angelenos were tired and lonely. People started to gather indoors. Pandemic shaming was backfiring. And, exactly two weeks to the date from Thanksgiving, the hospitals' numbers started to double, then triple. Our multiple layers of back-up were simply not enough. It was, in many ways, inevitable that we would eventually approach a crisis.

The time had come to scale up in a way that U.S.-trained physicians were not used to. In less well-resourced settings around the world, much of health care is delivered by health care workers with less comparative training but who follow protocols — more prescriptive guidelines than guidance. Such guidelines, often written by ministries of health, take the tone of policy and are the only way a single person can see 60 patients with HIV a day and start them on antiretroviral therapy. This is how pandemics are managed during periods of peak crisis and scarce resources. We now resort to this in our own previously well-resourced hospital systems.

By early December, we began to re-strategize. In an effort to decentralize teams, moving from “COVID teams” to “teams that took care of patients with COVID-19 and others,” we created a two-hour Zoom session on COVID-19 management for more than 70 inpatient health care professionals. When it came to remdesivir, the only FDA-approved COVID-19 treatment, we acknowledged that our national guidance often differs from that of the World Health Organization, based on resources and priorities. Remdesivir's benefit is a reduction in time-to-clinical improvement, not a reduction in mortality, and many U.S. hospitals are willing to pay the \$3,120 per five-day course to get patients discharged sooner, saving costs and resources downstream. Low-cost dexamethasone, which has had modest evidence demonstrating a mortality reduction, was also an important treatment to consider for those with progressive hypoxia. We made it clear that any other treatment remained experimental.

With time, the desire to do something new and different has softened as frontline physicians quietly take on patient after patient. On occasion, the desperation surfaces, as we watch hospitals to the east of us take care of patients in gift shops. Unproven therapies for COVID-19, such as ivermectin and fluvoxamine, are promoted by some and find their ways into the histories of hospitalized patients, sometimes resulting in critical shortages for their intended use. Less-proven therapies such as monoclonal antibodies offer modest hope to prevent hospitalizations, but with limited space and staffing to administer this treatment, it remains a scarce resource that we try to deliver equitably.

This holiday season, like every holiday season before, I drive to the hospital on the quietest and clearest of days, eyes fixed on the jutting mountain ranges that surround our beloved city. This city — complex in demography and geography, and exposed by its measures of social vulnerability — is burning in a way that feels slower than New York. Los Angeles, in the wake of profound pandemic fatigue and the fallout from highly politicized public health interventions, will burn slow and long. And while case-fatality rates have dropped, in part due to improved care, many in our community, young and old, will still die.

This remains the hardest pill to swallow. The inability to see loved ones at the time of their suffering and their death remains a painful experience that we, in health care, live vicariously through our patients and their family members. It is what we fear the most as the personal radius of those who have COVID-19 grows smaller.

But I remain hopeful. I am hopeful for the power of masking, the power of vaccines and the power of compassionate positive messaging. After all, in this city of dreams, in this City of Angels, what are we without hope.

Dr. Tara Vijayan is assistant professor of medicine in the UCLA Division of Infectious Diseases and medical director of antimicrobial stewardship at UCLA. This article was first published online by BMJ on January 5, 2021.

The Day the Vaccine Arrived

The holidays were just around the corner as frontline health care workers gathered to receive what this year may be the best gift of all: the vaccine against COVID-19.

By Sandy Cohen



Photos: Ann Johansson

Eunice Lee's hands tremble as she stretches a pair of blue latex gloves over her fingers. As a registered nurse at Ronald Reagan UCLA Medical Center, she has given hundreds of vaccines over her career. But never one like this.

Lee is preparing to administer the first COVID-19 vaccine at UCLA Health.

"I'm very honored," the soft-spoken RN says, her eyes hinting at the smile hidden behind her mask. "I'm very excited and happy, and also kind of nervous."

It is the week before Christmas, and in the large lobby on

the B Level of Ronald Reagan UCLA Medical Center, a makeshift vaccination center is set up for frontline health care workers to receive their shots. Ten booths made of plastic sheeting stand side-by-side for the doctors, nurses, respiratory therapists, custodians and others whose jobs put them into regular contact with patients with COVID-19. These workers are the first at UCLA Health to receive a dose of Pfizer's COVID-19 vaccine, the first to receive emergency-use authorization from the U.S. Food and Drug Administration.

The room buzzes with excited energy, and the mood, after many long, dark months of the

pandemic, is celebratory. Bruin blue and gold mylar balloons bob against each other at the check-in table, and workers bubbling with anticipation arrive long before their scheduled appointments.

"I am like, 'Please, let me go first!' I'm so excited!" says Nicole Chang, RN, who works in the COVID-19 unit at UCLA Santa Monica Medical Center. "It's just been a really long year for everybody, and I think this is an opportunity for us to heal together and finally get back on track to normalcy. I miss seeing people smile. I miss seeing people's faces. I miss hugging my grandma. Those are all motivating factors as to why I want to get this vaccine."



OPPOSITE PAGE: "I feel like there's a light at the end of the tunnel," said nurse Nicole Chang, after receiving her first dose of the Pfizer COVID-19 vaccine.

THIS PAGE: UCLA Health pharmacist Beman Li holds a prepared Pfizer COVID-19 vaccine (top) before the first dose is delivered to Chang (bottom).

Suddenly, the chatty excitement in the room turns to reverent silence as a pharmacist carrying a shoebox-size container holding the initial vaccine doses steps through the door. The Pfizer/BioNTech vaccine, which arrived packed in a box filed with dry ice via a FedEx utility van the day before, must be stored at ultra-cold temperatures — minus-94 degrees Fahrenheit — then defrosted and diluted before being administered. Spontaneous applause erupts as she walks into the room, all eyes following her to a refrigerator, where the vaccine will be stored until it is time for it to be injected.

Just before 9 am, emergency department physician Medell Briggs-Malonson, MD (RES '09, FEL '12), MPH, removes her white coat, rolls up the right sleeve of her scrubs and takes a seat at one of the stations to be the first UCLA health care worker vaccinated. She confesses that she had been nervous that morning about getting the vaccine, a hesitation that, she says, evaporated when she arrived at the hospital and was swept up in the enthusiasm of the moment.

"This is our time to help stop the pandemic," she says to an audience of colleagues watching the momentous injection.

"I'm incredibly excited. I'm very optimistic."

Lee administers the vaccine to Dr. Briggs-Malonson, and coworkers clap and cheer.

Afterward, Dr. Briggs-Malonson notes that the health care workers receiving their shots are sending a message to the broader community, many of whom have expressed hesitancy about the vaccine. "As an African American woman who is a physician, this is a signal to my community that this vaccine is safe, this vaccine is highly effective," she says. "There is science behind it. There also is an urgency behind it because of the way COVID-19 has negatively and disproportionately affected communities of color and under-resourced communities."

About 480 UCLA Health workers follow Dr. Briggs-Malonson to receive their first dose of the two-dose Pfizer vaccine on the first day of distribution. Chang's turn arrives, and she gives a thumbs-up as Lee pushes the needle into her arm. The pinch of the shot is nothing compared to the heartbreak that the pandemic has wrought, she says.

"I've seen the devastation it has caused." But now, Chang says, there is hope. "I just feel hopeful and optimistic and like there's a light at the end of the tunnel," she says. "But it's not going to be just the people who are here today who are going to get the vaccination that's going to stop this; it has to be everybody."

Matthew Dartt, assistant director of respiratory therapy at UCLA Santa Monica Medical Center, also was among the first group to receive the vaccine. With the latest surge in COVID-19 cases, and ICU beds filling up, "everybody has been feeling down the last few weeks and like this is never going to end," Dartt says. But now, with the Pfizer vaccine — and a second vaccine, by Moderna, receiving emergency-use authorization from the FDA a couple of days after UCLA began its vaccination program — "this feels like the light at the end of the tunnel."

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



UCLA Mattel Children's Hospital patients Xavier Mesa (top), Debbie Flores (middle left), Evan Beier (middle right) and Montserrat Charre (bottom) shared their art with ESPN host Sam Ravech (opposite page).

Photos: (Ravech) Courtesy of Sam Ravech/ESPN; (kids) Courtesy of UCLA Mattel Children's Hospital Chase Child Life Program

Xavier Mesa, a young patient, was excited to show that his favorite football team was the Dallas Cowboys — sorry, L.A. Rams. But the Cowboys are not the only team that Xavier roots for. “I also love the Lakers!” he says. “I love to watch LeBron. He is my favorite player on the team.”

Another young patient, Debbie Flores, wanted everyone to know that she appreciates all sports, including cheerleading and golf. “I love to play sports,” she says. “When I used to go to school [in person], I would play everything.” She especially loves UCLA — “That’s my dream school!” she says — and she proudly wore a UCLA basketball jersey for her photo with her artwork.

Drawing and painting can be powerful healing tools, Carroll says. “Without realizing it, Sam partnered with us in providing a space for children on the mend to feel like they are seen.”

As the art and photos came in, Ravech was delighted, and he quickly put them up on the brick wall behind him for his live broadcasts of women’s college basketball. He hopes to continue to spotlight the creativity of hospitalized children as he broadcasts from home. “In times like these, we can all use a smile, and that is what the wonderful kids at UCLA Mattel Children’s Hospital provided for all of our viewers on ESPN,” he says.

It has been a kick for the kids, and also for the members of Carroll’s child-life staff. “We are so happy we could partner with Sam on this,” Carroll says. “The ability to point out to kids watching the broadcast that their art is on television not only brings them joy, it also reminds them they are not limited to the hospital walls, that they matter to the community and that they have the potential to also bring happiness to others.”

Jane Murcia is a UCLA Health media relations officer.

The Art of Sport

By Jane Murcia

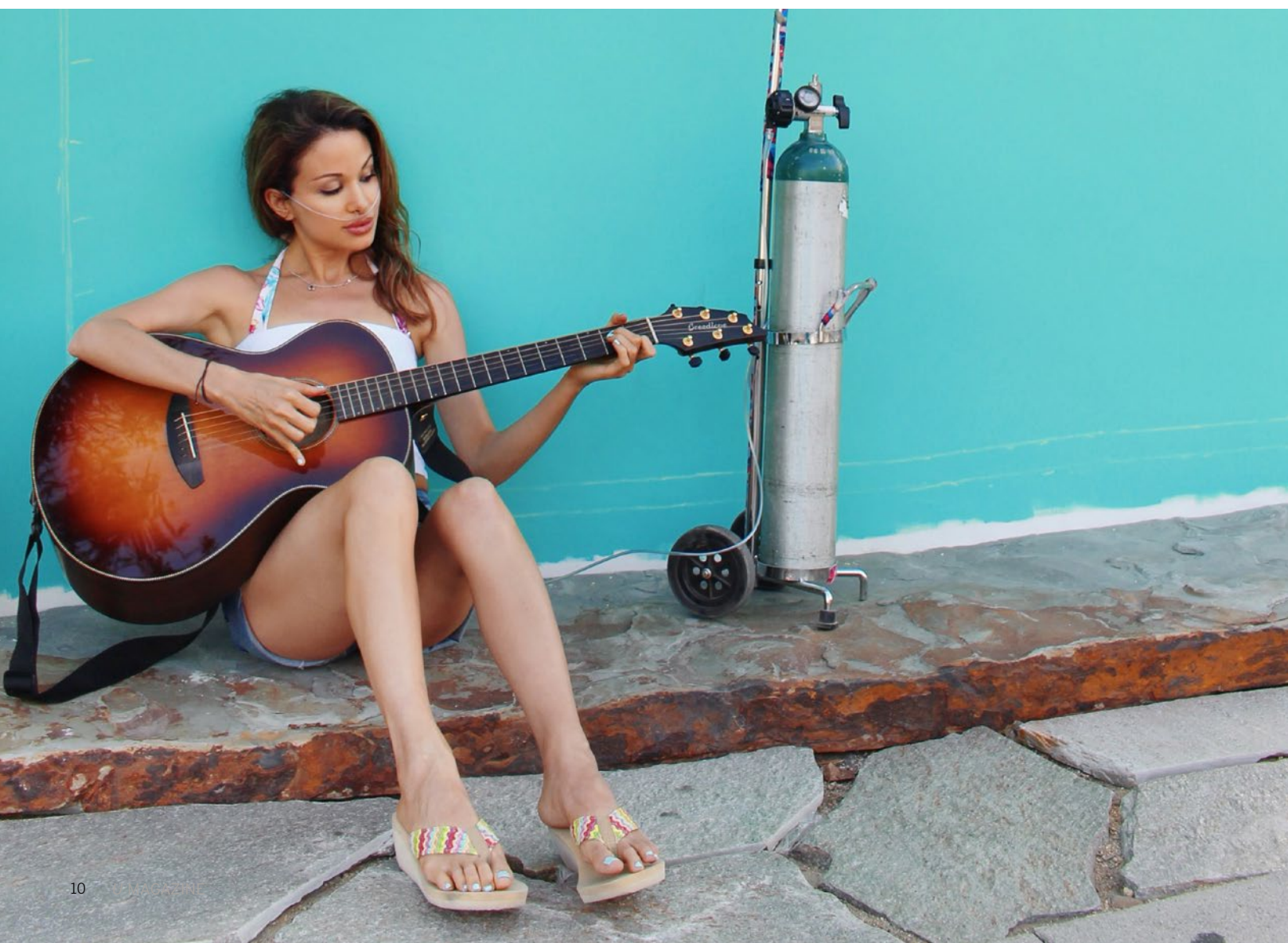
WHEN ESPN COLLEGE BASKETBALL COMMENTATOR SAM RAVECH WAS FORCED TO BROADCAST FROM HIS HOME DURING THE COVID-19 PANDEMIC, HE REALIZED HE WAS MISSING A VITAL ELEMENT TO MAKE HIS SHOW POP — an inspiring background. With the new normal of broadcasting games from their living rooms, dens or bedrooms, many of his colleagues were using personal photographs or sports memorabilia as their backdrops. Ravech saw an opportunity to do something different and make a statement.

He decided to showcase the art of hospitalized children. So Ravech reached out to Kelli Carroll, director of the UCLA Mattel Children’s Hospital Chase Child Life Program, to ask kids hospitalized at UCLA to create drawings and paintings featuring their favorite sports, teams or players that he could put on the wall behind him.

The children were thrilled, and they immediately got to work expressing their love in paint and colored pencils for the Los Angeles Dodgers, Lakers, UCLA Bruins and other teams.

Reclaiming Her Voice with a Gift of New Lungs

It was just last year that singer/songwriter Chloe Temtchine was performing in front of a live audience with a breathing tube running from her nose to an oxygen tank she nicknamed “Steve Martin,” one of her favorite actors. “There were times when I could barely breathe, but I would sing through my pain,” says Temtchine, who suffered from pulmonary hypertension (PH), a type of high blood pressure that affects arteries in the lungs and on the right side of the heart. “Music was the one thing that kept me going.”



Now 38, Temtchine was 25 when she started feeling ill. “At the time, no one knew what was wrong with me,” she says. “I was diagnosed with everything from pulmonary embolism to an autoimmune disease. I was even told to see a psychiatrist.”

It was not until she came home to New York from a trip to Europe and landed in a hospital seven years ago that she was diagnosed with severe pulmonary hypertension. “My pulmonary pressures were at 180, and I was in heart failure. I was told that I had pulmonary veno-occlusive disease, a rare and fatal disease, for which life expectancy is less than a year,” she recalls. She would require supplemental oxygen 24/7 to stay alive.

None of the medications doctors prescribed were working for her. After doing some research, she embarked upon a strictly raw vegan diet free of salt, fats and oil, and, over the course of three years, she began to feel better. At the same time, her fan base started to grow, and she became a well-known figure in the PH community. “Hundreds of emails were coming in every day,” Temtchine says. “I put everything out there about my health experiences in the hopes that I could be of help to others who were suffering.”

Then her health again started to decline. “I was trying to convince myself that everything was fine, but it definitely wasn’t,” she says. This past summer, she was walking on a treadmill when her heart rate shot up to 175 and wouldn’t go down. She went into cardiac arrest, ended up in a Los Angeles ER and was placed on ECMO extracorporeal mechanical oxygenation, a pump to circulate her blood through an artificial lung. “They said if they couldn’t separate me from ECMO, I would need a lung transplant or I would die.”

The thought of a lung transplant terrified her. “I think I was more scared of having a lung transplant than I was of dying,” Temtchine says. “But I eventually understood that it was my only chance to survive.”

She found her way to UCLA and Abbas Ardehali, MD (RES ’95, ’97), William E. Conner Chair in Cardiothoracic Transplantation and director of the UCLA Heart, Lung, and Heart-Lung Transplant programs. “Chloe faced a life-threatening situation and was at high surgical risk for complications,” Dr. Ardehali says. “That made her a perfect fit for UCLA’s lung-transplant program. We have the expertise to be the last resort for patients who are considered too high risk to be treated elsewhere.”

Temtchine was on the transplant waiting list just eight days before a donor was found. She received her new lungs in August and now has both a new lease and a new take on life. “I feel like I was literally born on August 5, the day I received my new lungs,” she says. “No words could ever do justice when it comes to expressing how grateful I am. It has been a miracle and a truly surreal experience.”

Temtchine can’t wait to rebuild her voice and sing again. While the pandemic has kept her indoors, she plans to retake the stage and perform with Steve Martin still by her side. “He has become a part of my show,” Temtchine says. “The only difference is that now he and I will no longer be connected to each other.”

As Temtchine’s life has changed, so, too, have her goals. “I used to want to win a Grammy; now I just want to feel well,” she says. “I’m so thankful that I do.”

— Alana Prisco



PREVIOUS PAGE: “There were times when I could barely breathe, but I would sing through my pain,” Chloe Temtchine says. “Music was the one thing that kept me going.”

TOP: Though she is now free of her oxygen tank, which she nicknamed Steve Martin, Temtchine says she will continue to keep it by her side when she performs. “He has become a part of my show. The only difference is that now he and I will no longer be connected to each other,” she says.

BOTTOM: Temtchine met the real Steve Martin in 2015 at a Vanity Fair party in New York and told the famous funnyman that she named her ever-present oxygen bottle after him. “He said he was honored to be named after a tank!” she says.

Photos: Courtesy of Chloe Temtchine

 To view videos of Chloe Temtchine singing original songs of hope and comfort, go to: tinyurl.com/Chloe-Temtchine-You-Save-Me; tinyurl.com/Chloe-Temtchine-Be-Brave; and tinyurl.com/Chloe-Temtchine-Madison

 To view a video of a visit by Chloe Temtchine to UCLA Mattel Children’s Hospital, go to: tinyurl.com/Chloe-Temtchine-Smile-Tour

How Babies Rewire Their Brains to See in 3-D



Photo: iStock

A new UCLA study has found that as babies develop binocular vision, their brains improve the sense of depth perception through rewiring rather than refining — a very different mechanism than was previously thought to be the standard. Soon after a baby's eyes open, he or she develops binocular vision that improves considerably during a so-called "critical period" and gives rise to depth perception. The standard view has been that this improved vision is a result of the brain pruning an overly wired neural circuitry, much the way a sculptor chips away at a chunk of marble to reveal the final form of the sculpture. In this view, connections laid down in the cortex before birth are then refined and improved by the brain using sensory experience.

However, the UCLA study reveals that more than half of the binocular neurons present at the onset of the critical period do a poor job of encoding visual information. Instead of refining these poorly performing neurons, the brain dismantles their wiring and rebuilds the circuitry with a different set of neurons that are able to "tune" depth perception based on visual feedback.

Researchers Joshua T. Trachtenberg, PhD, and Dario L. Ringach, PhD, professors of neurobiology at the David Geffen School of Medicine at UCLA, and post-doctoral researcher Liming Tan, PhD, tracked cells over the critical period by taking repeated measures of their tuning properties and binocularity. They used a noninvasive microscope in conjunction with genetic manipulations to make cells glow green only when they were active.

In showing that the brain rebuilds its vision circuitry through a different set of neurons, the study findings stand in stark contrast to the predominant view that the brain refines its original tangle of neural wiring to improve binocular vision. That large-scale changes in neural circuitry are achieved by controlling a relatively small set of inputs suggests the possibility of specific pathways that can be targeted when developing treatments for neurodevelopmental disorders.

— Elaine Schmidt

📖 "Vision Changes the Cellular Composition of Binocular Circuitry During the Critical Period," *Neuron*, November 25, 2020

A Step Toward Understanding Why COVID-19 Boosts Stroke Risk

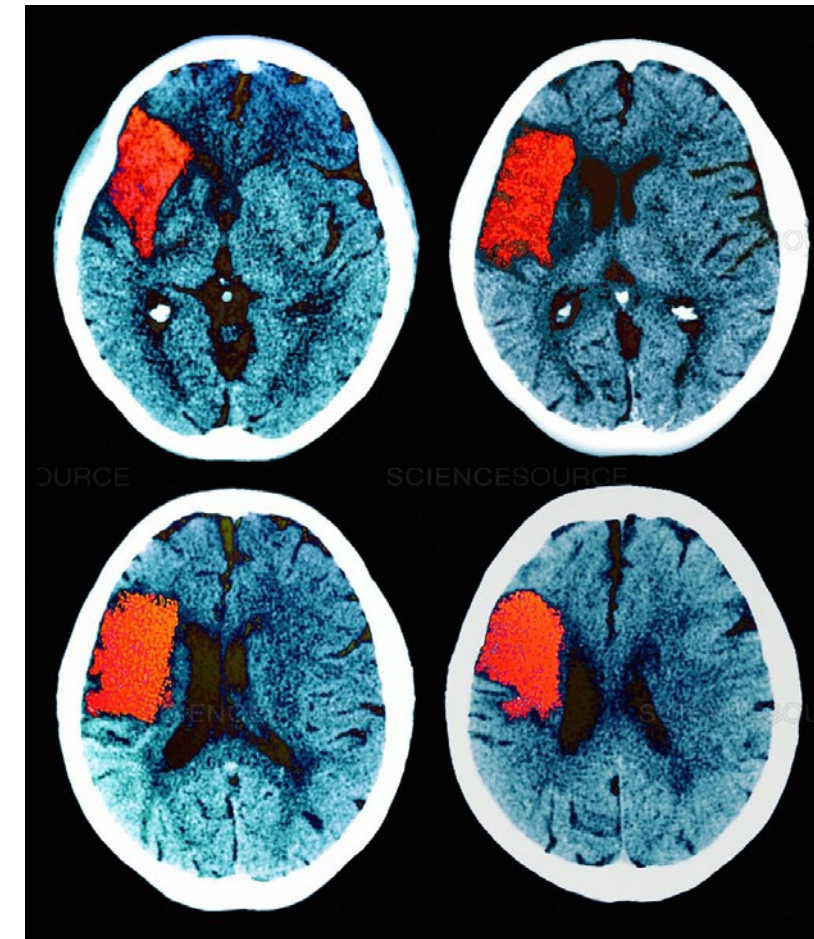


Image: Science Source

Although COVID-19 is known for its severe respiratory symptoms, the disease also has been associated with strokes in young people who had no known risk factors. A new UCLA-led study may help illuminate how the coronavirus interacts with certain cells in the brain.

Endothelial cells line the interior of blood vessels in organs, including the brain, heart and lungs. Previous research indicated that the coronavirus binds to endothelial cells in organs, but it was unknown whether or not that binding action was happening in the brain. UCLA researchers used a 3D-printed silicone model of blood vessels in the brain to mimic the forces generated by blood pushing through an artery that is abnormally narrowed — a condition called

intracranial atherosclerosis. They showed that those forces act on the cells lining the artery and increase the production of a molecule called angiotensin-converting enzyme 2, or ACE2, which the coronavirus uses to enter cells on the surface of blood vessels. "The flow directly influences ACE2 expression," says Jason Hinman, MD (FEL '13), PhD, assistant professor of neurology. In addition to Hinman, the study's authors are neurologists at the Geffen School of Medicine and scientists from UC San Francisco and the Veterans Health Administration.

To confirm if coronavirus bobbing along in the bloodstream could latch onto the ACE2 on the endothelial cells in the brain, researchers produced imitation "viruses" — fatty molecules studded with the spike proteins that coronavirus uses to bind to ACE2. After creating the new model, they confirmed that the particles did, indeed, interact with the cells lining the blood vessel, mostly in the regions of the brain with higher levels of ACE2. "Brain endothelial cells are susceptible to direct SARS-CoV-2 infection through flow-dependent expression of ACE2," they concluded in the study.

The scientists also analyzed which genes were turned on in the endothelial cells after the coronavirus spike proteins bound to them. They found that the genes that were activated were a specific set of immune-response genes that are found in brain blood-vessel cells but not in endothelial cells from other organs of the body. This unique feature "may be helpful in identifying patients who have a higher risk for stroke," Dr. Hinman says.

— Caroline Seydel

📖 "Flow-mediated Susceptibility and Molecular Response of Cerebral Endothelia to SARS-CoV-2 Infection," *Stroke*, January 2021

Study Finds More Americans Involuntarily Detained Due to Mental Illness

The rate at which Americans are held against their will and forced to undergo mental health evaluations and state-ordered confinement has risen sharply over the past decade, outpacing population growth by a rate of three-to-one, on average, in recent years, a UCLA study finds. The study, which is the most comprehensive compilation of data on involuntary detentions to date, was made more challenging by the lack of a national data set and longstanding inconsistencies in reporting across states and jurisdictions.

“This is the most controversial intervention in mental health, yet no one could tell how often it happens in the United States,” says David Cohen, PhD, professor of social welfare at the UCLA Luskin School of Public Affairs.

While each state has its own laws governing these detentions, nearly all specify that people who have not been accused of a crime but who may pose a danger to themselves or others or can't take care of themselves — because of mental illness or substance abuse — can be detained in an authorized facility, Dr. Cohen says. An initial evaluation can last several days, but detention can be extended at the discretion of mental health professionals.

Dr. Cohen and collaborators scoured health and court websites for all U.S. states and were able to pull data on involuntary detentions from just 25 for the period from 2011 to 2018. In those 25 states, they found, annual detentions varied from a low of 29 per 100,000 people in Connecticut in 2015 to a high of 966 in Florida in 2018. Twenty-two states had continuous data from 2012 to 2016. The authors found that during this span, the average yearly detention rate in these states increased by 13%, while their average population grew by just 4%.

“If you think that coercion is necessary in mental health, then a rise in detention rates may be welcome news, a sign that society is doing whatever it takes to help people,” Dr. Cohen says. “But if you think that coercion is punishment — that we need services to prevent or defuse crises in families and society before they get out of control — then a rise is a bad sign.”

One of the most common triggers for a detention is a threat of suicide, Dr. Cohen says. He noted that the detentions often involve law enforcement personnel. “The process can involve being strip-searched, restrained, secluded, having drugs forced on you. For people already scarred by traumatic events, an involuntary detention can be another trauma,” he says.

The authors stress that their study is not about whether or not involuntary psychiatric detention helps or hurts; it is about determining precisely how often it occurs in the U.S. They hope to spur a national discussion and the collection of more data, which “would not only lead to a better understanding of the epidemiology of psychiatric detentions in the U.S.,” says Gi Lee, a social welfare doctoral student and co-lead author of the study, “but it could help determine to what extent commitment is a last resort.”

— Les Dunseith

“Incidences of Involuntary Psychiatric Detentions in 25 U.S. States,” *Psychiatric Services*, November 3, 2020

Illustration: Maja Moden

Modified Blood Test Could Help Predict Pregnancy Complications



MRI of study participant's baby at 21 weeks (left), and study participant with child.

Images: Courtesy of Precious Ann Fortes

A new UCLA study is harnessing the power of molecular changes during pregnancy in a way that could help to more accurately predict such complications as gestational diabetes and preeclampsia before symptoms arise. In modifying a blood test used to detect DNA-level changes that could point to fetal abnormalities, this research is the first to tie potential pregnancy complications to the presence of cell-free nucleic acids — free-standing genetic material — shed from the placenta into the mother's blood.

To Sherin U. Devaskar, MD, physician-in-chief at UCLA Mattel Children's Hospital, this blood test is the first step in addressing at-risk pregnancies. “Most often in medicine, we're fixing a problem after it occurs,” Dr. Devaskar says. “If we are able to detect some of these pregnancy disorders before they happen, and if we can prevent them, that will be phenomenal.”

To isolate cell-free nucleic acids shed from the placenta into the blood, the interdisciplinary team used state-of-the-art imaging, mathematical algorithms and modeling. Between February 2017 and January 2019, the researchers periodically tested the blood of a group of expectant mothers through the duration of their pregnancies. Giorgia Del Vecchio, PhD, a post-doctoral researcher in the UCLA Department of Pediatrics, analyzed the cell-free DNA from samples of maternal plasma taken during the first, second and third trimesters of pregnancy, and also at delivery. “We found that in

patients who developed gestational diabetes later in pregnancy, the percentage of DNA coming from the placenta in the first trimester was higher compared to the patients with pregnancies that didn't have complications,” Dr. Del Vecchio says.

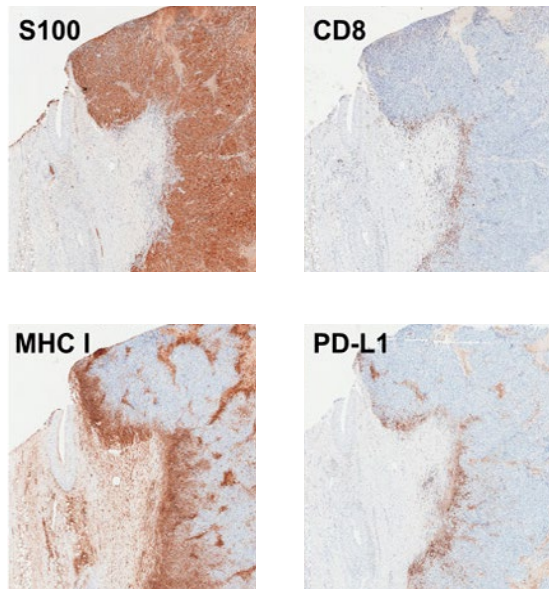
The disorder typically is diagnosed with a glucose-tolerance test at 24-to-28 weeks, but with the blood test developed by UCLA researchers, it is detectable during the first trimester, between 10 and 12 weeks. The research team also was able to develop a model to predict preeclampsia with up to 86% accuracy by isolating and sequencing cell-free RNA to identify whether certain preeclampsia-indicating genes were at play.

New information paired with early detection will lead to better outcomes for mothers and their babies, Dr. Devaskar says. Mothers will be forewarned and, therefore, better able to work with their doctors on making the necessary diet, medical and behavioral changes to stave off pregnancy-related complications. “Knowledge is power,” she says. “And patients have the right to knowledge and to be powerful in their own care.”

— Jocelyn Apodaca Schlossberg

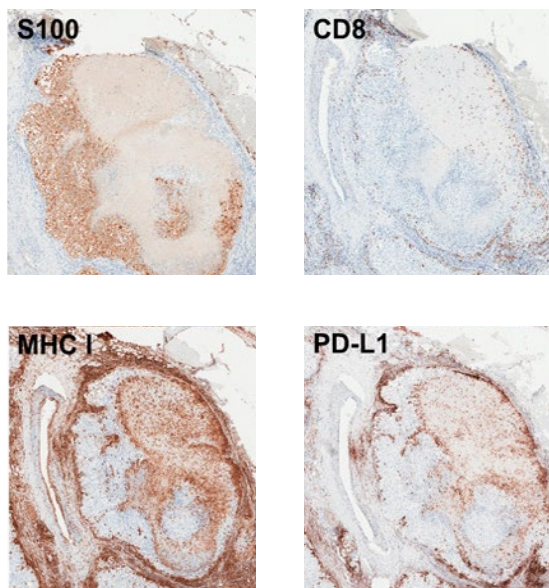
“Cell-free DNA Methylation and Transcriptomic Signature Prediction of Pregnancies with Adverse Outcomes,” *Epigenetics*, October 13, 2020

Virus-mimicking Drug Helps Immune System Target Cunning Cancer Cells



Immunohistochemical staining analysis at baseline (above) and at relapse (below) in a patient with melanoma that developed acquired genetic resistance to anti-PD-1 ICB. Before treatment with immunotherapy, tumor cells (stained brown in panel S100) are invaded by T cells that produce interferon (IFN)-gamma (stained brown in panel CD8) and, in response, express proteins (MHC I, stained brown in panel MHC I) that allow them to be recognized by the immune system as well as other IFN-reactive proteins (PD-L1, stained brown in panel PD-L1).

Image: Dr. Jesse Zaretsky



A drug that activates the body's natural defenses by behaving like a virus may also make certain stealthy melanoma tumors visible to the immune system, allowing them to be better targeted by immunotherapy, a UCLA study has found. The findings open up the possibility of using drugs that mimic viruses to overcome immunotherapy resistance in certain tumors and help to create more personalized therapies for people with hard-to-treat cancers.

Interferons are proteins in cells that respond to viral infection by alerting the immune system to marshal its forces, including T cells, to combat viruses. When it comes to tumors, activating interferon signaling helps slow down tumor division and can lead to the release of molecules that recruit more immune cells to fight the tumor. That concept is the basis for adoptive T-cell therapy, a type of immunotherapy that involves extracting T cells from a patient and engineering them in the laboratory to recognize and kill cancer cells.

However, gene mutations that produced defective interferon signaling allowed some tumors to escape that immune system response. The defective signaling interrupts a critical pathway that normally would allow tumors to increase their antigen presentation — “an intricate machinery that makes tumors visible to T cells,” says Anusha Kalbasi, MD '11, assistant professor of radiation oncology and member of UCLA's Jonsson Comprehensive Cancer Center.

To overcome defective interferon signaling, the researchers turned to a virus-mimicking drug, called BO-112, that activates virus-sensing pathways in tumors. When the drug was injected directly into the tumor in the laboratory, the team discovered that the activation of virus-sensing pathways increased antigen presentation even when interferon signaling was defective. As a result, these tumors could be recognized and killed by T cells.

The study “gives us important insights into how tumors are recognized by the immune system,” says Antoni Ribas, MD (FEL '98, '01), PhD, director of the tumor immunology program at UCLA's Jonsson Cancer Center. “New strategies to promote antigen presentation to make tumors more visible to the immune system will allow immunotherapy to be effective for even more tumor types.”

— Denise Heady

“Uncoupling Interferon Signaling and Antigen Presentation to Overcome Immunotherapy Resistance Due to JAK1 Loss in Melanoma,” *Science Translational Medicine*, October 14, 2020

Study Illuminates Impact of COVID-19 on Pregnant Women

A national study led by researchers at UCLA and UC San Francisco has shed greater light on how COVID-19 affects pregnant women. The Pregnancy CoRonavirus Outcomes RegIstrY (PRIORITY) study analyzed the clinical course and outcomes of 594 women who tested positive for the novel coronavirus during pregnancy.

While previous research on SARS-CoV-2 infection in pregnancy has primarily centered on hospitalized patients, the new analysis focused on ambulatory patients, who represent the overwhelming majority of adults with the virus. The study, which is the largest COVID-19 study among non-hospitalized pregnant women to date, showed that symptoms for pregnant women with COVID-19 can be prolonged, lasting two months or longer, as evidenced by a quarter of the women who participated in this study.

The study also found that the most common early symptoms for pregnant women were cough, sore throat and body aches. Half of the participants still had symptoms after three weeks, and 25% had symptoms after eight weeks. “The majority of participants in our study population had mild disease and were not hospitalized,” says Yalda Afshar, MD (FEL '19), PhD, assistant professor-in-residence of obstetrics and gynecology. “Even so, it took a median of 37 days for symptoms to ease.”

The study authors noted that symptoms related to the virus were complicated by overlapping symptoms of normal pregnancy, including nausea, fatigue and congestion. “Pregnancy in and of itself makes significant changes to the physiology of the body,” Dr. Afshar says. “In fact, pregnant women are considered immune-compromised. An infection on top of that results in a potentially very different scenario for both mom and baby. We wanted to have data relevant to women, for women, so we can take care of them better.”

The PRIORITY study is an ongoing study for women who are pregnant or up to six weeks postpartum and have a confirmed or suspected case of COVID-19.

— Alana Prisco



Photo: iStock

“Clinical Presentation of Coronavirus Disease 2019 (COVID-19) in Pregnant and Recently Pregnant People,” *Obstetrics & Gynecology*, December 2020

For information about providing biological samples for the study, go to: uclahealth.org/obgyn/yalda-afshar-md-phd-lab

The Impact of Poverty on Childhood Development Noted in Kids as Young as 5

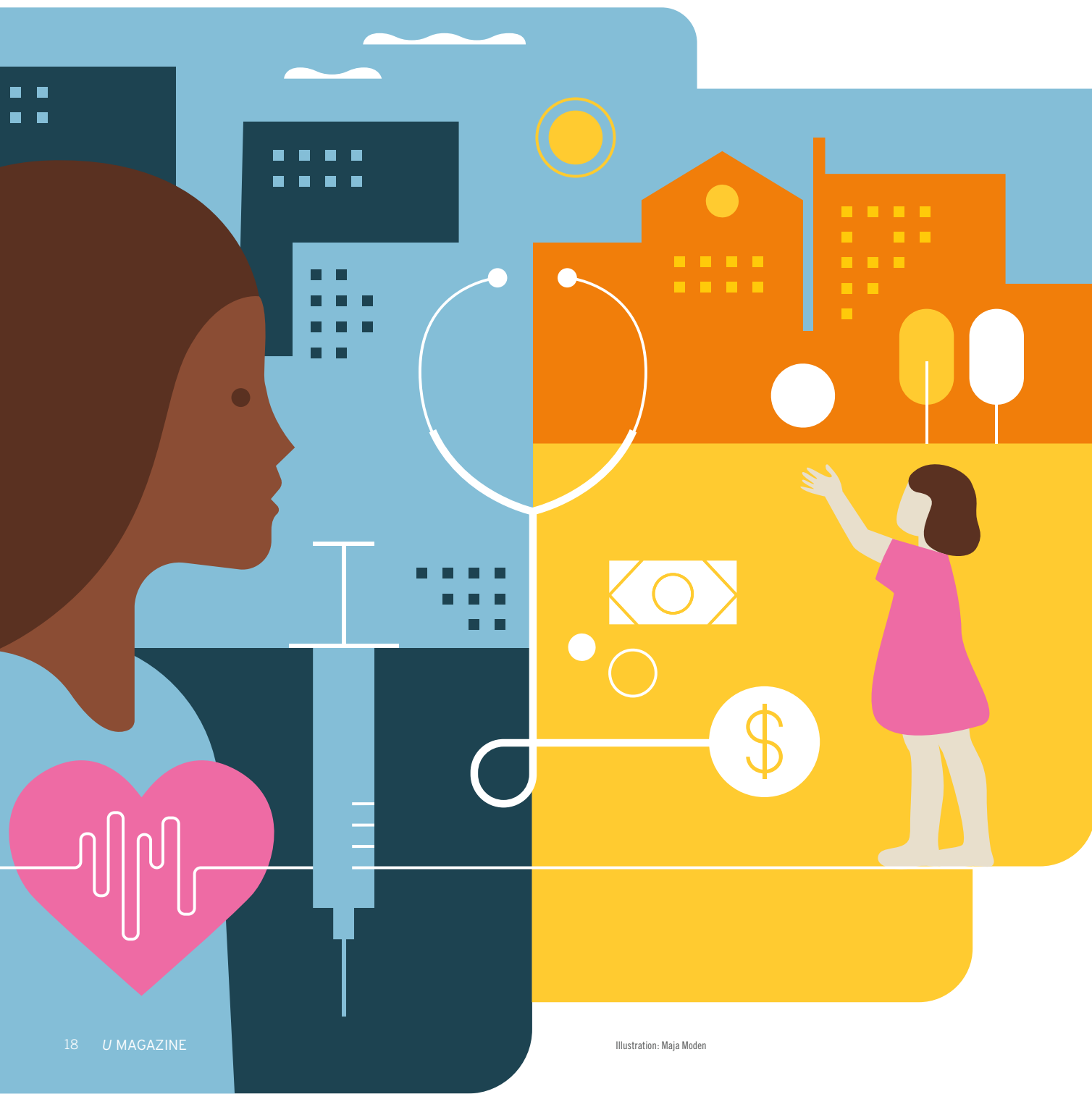


Illustration: Maja Moden

Childhood Health Vulnerabilities in Relation to Income

LOWEST-INCOME

30%

of lower-income children are vulnerable in one or more regions of health development.

HIGHER-INCOME

17%

of higher-income children are vulnerable in one or more regions of health development.

Health inequities can be measured in children as young as 5 years old, UCLA researchers have found. The results of this nationwide study, conducted with the help of kindergarten teachers, contribute to a growing body of literature revealing that children of color who are also poor face greater health inequities than their white counterparts.

The study was conducted using the Early Development Instrument (EDI), an assessment tool that measures children's physical, social, emotional and language development. Researchers trained kindergarten teachers in 98 school districts across the United States to administer the EDI to more than 185,000 kindergarteners from 2010 to 2017, with UCLA piloting the tool in Santa Ana in 2009 in partnership with First Five Orange County.

After analyzing and correlating the results according to where the children lived, the investigators found that 30% of children in the lowest-income neighborhoods were vulnerable in one or more domains of health development, compared to 17% of children in higher-income settings.

The researchers also found that income-related vulnerabilities varied substantially among children from different ethnic and racial groups. Black children, for example, were at highest risk, followed by Latina/o children. Asian children were at lowest risk. The differences in developmental vulnerability between Black children and white children were most pronounced at the higher socioeconomic levels and tended to narrow for Black and white children from lower-income neighborhoods.

These early disparities can have a profound influence on children's long-term development, leading to higher rates of chronic conditions such as diabetes, heart disease, drug use, mental health disorders and dementia as adults. "Many other studies

have highlighted patterns of income and racial inequality in health and educational outcomes. What this study shows is that these patterns of inequality are clearly evident and measurable before kids start school," says Neal Halfon, MD, MPH, director of the Center for Healthier Children, Families and Communities at UCLA and professor of pediatrics, public health and public policy in the David Geffen School of Medicine at UCLA, the UCLA Fielding School of Public Health and the UCLA Luskin School of Public Affairs.

The report also underscores the value of understanding these inequities at the most micro levels, which "helps cities and local grassroots efforts develop targeted supports and services," says Lisa Stanley, DrPH, project director for Transforming Early Childhood Community Systems at the UCLA Center for Healthier Children, Families, and Communities.

UCLA researchers have made this data accessible to local communities to help them develop their own initiatives. "Only by addressing the historical exploitation and exclusion of marginalized communities can we begin to repair the pains and exploitative practices of the past and redesign our community systems so that all children thrive," says Efen Aguilar, head of geographic information systems at the center.

— Jane Murcia

“Measuring Equity from the Start: Disparities in the Health Development of U.S. Kindergartners,” *Health Affairs*, October 2020

A Watershed Moment

Collaboration between UCLA Health and the Regeneron Genetics Center closes in on a new era of precision medicine and personalized health care.

Daniel H. Geschwind, MD (RES '95, FEL '97), PhD

Director, Institute for Precision Health at UCLA

Gordon and Virginia MacDonald Distinguished Professor of Neurology, Psychiatry and Human Genetics

Aris Baras, MD, MBA

Head of Regeneron Genetics Center Senior Vice President, Regeneron

A recently announced research partnership between UCLA Health and its Institute for Precision Health and the Regeneron Genetics Center (RGC), a genetics-focused division of the New York-based company Regeneron, is an enormous stride toward the creation of a new paradigm in medicine, one in which a person's genetics becomes an essential roadmap to identify his or her disease risks and provide preventive treatment. "We now are at a watershed moment, ready to take a big step toward that reality," says Daniel H. Geschwind, MD (RES '95, FEL '97), PhD, Gordon and Virginia MacDonald Distinguished Professor of Neurology, Psychiatry and Human Genetics and director of the Institute for Precision Health at UCLA. "We are close to reaching a turning point in the way health care will be delivered for our patients and our community."

Building on genotyping work already underway at UCLA, UCLA Health and the RGC will provide whole-exome sequencing for 150,000 UCLA Health patients who have consented to participate in the UCLA ATLAS biobank to analyze their genetic makeup and discern heretofore unknown gene mutations that may influence a patient's health. Genotyping, which is targeted to a specific place in the DNA, looks for a predefined set of variants; whole-exome sequencing analyzes thousands of protein-coding genes and provides information on many more mutations.

Using a needle-and-haystack analogy, genotyping looks for predetermined needles in a specific location, while sequencing searches more of the haystack to detect unexpected needles. "We believe in the power and promise of genetics-based

medicine," says Aris Baras, MD, head of the RGC and senior vice president at Regeneron. "Ordering whole-exome genetic testing may eventually become as commonplace as ordering routine lab work, and it will give physicians a better chance to offer earlier intervention and better outcomes for patients." Drs. Geschwind and Baras spoke about the collaboration with UCLA Health Executive Director of Communications Judy Fortin.

Let's begin by talking about what this collaboration between UCLA Health and the RGC will mean.

Dr. Daniel Geschwind: It's a very exciting partnership. Regeneron has expertise in population-level genetics and sequencing to identify new drug targets and for other purposes in drug development. Working with the RGC, we will be able to do what's called "whole-exome sequencing" — sequencing the protein-coding part of the genome in 150,000 UCLA patients, which would represent a cross-section of patients from the standpoints of age, disease and ethnicity.

Dr. Aris Baras: Together, we will be able to integrate genomics with broader information about the health of study participants to understand how one's genome drives health and disease. UCLA has been a leader in genomics and in doing trials and large-scale studies like this. Ultimately, we will enroll several hundred thousand people — and it could be many more — with the goal of discovering new genes that cause diseases and, with academic



Drs. Aris Baras(left) and Daniel H. Geschwind.
Photos: Ann Johansson

and biotech researchers working together, developing targeted therapies to treat those diseases. It is a massive undertaking that will drive the use of genomics forward for better diagnoses, prognoses and overall patient health.

How is this different from previous genome-sequencing efforts that have been undertaken at UCLA?

Dr. Geschwind: Most genome-sequencing at the academic level has been primarily research oriented. This is taking that research to the next level, toward something that is actionable. We've talked for some time about the promise of precision medicine — a time when preventive measures and targeted treatments can be individualized to each patient's genetic makeup. Through this collaboration, we will be sequencing a broad spectrum of patients who are not part of medical studies, but are coming to UCLA as part of their medical care, and who have opted to participate in our research and biobanking efforts to use genetics to understand the origins of a patient's conditions — not just for diseases like cancers, but for many diseases and health conditions — and implement preventive strategies that could alter their health outcome for the better. That would be pretty remarkable. Currently, this represents a

few percent of our population, but as our knowledge base grows from this project, so will patients who are affected.

What makes UCLA the right place for this endeavor?

Dr. Geschwind: Being in Los Angeles is an important factor, of course, aside from UCLA's broad excellence across the health system and university. This city and region have tremendous ethnic diversity, which is critical to understanding genetic variability across different populations and developing new treatments that precisely target diseases. The population of our region is a microcosm of the world, which makes UCLA Health an ideal setting for this project with Regeneron.

Dr. Baras, what made you and your colleagues at Regeneron say, "We want to work with UCLA Health"?

Dr. Baras: We have collaborated with a number of different institutions over the past several years, but there are very few that are as strong in both innovation and research and as forward-thinking and that have the leadership and the ability — and that have put the necessary resources behind it —

"We've talked for some time about the promise of precision medicine — a time when preventive measures and targeted treatments can be individualized to each patient's genetic makeup."

“This genomic revolution will be like what we saw happen decades ago with the tech revolution and semiconductor technology.”

“By working with an institution with the depth of UCLA Health’s patient care and research expertise — as well as the diverse patient population that Dr. Geschwind mentioned — we will begin to return valuable results to patients in the short term while we’re accumulating important data to fuel the discovery and development of targeted, specific medicines that will move the entire field forward.”

to do something of this scale. The work being done at UCLA is on par with what some countries are doing, in terms of the scale of the effort. That caught our eye; we want to do something at a massive scale. By working with an institution with the depth of UCLA Health’s patient care and research expertise — as well as the diverse patient population that Dr. Geschwind mentioned — we will begin to return valuable results to patients in the short term while we’re accumulating important data to fuel the discovery and development of targeted, specific medicines that will move the entire field forward.

Can we elaborate a bit more on the goals and outcome you would like to see as a result of this collaboration?

Dr. Geschwind: The first is being able to start implementing this forward-thinking genomic preventive medicine, where we are identifying patients who have known conditions before they may even be aware they have them, and then doing what we can to prevent them. That’s really a new paradigm in health care where genetics will become really important. The second significant goal is discovery. There’s an enormous amount of genetic discovery to be made. We don’t know what the genetic component of most disorders is, but by surveying a very large and diverse number of people, we will have the statistical power to identify common genetic factors and rare mutations that cause disorders across multiple populations. With that information, we can begin to create risk scores and be able to stratify patients — this will be on a research basis — to see if we can implement better therapies tailored to a patient’s individual needs. Knowing the genetic basis of a disorder helps us understand the potential mechanism of that disorder and develop more targeted therapeutics and find the new medicines of the future that can help us treat and, hopefully, cure so many of the untreatable diseases we still have today.

Who is most likely to derive a benefit from this collaboration?

Dr. Baras: Everyone. Whether someone is a direct participant in this study or not, they stand to benefit from its fruits. What happens in this study will write the book for how patients and their family members five years from now, 10 years from now, will receive treatment from a tremendously more efficient and modern version of genomic medicine. There will be the direct benefit to patients, but also it will create so much new knowledge that it will revolutionize our understanding of the genome and new applications in medicine. This genomic revolution will be like what we saw happen decades ago with the tech revolution and semiconductor technology. Cell phones and iPads and laptops didn’t use to be the norm; now they are ubiquitous and everywhere. This is what is happening now in genomics and medicine; it is going from niche to routine.

Dr. Geschwind, you called this a “watershed moment.”

Dr. Geschwind: It’s a watershed moment in that we’re at the beginning of a new future of medicine where we take a genomics-first approach and our understanding of genetics plays a significant role in the care that we deliver to patients. Once we have demonstrated the benefits, we will learn how to implement this in large-scale populations in an efficient way and use it optimally to improve health.

What does being engaged in this work mean to you, both professionally and personally?

Dr. Geschwind: I was not trained as a geneticist, but over the course of my initial clinical training, I became aware of how important genetic predisposition was in so many of the disorders and conditions that I was seeing as a clinical

neurologist. After some 22 years running a research laboratory at UCLA, it was obvious how remarkable genetics has been in leading to a new understanding of disorders — especially brain disorders that I was working on, ranging from autism to neurodegeneration and Alzheimer’s. So, I have seen this remarkable revolution in medicine over the course of my career. We’re really just in the first wave, but there are going to be multiple waves as we move forward and develop even greater knowledge and discover new therapies. It is very exciting for me to take those experiences I have had in my own research and delivery of clinical care and take some of that pioneering spirit from the laboratory and do something at an institutional level where there really is the capability of leading in the world in this new direction that has such enormous promise for our patients and communities.

Dr. Baras: It is hard to describe the impact that work like this has on patients. We have seen it in

other collaborations we have had — not on a scale as large as what we are doing with UCLA Health, but similar collaborations in which we have returned genetic results back to patients, and we have sat with those patients, and they have told us their stories. They move us to tears. It is remarkable to hear how studies like this change people’s lives, how, in many cases, they have saved their lives. So, on a personal level, this is incredibly real and incredibly impactful. It makes a huge difference. And that’s a really nice thing. On a professional level, it’s really all about the future and being on this ride with pioneers like UCLA as part of this revolution in genomic medicine. This is a once-in-a-lifetime opportunity to really revolutionize the practice of medicine. And that is incredibly rewarding.



For more information about the Institute for Precision Health at UCLA, go to: uclahealth.org/precision-health



Into the Unknown

YALDA AFSHAR, MD (FEL '19), PHD

Assistant Professor-in-Residence, Obstetrics and Gynecology

Among the many questions raised by the pandemic has been how COVID-19 affects pregnant women. To learn more, Dr. Yalda Afshar and colleagues at UC San Francisco studied nearly 600 COVID-19-positive pregnant women, and they found that the effects can be prolonged. "Despite the potential risks of COVID-19 for pregnant people and their newborns, there are large gaps in our knowledge on the course of the disease and the overall prognosis," Dr. Afshar says. "Our results can help pregnant women and their clinicians better understand what to expect with COVID-19 infection." Dr. Afshar steps into the U Magazine spotlight.

When did you start to think about science?

Wherever we lived while I was growing up, I spent a lot of time outside, and I always imagined myself being Jane Goodall meets Indiana Jones — a visionary explorer driven by the thirst for discovery. Really, that's how I pictured it. And that was inspired by spending a lot of my childhood outdoors. Regardless of where we lived, the outdoors was the common theme. I loved that sense of freedom in the outdoors, to explore and ask questions, and I think that is what drove me to science.

What was your first experiment?

I'm a little embarrassed to share this, but I had heard that people eat insects, and I wanted to see if they were edible. We had a lot of roly-poly bugs around our home, so I had my younger brother eat roly-poly bugs to assess if they were edible. I have since apologized to him for this, and I'm very thankful today for IRBs and ethical research protocols.

What sparked the idea for your current research into pregnancy and COVID-19?

The lack of research up to this point and the negative impact that lack of research was having on the patients I was seeing. It was quite an organic inspiration, because we didn't know what to tell our patients about COVID-19. When you are in a data-free zone as a physician or as a scientist, that's when it's just a call to arms to get some questions answered.

What has been the greatest challenge in that work?

What has been the greatest challenge also has been the greatest inspiration: There's no data. We are dealing with a new disease, and there has been no expert in COVID-19 and pregnancy. Generally, the kind of registry study that we undertook is something

that is thought out over months, and funding to support it is established. But we just pushed forward without that infrastructure. Normally, you don't dive into just answering the question immediately, but in this case, for a public health emergency, that's what had to be done. We were collecting data within moments of seeing our first patient who had tested positive for COVID-19. We didn't know what were the data points that we needed or the exact questions that we needed to answer. So, I think that the greatest challenge was also the greatest inspiration — that lack of knowledge. I felt like we were flying a plane while we were building the plane. There was no stability, and it was 24/7.

Who has been your greatest collaborator in the work that you've currently been doing?

I'd say both Dr. Deborah Krakow, my chair and mentor, as well as Dr. Stephanie Gaw, my colleague from UC San Francisco and a dear friend. The quality of a great collaborator is that you come to it with only one intention, to answer questions. It is not about who will be first author, who's going to write up the work first and get it published. It's working together toward the same goal, sharing information, sharing data, communicating well and being honest. That is what makes a great collaborator.

Where are you happiest?

Being around family and loved ones and feeling free — free to think, free to ask questions, free to share opinions without judgment. And being outside, and if we can get an ocean or a mountain view, that's great, too.

Where does your inspiration come from?

Being raised in an environment and a safe space that allowed me to be vulnerable, to ask questions, to doubt myself, to experiment having that freedom was inspiring. And, on a daily basis, patients inspire me. Whenever I am with a patient and they ask me a question about something that I can't counsel them on with the best available data, that's inspiring. That makes me want to push forward and to be innovative.

What are the qualities of a great scientist or physician?

It's really simple: You have to care, be kind, be collegial and really persistent. Sure, we need to be smart and organized and resourceful, but science is a team sport, one that is filled with failure and disappointments. If you're not persistent and move towards your goal, which is getting the best available data to answer clinically relevant questions, it doesn't mean anything. It's persistence topped off with passion and zeal.

What has been your biggest "aha!" moment?

I don't think I have had a single "aha!" moment. I think my "aha!" moments come in my visceral reaction to discovery. The cool thing about the scientific method is that you have a hypothesis and then you continuously try to prove yourself wrong. That's the backbone of the scientific method. And so small discoveries are "aha!" moments that eventually culminate in something larger.

What characteristic makes you particularly well suited for the work that you do?

I love collaborating and being with people who are smarter than me in different ways and are coming together for a common cause.

Being able to work with other people, being able to be proven wrong and let that inspire you to be flexible, to change your hypothesis, is exciting. Being collaborative and collegial are probably the characteristics that make me well-suited for this.

If not a scientist, what would you be?

An archeologist, that Jane Goodall-meets-Indiana Jones idea. I'd be, maybe, a seasonal archeologist; in the off-season, I'd have a coffee shop with a co-op flower shop on the side.

What is your most treasured possession?

Maybe I'm going to go philosophical on this one and say it is community.

What keeps you up at night?

I have an eight-week-old, and I'm an obstetrician. I don't sleep at night.

What is your greatest satisfaction?

It's definitely the success of my mentees and those that I have the absolute privilege to train in any way.

What's your greatest disappointment?

There are so many personal ones, professional ones. Things don't go as planned really, really often. The experiment I was doing today was a disappointment. You can't take it personally. It is how you use your disappointments to push forward that matters.

What's the best moment in your day?

Waking up with the morning and getting to snuggle with my baby and have a cup of coffee and think about what the day ahead is going to hold for me and what awesome things I will get to do.

What is your definition of happiness?

Safety, freedom of thought, freedom to love, freedom of opinion. That, and time, and having the ability to do what you want with your time.

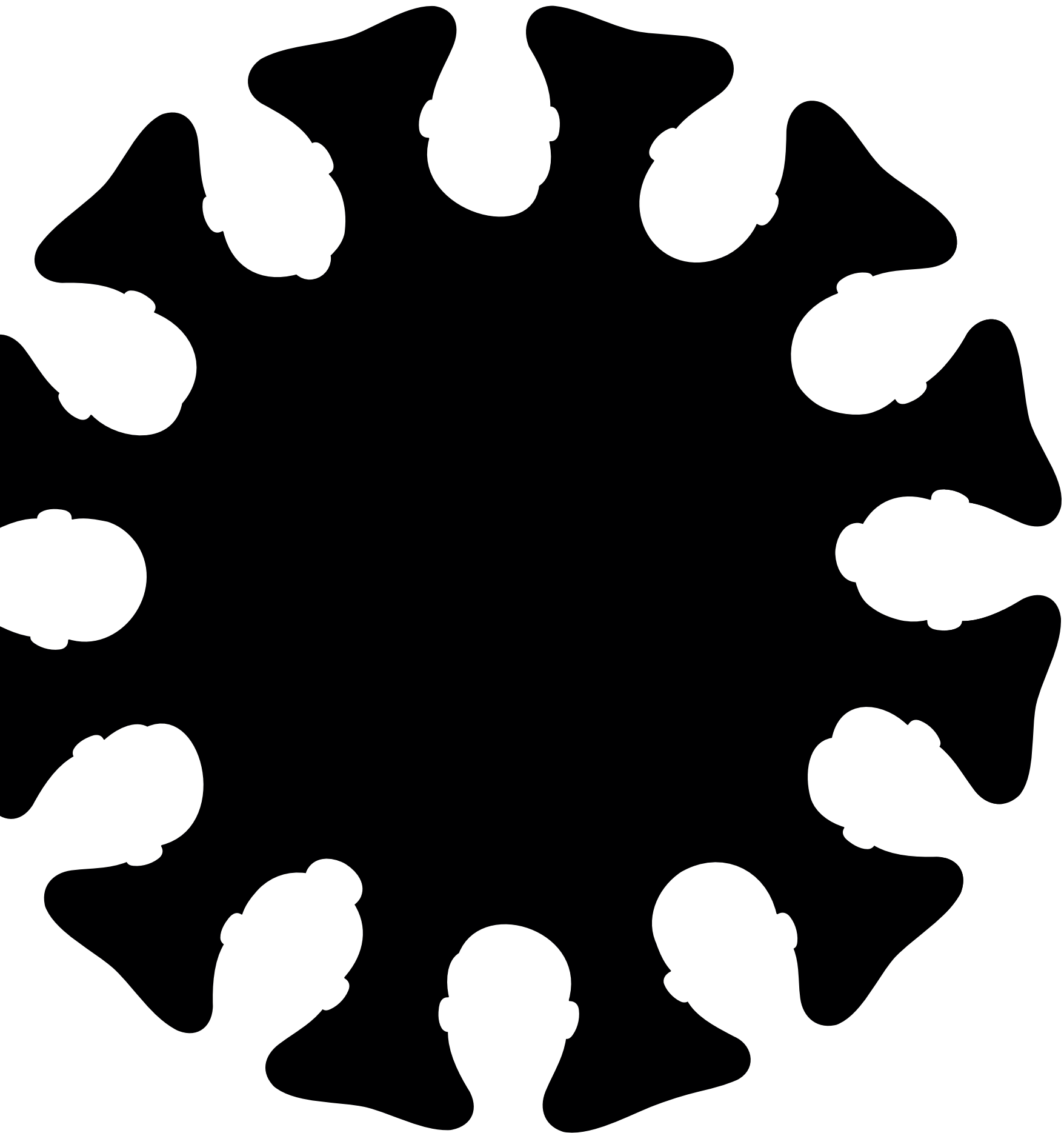
What is your definition of misery?

Suppression of thought, suppression of freedom.

What music do you listen to?

I like to have "Eclectic 24" from KCRW playing in the background. I don't get to choose what I am going to hear, and I like to be surprised by an awesome song or something new. If I listen to my own music, I love folk.

Illustration: John Jay Cabuay



The Reckoning

The COVID-19 pandemic and growing movement toward racial justice over this past year have spurred health care institutions like UCLA Health to take a deep inward look at past actions that may have contributed to inequities and what must be done now to create change.

By Andrea Collier
Illustrations by Noma Bar

“Not everything that is faced can be changed. But nothing can be changed until it is faced.”

– James Baldwin

The COVID-19 pandemic has laid bare the realities of long-standing racial inequities in the American health care system, conditions that are exacerbated by the deep seams of disparities that cut through every layer of society and now are the focus of the movement to address racial injustice.

“Poverty and racism lead to unfavorable housing conditions, high-risk employment and poor access to care,” says Folasade May, MD (FEL ’15), PhD, a health-equity researcher and quality director at UCLA Health and director of UCLA’s Melvin and Bren Simon Gastroenterology Quality Improvement Program. “All of these circumstances

“Rarely do we hear about the numbers of Black [and Latino] Americans who work in essential jobs” — as bus drivers, hospital custodial staff, meat packers, aides in nursing homes, and the like — “often with no sick days or ability to work from home,” Dr. Mays said in an article in *UCLA Public Health* magazine, the publication of UCLA’s Fielding School of Public Health, where she is a professor of health policy and management. “Black [and Latino] Americans are at high risk for COVID-19 based not just on their health disparities, but also on disparities that exist based on a lack of health care resources, the ability to respond to stay-at-home orders,

effective isolating at home because of the lack of space in their living quarters, or a lack of income that allows them to purchase goods only for a few days at a time, requiring more store visits.”

The observations by Drs. May and Mays are borne out in the numbers. According to the Centers for Disease Control and Prevention, among the more than 28 million Americans who have, as of February, tested positive for COVID-19, hospitalization rates have been five times higher for Blacks and four times higher for

Latinos compared to whites. Patients who have other pre-existing conditions, such as diabetes, obesity or cancer — particularly those of color — have suffered higher death rates and longer hospitalizations, according to several studies.

It is not just physical health that is at issue. “The disparities in mental health care in communities of color are tremendous,” says Gail E. Wyatt, PhD, professor of psychiatry and biobehavioral sciences in the UCLA Semel Institute for Neuroscience and Human Behavior and director of the Center for Culture, Trauma and Mental Health Disparities. “Services to these communities are

“The disparities in mental health care in communities of color are tremendous. Services to these communities are inadequate, and the rate of suicide is increasing without appropriate resources for treatment. When problems are noted, they often are criminalized rather than treated.”

put Black and Latinx people at greater risk of contracting and dying from COVID-19.”

While the media’s portrayal of COVID-19 implies that Blacks and Latinos, because of their poor health status, will get the virus and die, “little attention is focused on the role of labor practices in which Blacks [and Latinos] in America work in occupations and places that are more likely to put them at risk of being infected,” says Vickie M. Mays, PhD, director of the UCLA Center on Bridging Research Innovation, Training and Education for Minority Health Disparities Solutions.

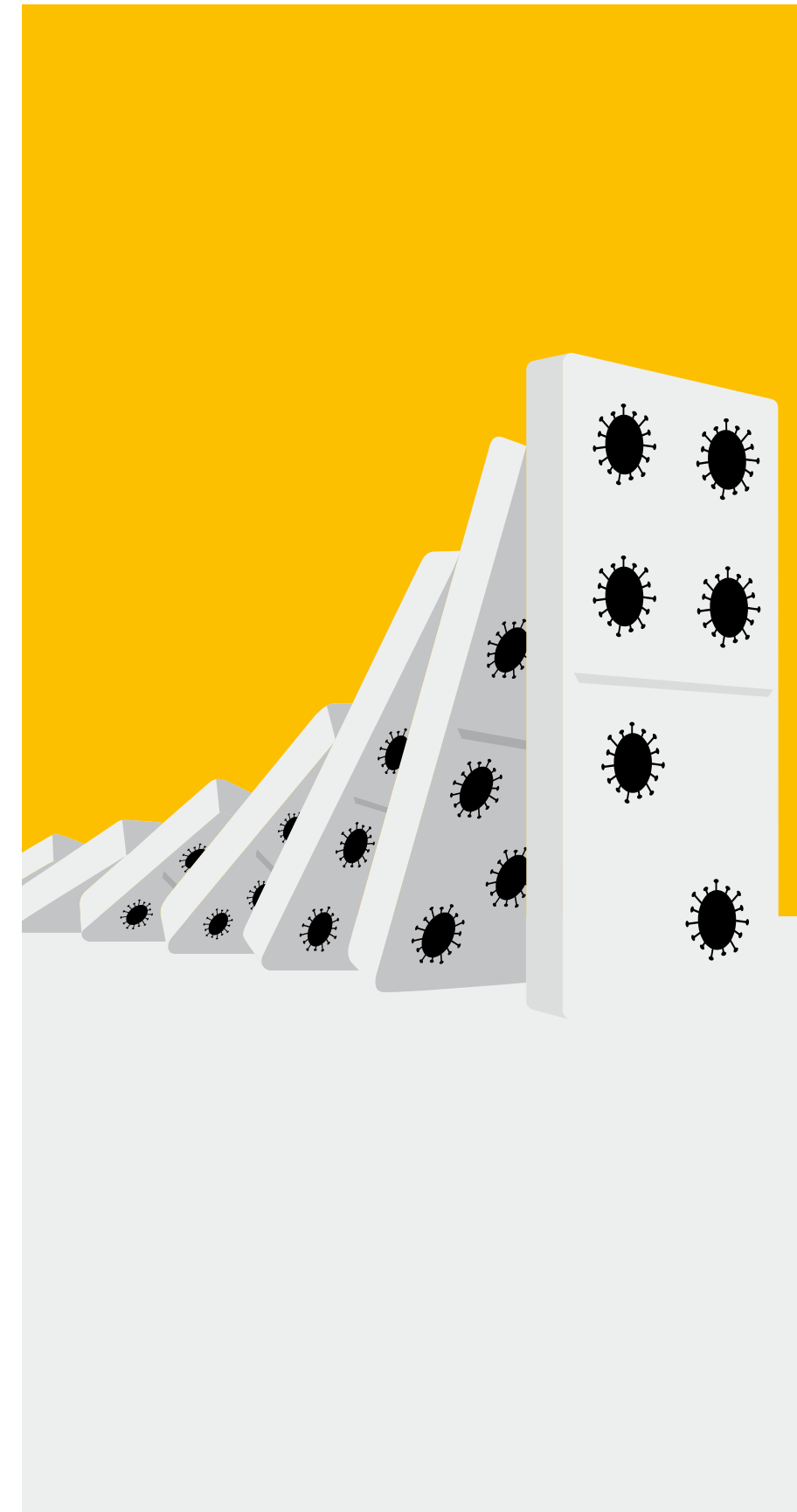
inadequate, and the rate of suicide is increasing without appropriate resources for treatment. When problems are noted, they often are criminalized rather than treated. This is a glaring historic gap in our health care system; it has been a focus of my work for more than four decades,” she says.

THE CONFLUENCE OF THE PANDEMIC AND THE BLACK LIVES MATTER MOVEMENT that grew in 2020 in the wake of the killings of George Floyd, Breonna Taylor, Ahmaud Arbery and many others over the past years has caused health care systems across the country to take a deep inward look at how they have addressed issues of racial disparities within their institutions and the communities that they serve. Within the UCLA Health System and the David Geffen School of Medicine at UCLA, the events of 2020 created a sense of urgency and a call for action to do more, and to do better when it comes to diversity, health equity and inclusion.

The events of this past year “have caused sorrow, confusion, anger and frustration for all of us within the UCLA Health community and throughout the country and the world,” says John C. Mazziotta, MD (RES ’81, FEL ’83), PhD, CEO of UCLA Health and vice chancellor for UCLA Health Sciences. “The senseless killings of George Floyd, Breonna Taylor and many other unarmed African Americans, as well as the subsequent Black Lives Matter protests, demonstrate the pain that our country has continued to endure secondary to systemic racism. The health and social injustices that we have witnessed are intolerable to everyone, especially to those of us in health sciences, and they must be eliminated.”

As one of its first steps, UCLA Health took a lead among academic medical centers in advancing major initiatives, both in its school of medicine and hospital and clinic system. The UCLA Hospital and Clinics System created an executive position — chief of health equity, diversity and inclusion — to advance change throughout the UCLA hospitals and clinics. The David Geffen School of Medicine at UCLA took steps to amplify the work of its Office of Equity and Diversity Inclusion, led by Lynn Gordon, MD (RES ’88, FEL ’89), PhD, senior associate dean for equity, diversity and inclusion, and created an ambitious initiative, the Anti-Racism Roadmap.

The scope of the chief of health equity, diversity and inclusion position cuts across all areas of the health system enterprise. “In addition to equity, diversity and inclusion in our workforce,



“How are we going to support one another as colleagues? How are we going to make sure that we provide the best care to our patients, regardless of their identities? That’s what this movement is all about — acknowledging that we can be better, and coming to a place where we are better.”

and in everything that we do, this position really is about how we build in that health-equity piece to make sure that we are doing everything we can to remove barriers to access to care and to address any health disparities that we are seeing,” says Johnese Spisso, MPA, president of UCLA Health and CEO of UCLA Hospital System.

Medell K. Briggs-Malonson, MD (RES ’09, FEL ’12), MPH, associate professor of emergency medicine and chair of the UCLA Department of Emergency Medicine Equity, Diversity and Inclusion Committee, was appointed in September as interim chief. “This is an important and exciting movement within our system, and we are developing it in a way that is optimistic, that is hopeful and that is grounded in unity and bringing us all together,” Dr. Briggs-Malonson says. “We know that there are significant issues that we need to address, and we are going to do it in a way that visualizes how we as UCLA Health want to be three years from now, five years from now, 10 years from now. How are we going to support one another as colleagues? How are we going to make sure that we provide the best care to our patients, regardless of their identities? That’s what this movement is all about — acknowledging that we can be better, and coming to a place where we are better.”

Similarly, Dr. Gordon’s work within the school of medicine is focusing on accelerating a number of existing efforts to address structural racism in recruitment and retention, climate and culture, and research and educational programs, with accountability at the core of the school’s efforts. “Wherever goals are set or data is evaluated, we need to have true accountability. That is true for our leaders and for all individuals. It is everybody’s responsibility to fix the problem,” she says. “We are an outstanding institution, but we can be better. To really live up to our reputation and national rankings in clinical care, research and education, we have to have an environment in which every individual is welcomed and heard, in which we commit ourselves to education about past inequities and to addressing and responding to current challenges. This,” Dr. Gordon says, “is our imperative.”

CHANGE DOESN’T HAPPEN IN A VACUUM, and rarely does it come about by one person’s hand. At UCLA, there are many people involved, both within the health system and the school of medicine. For many of those involved in this effort, such a movement has been a long time coming. And while the COVID-19 pandemic has been a mirror



Doctors and other health care workers showed their support for Black Lives Matter following the death of George Floyd. Photo: Nick Carranza

held up to the face of health care inequity in this country, it was the killing of George Floyd at the hands — rather, under the knee — of a police officer in Minneapolis on May 25, 2020, that was the catalyst for this push forward.

“This is not the first time that we have seen a Black man killed. But this ripping off of the Band-Aid has given way to efforts such as those we are undertaking at UCLA,” says Clarence H. Braddock III, MD, MPH, vice dean for education at the David Geffen School of Medicine at UCLA and executive director of the Anti-Racism Roadmap, which is described as a “path to ensuring racial justice, equity, diversity and inclusion.”

“Without a truly inclusive culture change, we’re not really going to move the needle,” Dr. Braddock says. “As we think about the history of racism in America, about issues of whiteness in America, these are things we’re not used to talking about in an open and frank way. A large part of our challenge is answering the question: How do we get comfortable being uncomfortable with topics that we’ve never really talked about before? The work of dismantling structural racism is very personal work.”

While discussions around such potentially

Race, Racism and Patient Care

By Keith C. Norris, MD (FEL ’85), PhD

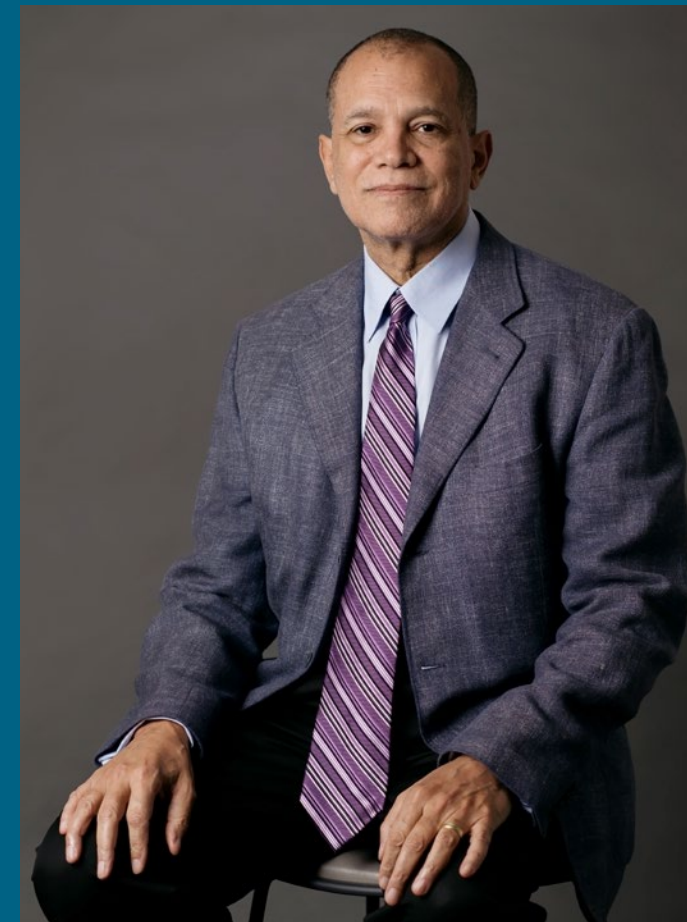


Photo: Jessica Pons

The burden of most major chronic diseases in the United States falls more heavily on racial and ethnic minorities than on other populations. These disparities are not new, but the COVID-19 pandemic has highlighted many of the ways in which structural inequities in our society adversely affect the health of racial and ethnic minority communities. Together, these disparities, and the rise in racial tensions due to the heightened visibility of inequities in criminal justice, have led to a closer examination of our broader society as well as our health systems.

Health disparities are those differences in disease incidence and outcomes between groups that would not exist if our society were equitable and fair. The major societal resources that influence health — education, housing, employment, wealth, access to care and more — are commonly called the social determinants of health. Enduring adverse conditions in these areas, as well as psychosocial stress and personal mediated discrimination, lead to what is termed “weathering” — the wear and tear of belonging to a marginalized and oppressed group.

How did we get here? We got here through a prevailing system of structural racism that locks populations into a straightjacket of disadvantage. When presented with evidence of widespread discrimination and inequities in our country, many Americans say the system is broken. The system is not broken. In health care, we are very familiar with the saying, “Every system is perfectly designed to achieve the results it gets.” The design of the system that created and maintains inequities in the social determinants of health in the United States is structural racism.

But how can there be structural racism in America when the 1964 Civil Rights Bill put an end to federally supported racism? What many people are not aware of is that much of the racism in America persists, but in more subtle ways; and structural racism can, and does, persist in governmental and institutional policies, even in the absence of individuals who are explicitly racially prejudiced. A major barrier to addressing racism is our nation’s inability to embrace and address its roots when it memorialized race — how people look — as a tool to justify chattel slavery. These overt historical actions and more subtle contemporary discriminatory practices, from post-slavery Jim Crow laws that included forced sharecropping to redlining in housing, among other injustices, have created and maintained racial caste-based inequities in our society. While no one today has owned a slave or created structural racism, everyone can choose to support structural racism and maintain race-based inequities, actively or passively, by doing nothing, or they can choose to help to dismantle it and finally begin to bend the arc of the moral universe toward justice.

IN HEALTH CARE, DISPARITIES ARE THE DIFFERENCES between groups of people based on inequities in such areas as access to and quality of care, as well as implicit biases among some providers. As a profession, we in health care often lament our inability to reduce health disparities. But should we really be surprised?

We believe that our call to attend to and heal the sick leads us to rise above individual prejudices and to provide the best care

The World Health Organization has identified three major principles to achieve health equity: Create equity in living and working conditions so that every person can achieve his or her full health potential; reorganize society so there can be an equitable distribution of power, money and resources; and educate the health care community and the broader society about the social determinants of health and how social inequity drives health disparities.

How to move forward? Ultimately, the only way is to dismantle structural racism and create an equitable, fair and just society in which every American has similar opportunities and resources to achieve a fulfilling life. The World Health Organization has identified three major principles to achieve health equity: Create equity in living and working conditions so that every person can achieve his or her full health potential; reorganize society so there can be an equitable distribution of power, money and resources; and educate the health care community and the broader society about the social determinants of health and how social inequity drives health disparities.

AS HEALTH CARE PROVIDERS, IT IS INCUMBANT UPON US TO LEARN from our patients. They have told us what they want: They want to be treated as respected human beings. This isn't rocket science — or, in our case as physicians, brain surgery. Speak directly and with civility to patients; work in partnership with patients; take the time to answer their questions and concerns; and, finally, make it possible for patients to get in to see you within a reasonable time.

But we also must be cognizant that our society has created structures that impede the ability of a disproportionate number of people in racial and ethnic-minority communities to keep appointments, to be timely and to adhere to recommendations. And we also must be mindful of the high level of mistrust that has been engendered as a consequence of historic and contemporary mistreatment. When we see our minority patients struggling with adherence to recommendations, we should not first ask what is wrong with them or with their community, but ask what we have done to them or to their community that has impeded their ability to comply. By doing that, we are practicing anti-racism.

If we embrace the tools of cultural humility, mindfulness, compassion, empathy and self-reflection, we can begin to break down barriers and start a movement toward truly reducing disparities in care. And if we bring these same values to our daily lives, we may have a chance to start to dismantle structural racism and to help create a society that is grounded in equity and justice. Only then can we truly start to eliminate health disparities and improve health outcomes for all Americans.

Dr. Keith C. Norris is professor of medicine and vice chair for equity, diversity and inclusion in the UCLA Department of Medicine.

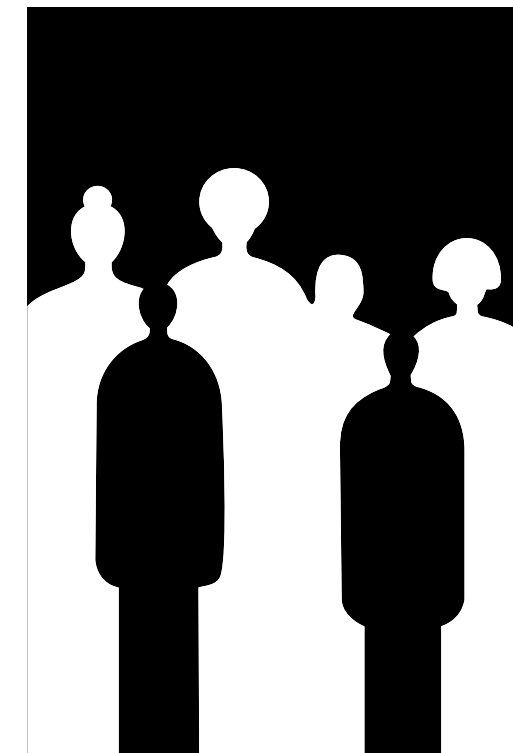
to all of our patients. But studies that test for implicit bias show that the opposite often is true. Harvard University's Implicit Project finds that, even as we strive to rise above, our biases continue to follow us. While the average score for an American is a borderline medium-high implicit or unconscious anti-Black bias, and lawyers and doctoral-level researchers score medium, physicians score high on the scale. Yet, there is nary a physician who believes that he or she harbors any implicit biases, nor that any such biases could affect the care they deliver. Harvard's conclusions are further supported by other studies that suggest provider bias, in conjunction with other social-determinants-of-health factors, contribute significantly to health disparities.

hot-button topics are not easy to have, they are essential for there to be movement forward. Since the killing of George Floyd, "We have spent months reading, conversing and reflecting with as much discomfort and humility as possible on how we have fallen short on being an anti-racist school and what we can do to ensure that we become actively anti-racist and anti-discriminatory," says Kelsey C. Martin, MD, PhD, dean of the David Geffen School of Medicine at UCLA. A central focus of those discussions has been on how to increase the diversity of trainees, staff and faculty "to truly change the face of academic medicine and make all individuals who are dedicated to our mission of advancing science and medicine feel welcome and supported," she says.

Addressing these issues is not new for the school of medicine; it has had an Office of Equity, Diversity and Inclusion, under Dr. Gordon's leadership, for more than 10 years. In November, the school and UCLA Hospital System furthered that ongoing effort by together launching a new Health Equity and Translational Social Sciences Research Theme to promote equitable care by studying and developing new models and training

to provide whole-person care that integrates social interventions with medical care. The work of the new research theme will not be limited to the school of medicine and health system; it "will build collaborations among social scientists on the Arts and Sciences campus, life scientists, and clinicians and clinical researchers in the medical

"I feel that many of my colleagues think they are avoiding undue strain on our relationship by not discussing the current racial climate for fear of being clumsy or even offensive. In reality, however, the omission of a stance against racism can be more harmful to the relationship in the long run. ... Only by breaking the silence on issues of race and racism and shifting from words to actions can we move forward as a scientific community."



school, as well as develop partnership projects within the UCLA Health System and throughout the Greater Los Angeles community that integrate social interventions with medical care," Dr. Martin says. "The theme will train the next generation of clinicians and researchers to advance health equity by addressing social determinants of health and structural racism."

The school also has launched a national search for a vice dean for justice, equity and diversity inclusion.

As Drs. Martin and Braddock note, the discussions can be uncomfortable. "Nobody likes

to talk about racism,” says Keith C. Norris, MD (FEL ’85), PhD, professor of medicine and vice chair for equity, diversity and inclusion in the UCLA Department of Medicine. “We talk about the structures of racism because the notion of having personal responsibility for racism shuts us down. It is true that nobody in the room during these discussions owned slaves or created the institutional structures of racism. But racism is all our problem to solve.”

And while most physicians feel that they are not racially biased, “data shows that there are significant unconscious biases in the medical community,” Dr. Norris says. “A Harvard study suggests that doctors carry more implicit bias than in other professions. These biases can have a major impact on the delivery of equitable care.”

Such biases also can have a significant impact not just on patients, but also on colleagues of color. “As a Black woman (and mother, wife and academic) in America, I ask you to put aside your discomfort and welcome these conversations,” Dr. Folasade May wrote to her peers in the online publication *Healio*. Silence, she says, is a problem. “I feel that many of my colleagues think they are avoiding undue strain on our relationship by not discussing the current racial climate for fear of being clumsy or even offensive. In reality, however, the omission of a stance against racism can be more harmful to the relationship in the long run. ... Only by breaking the silence on issues of race and racism and shifting from words to actions can we move forward as a scientific community.”

A significant framework for that ongoing discussion must be around an internal realignment of priorities to address institutional inequities, Dr. Norris says. “My current focus is on changing policies and practice in medicine. There must be diversity among those at the hiring table. UCLA is a big place, yet not many minorities are asked to sit on the committees where hiring decisions are being made, in large part because there are so few minority faculty at UCLA.”

Increasing faculty diversity is an important goal, but so, too, is hiring and elevating faculty of color to leadership positions. “I have seen efforts being made in diverse staffing, but what about in leadership?” asks Dr. Wyatt, who has been a faculty member in the Department of Psychiatry and Biobehavioral Sciences for more than 40 years.



“Young people coming in are confused about the expectations and the path to get ahead. As researchers, we know how to teach about structural racism, but as an institution, we have not dealt with those structures,” she says. “It will take real courage to make systemic change.”

PART OF THAT SYSTEMIC CHANGE MUST COME IN ATTRACTING A MORE DIVERSE POOL of minority students to health care. As Dr. May noted in *Healio*, “Blacks are 12.7% of the U.S. population, but only 5% of physicians and a paltry 0.7% to 2.9% of faculty in STEM (science, technology, engineering and math) fields. America has produced fewer than 100 Black females with PhDs in physics.”

The pipeline, Dr. Norris says, is not only broken, it is unrealistic. “Mostly at the undergraduate and medical school level, there are special programs to help level the playing field for future doctors, but there have not been enough changes in the K-12 education system,” he says. “Without a plan of action, the numbers of Black and Latino physicians and researchers will not grow. Too few make it to a ‘pipeline’ program, and the fact that such programs even exist says that, as a society, we have been, and continue to be, unwilling to fix inequities in K-12 education.”

Xavier E. Cagigas, PhD, a clinical neuropsychologist and associate director of the UCLA Hispanic Neuropsychiatric Center of Excellence, agrees. He has worked with other bilingual and bicultural faculty, staff, interns, postdoctoral fellows and doctoral students to create the nationally recognized UCLA Cultural Neuropsychology Program. “Most people don’t know that in Los Angeles County, Latinos make up nearly 50% of the population,” Dr. Cagigas says. “In L.A. County, non-Hispanic whites are actually in the minority, 26.1%, but none of the research, service-delivery or teaching models are structured to reflect the health needs of our diverse population. It is time to build a better science model and workforce that address the actual cultural and linguistic needs of our Latina/o communities, who, together with other historically underrepresented minorities, make up approximately 75% of L.A. County and an exponentially growing proportion of the United States.”

AT ITS CORE, ADVANCING HEALTH EQUITY AND INCLUSION is about improving health outcomes for all patients. To accomplish that, improving access to care is key. “Excellence in clinical care is a central tenet of our mission, and we want to make sure that we are providing equitable care to all patients,” Spisso says. “We are committed to serving our Greater Los Angeles community, which includes expanding our clinical services to Medi-Cal patients.”

According to the California Department of Health Care Services, as of July 2020, the most current data available, there were more than 3.8 million people in Los Angeles County — about 38% of the population — enrolled in Medi-Cal, the state’s health care safety net. Spisso said that to expand access to UCLA’s tertiary and quaternary care services to more of those patients, UCLA Health signed a major contract with the largest Medi-Cal provider in the region.

Another avenue to expand access to care is through the wider adoption of such newly emerging tools as telemedicine, an area that experienced explosive growth during the pandemic. Alejandra Casillas, MD, MSHS, assistant professor-in-residence of medicine, is a health-services researcher focusing on digital health care access and inequities. “We know it doesn’t take care of everything — there will always be a need for care in a brick-and-mortar clinical setting — but digital tools like telemedicine can be effective in delivering care for underserved populations,” she says.

This can be a particularly beneficial option for patients who have transportation obstacles or who otherwise might have to take a day off of work to get to an appointment. “Digital delivery of care can level the playing field,” she says.

ALL THAT UCLA HEALTH SYSTEM AND THE DAVID GEFKEN SCHOOL OF MEDICINE AT UCLA ARE DOING to address historic racial disparities in health care is taking place against the backdrop of the COVID-19 pandemic. Now, with vaccines approved and a nationwide inoculation program accelerating, a key effort will be to get the medicine into the arms of people who need it most.

Dr. Mays, of the public health school and special advisor to UCLA Chancellor Gene D. Block on Black life, worked with Naveen Raja, DO,

“Over the past months, we have started to reflect on our blemishes, but, also through these reflections, we have started to identify new solutions and novel approaches, and raise awareness to challenge the status quo so that we can transform into an organization that is rooted in equity and bound by our common humanity.”

of the Office of Health Informatics and Analytics and the COVID-19 vaccine team at UCLA Health System, to support a vaccine-distribution system through its hospitals and more than 180 community clinics. The program utilizes an equity-based model of medical vulnerabilities and social-risk factors she developed with Paul M. Ong, PhD, director of the Center for Neighborhood Knowledge in UCLA’s Luskin School of Public Policy, and colleagues in the policy school. “Equity in the distribution of the vaccine must move beyond merely people’s health status but also must take into account the extent to which their ability to adequately follow public health protections are thwarted by their built environment, not having access to health care or information, or even running water,” Dr. Mays says.

UCLA also has taken the lead on a National Institutes of Health (NIH)-funded project that brings together 11 academic institutions in California and their community partners to develop a community-engaged approach to address the impact of COVID-19 on vulnerable populations across the state.

The COVID-19 California Alliance, or STOP COVID-19 CA, is part of the NIH’s broader Community Engagement Alliance Against COVID-19 Disparities. The partnership is a joint effort among five UC medical campuses, two non-medical UC campuses and four other leading academic institutions in California. “This important collaboration will include 11 major institutions with highly innovative community-partnered research projects,” says Arleen F. Brown, MD (FEL ’98), PhD, professor of medicine and co-leader of the Community Engagement and Research Program at the UCLA Clinical and Translational Science Institute. “These institutions reside and work in diverse communities with high rates of COVID-19 infections and complications across the state. The community input makes all the difference in these projects,” she says.

Each site within the alliance will leverage its own unique community partnership networks and insights to address local problems. In Los Angeles, for example, investigators plan to run in-depth virtual focus groups with multiethnic communities to identify barriers and challenges to inclusive vaccine development and vaccination. Another project will assess racial and ethnic attitudes

among high-risk veterans that might prevent them from accepting a potential vaccine, with the aim of developing messaging to encourage vaccination among this group. The lessons learned from these efforts will help to identify opportunities to apply innovative approaches statewide and nationally.

“Black, Latino and Indigenous populations account for nearly half of all reported cases of COVID-19 in the United States,” says Dr. Norris, who is co-leader of the project. “The goals of STOP COVID-19 CA are to work with this network of partnerships across the state to reduce disparities in knowledge of COVID-19; increase participation of all Californians, including underrepresented populations, in prevention, vaccine and therapeutic trials; and improve the uptake of approved vaccines.”

CHANGE IS NEVER EASY, DR. BRIGGS-MALONSON CONCLUDES, and it may arrive in fits and starts. But change, she says, must happen. “Over the past months, we have started to reflect on our blemishes, but, also through these reflections, we have started to identify new solutions and novel approaches, and raise awareness to challenge the status quo so that we can transform into an organization that is rooted in equity and bound by our common humanity.

“The work we are doing,” Dr. Briggs-Malonson says, “is imperative for us to dismantle the invisible barriers that have prevented us from advancing racial equity for our students, trainees, faculty, staff and patients. Now this is our time to take action to build an equitable future for each other and for those who we serve.”

Andrea Collier is a journalist and author who writes frequently about the intersection of race and health care.

“This Is Our Moment”

For everyone delivering care to COVID-19 patients in UCLA Health System’s ICUs, the pandemic has been a dark and tumultuous time, but also one that has been brightened by surprising flashes of light and hope.

Illustrations by Bill Robles



Since the COVID-19 pandemic began to really hit home, in March 2020, the doctors, nurses, respiratory therapists, care partners and others working in the medical ICUs of UCLA and its affiliated hospitals have been on the frontline of providing ongoing care to patients critically ill from the disease. They have performed dangerous intubations, placed essential lines, done CPR when necessary, held a cell phone to the ear of a critically ill husband, wife, parent or sibling to hear the voice of a loved one and, too often, been the only ones present in someone's final moments. Here, in their own words, drawn from emails, social-media posts and journal entries, are reflections and experiences from some of this team of heroes.*

"I still remember like it was yesterday, pressing on the kid's chest. I say kid because he wasn't even 30 yet. I didn't even have time to throw on the PAPR, knowing that compressions would aerosolize the disease. I looked at my colleagues who feared entering the room because of that. A couple of nurses quickly threw on PPE and took a chance and came into the room to help. It was a very intense moment. I just couldn't bear the thought of COVID taking a life of someone so young, and I couldn't stop caring, even though my own life was at risk."

— Romain Penet, RN

"This is our moment; we have been called. And though we may have been drafted into a 'war' none of us saw coming, we are ready to step up to help our community. I have taken a lot of inspiration from others who have highlighted the unique privilege we have in this crisis to be capable of helping. And that is a calling that will help me to push through any of the fear or doubt, knowing we, together, will pull through this."

— Lawrence N. Benjamin, MD, first-year pulmonary/critical care fellow

"I have always thought the 4ICU was a special place, where we see all kinds of deterioration and unstable patients, but witnessing such a high degree of professionalism on top of such camaraderie throughout this pandemic has changed my nursing practice forever."

— Catherine Fairbanks, RN

"I just left the hospital after a 14-hour day, walked back to my hotel room, and I think I need a long, good cry tonight. I cry for the patient I just lost. I cry for the mother who is not allowed to be at the bedside of her disabled son. I cry for the patient who hasn't seen her husband for nearly three months. I cry for the newly widowed husband. I cry for the protestors. I cry for the senseless loss of Black lives. I cry that there is a need for curfews and military in the city I love. I cry for the businesses that have been looted and destroyed. I think of all the reasons we have to cry right now, and I cry harder."

— Thanh H. Neville, MD '05 (RES '08, FEL '11), attending physician

"There was a moment at the beginning of the COVID crisis when my heart sank. I was in charge of our UCLA Health System ventilators and found myself surveying both my thoughts on our hospital's current inventory state and what that potentially looked like against the worst-hit hospitals across the country. It was like standing at the foot of Mt. Everest, staring up and considering the massive terrain and elements. Where do I start the task? Eventually, you realize that your lamp may not shed enough light for you to see what's in the far distance, but it will illuminate the path that's right in front of you. If you take one step at a time, you find yourself making the necessary progress to become successful."

— D'Mitri Champion, clinical operations manager for Respiratory Therapy Services

"There has been a lot of talk about 'resilience' among health care workers. I am not a fan of this term. Resilience is defined as an ability to recover from or adjust easily to misfortune or change. 'Grit' is a better word. Grit is showing up every day, no matter how hard it is, or how tired you are, or how scared you are. It is putting on PPE when the skin on your face is bruised and broken. It is adding on an extra shift because we are desperately short on staffing. Grit is showing compassion when you have nothing left to give. It is smiling when it seems like there is nothing to smile about. Grit encompasses passion and perseverance. I'm not sure that any of us have recovered from our experiences over this past year. And when we do, we will never be the same. But we have grit, and we will persevere."

— Nicole Agee, RN

"Most days, if I squint, I can see some silver lining in this new world — which can be described as some sort of wonderful combo of kindness, gratitude, support, resilience, generosity, strength and solidarity. And even some hope that many lives can be saved and that maybe we will become better humans and physicians in the process."

— Tisha Wang, MD (RES '05, FEL '08), pulmonary/critical care clinical chief

"I've seen some amazing stories of survival, many patients on the brink of death who pulled through with our help and who are now at home safe with their families. I've seen just as many heartbreaking stories of defeat, including a patient who promised to give me golf lessons if I got him through COVID. Sadly, those lessons will have to wait until we are both reunited on the golf course in the sky."

— Jaime Betancourt, MD, attending physician



“Truly being present, bearing witness and providing the care and comfort at these COVID-19 patients’ most vulnerable and scared time is the essence and the heartbeat of nursing. With misty eyes, we are together in this.”

— Sherry Xu, RN, unit director

“First, there was fear. Would the PPE actually protect us? How do you best treat a novel virus? Then, there was community. The nurse would help me don my PPE, and I would check the patient’s urine output inside the room to minimize the nurse’s exposure. Outside of the hospital, it was social isolation, yet inside the hospital, I felt more connected than ever. Now, there is grief. Too many patients are dying. Those who survive are seen in our post-ICU clinic with a tremendous road to recovery ahead. So we continue onwards, both for them and for us, and we put our heads together and work.”

— Kristin E. Schwab, MD (RES '16, FEL '20), co-director of post-ICU recovery



“While I’ve been fortunate enough to take care of many kind, amazing patients, I don’t think I’ve ever heard as many words of gratitude and appreciation as I did last week. Although these #CovidWarriors were essentially recovering from near-death experiences, they still asked how they could help others, by donating plasma or offering support to people who have survived the same or by doing something else positive. They cared about things bigger than themselves.”

— Nida Qadir, MD, attending physician

“This ICU week is particularly horrible. During my last stint, I had discharged the last COVID patient, but this week, there seems to be a new patient transferred to the ICU with COVID every day. Today, we admitted the patriarch of a family, all of whom have COVID. He wants his daughter to have his durable power of attorney. My residents tell me all she does is cry on the phone; I cannot bear to call her myself. We asked the patient to enroll in a clinical trial, and he consents, stating, ‘Even if I don’t benefit from this study, I hope the information will help others.’ I am so tired of kindness being a poor prognostic factor.”

— Thanh H. Neville, MD '05 (RES '08, FEL '11), attending physician

“I’m emotional about leaving the UCLA MICU. I’m leaving because I’ve finally given myself permission to take care of myself. For months while working in the COVID ICU, I lived through countless panic attacks, traumatic deaths, depression, being the main emotional support for patients who couldn’t have family members visit, comforting emotional and fearful family members on the phone, the fear of exposing my friends and family. I’ve carried this weight for months. I carried it because I knew I was skilled and trained to help during this pandemic. I’m fortunate to work for a health system that is supportive, encourages self-care, and tries its best to attend to the needs of employees during this time. Still, I don’t have the emotional stamina to continue working in the COVID ICU anymore during this pandemic.”

— Tatiana Johnson, RN



“Walking into the rooms of our first COVID-19-positive patients was extremely nerve-racking, but knowing we all felt the same was something of a comfort to everyone involved in their care. Assisting with the organization and training of the emergency-response team was one of the most rewarding things I have done in my career. This experience has shown what we all are capable of, and for that I am forever grateful.”

— Matthew Dartt, assistant director of Respiratory Care Services

“I began my training in the MICU during COVID-19. I was assigned COVID-19 patients for one full month. Needless to say, I learned more about respiratory distress, PPE and ventilator management in one month than I did working the one year since I was hired.”

— Ferdinand Castro, RT

“Work has been a mentally and physically challenging time with magnified emotions. We’ve seen both unexpected recoveries and unfortunate losses. Given the circumstances, we’ve found our own ways to celebrate life, whether that be through lining up to clap for a patient being discharged or providing our patients a personal experience through our 3 Wishes Program as they transition on. The teamwork among all the staff — doctors, nurses, therapists, care partners — shows how resilient we all are.”

— **David Yadao, RN**

“I recall a gentleman struck hard by COVID that landed him in the ICU. Even though he was alone, we assured him that he wasn’t. I felt the highs and lows of this patient case. To see him get reintubated numerous times, I was almost losing hope. I did my best to keep him connected to his wife via video chats, and when I overheard how much he meant to his family, I could no longer think negatively. The doctors, nurses, care partners and ancillary staff did a magnificent job of staying calm and patient throughout his course. He beat COVID and was reunited with his family. It was such an awesome moment.”

— **Luis Sandoval, RN**

“During these dark days, I received an email from the wife of a successfully discharged post-ICU COVID-19 patient. She is giving me words of encouragement and writes, ‘We are forever grateful. This is nothing compared to giving us life. Giving our kids a father. Helping me not be a widow. Please focus on all the people you save. We are some of them.’ She included a picture of her husband writing me a thank you card. This is a man I put an endotracheal tube down! Needless to say, I cried.”

— **Thanh H. Neville, MD ‘05 (RES ‘08, FEL ‘11),**
attending physician

“I’m coming to appreciate that I get to witness such a dramatic range of human experiences and emotions in the work that I do. I can either be drained by this reality or I can embrace the possibility that it may give me wisdom that I otherwise would not have obtained.”

— **Nida Qadir, MD, attending physician**

“Anxiety is pretty high right now at the hospital, between how difficult it is to predict how patients will do, how to counsel patients and their families, and the worry about the well-being of colleagues. I can only imagine what it’s like for those nurses, the other fellows, the RTs or attendings who have families at home and some of the decisions being made about whether to remove themselves from their loved ones or simply return home and take as many precautions as they can. I have the ability to essentially quarantine myself at home after work, so I don’t risk infecting others, though it has been pretty isolating. My parents are worried sick, but I’m reassuring them as much as I can.”

— **Lawrence N. Benjamin, MD, first-year**
pulmonary/critical care fellow

“I checked in on a trainee of mine last night who is quarantined. Made sure they were doing ok. Got a reply that they were fine but frustrated about being ‘put on the bench.’ That made me smile for the first time yesterday. It is the ‘put-me-in-coach’ attitude, even when you are potentially walking into a fire, that makes me love and appreciate the people that I am surrounded by.”

— **Tisha Wang, MD (RES ‘05, FEL ‘08),**
pulmonary/critical care clinical chief

“I’m sleep deprived, physically tired, mentally exhausted and about as beat up as I’ve ever been after an ICU rotation, but I’m happy and proud of the work my team and I did, and continue to do, every day.”

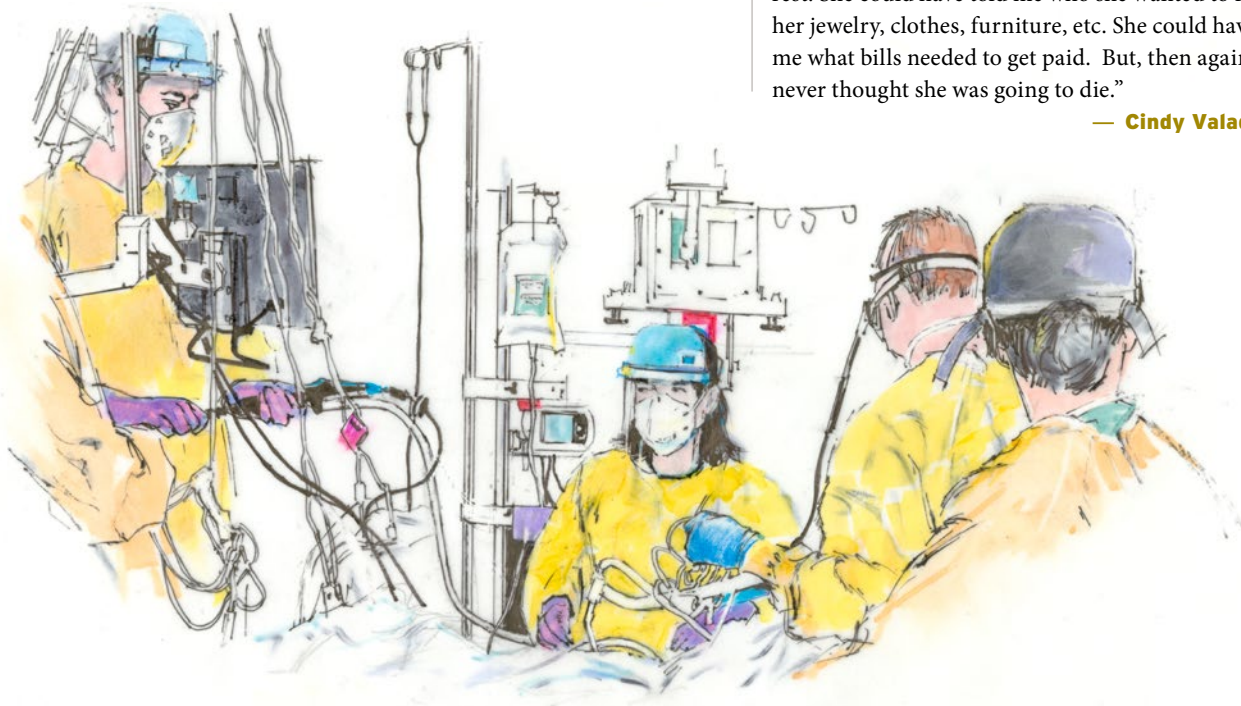
— **Jaime Betancourt, MD, attending physician**

“I am so very thankful to work alongside a compassionate and hardworking team in the MICU and all ICUs. Not only do we support each other and help each other out to meet the needs of our patients, we are all there for each other emotionally as well.”

— Amanda Hill, RT

“As I sit here thinking of my mom’s battle with COVID, it’s hard not to question every decision made along the way. I think of all that was done and how things could have been different. I think, ‘What if I would have brought her to the hospital earlier? What if she would have received remdesivir? What if we didn’t intubate her on May 12th and had waited?’ I’d have one more day with her. I could tell her how much she means to me and how much I love her without feeling rushed. I could have let her know I couldn’t have asked for a better mother. I could have talked to her about what she wanted done if she reached a point where her quality of life did not meet her standards. But, oh, how she wanted to live! She could have told me what dress, shoes and jewelry she wanted to wear as she was laid to rest. She could have told me who she wanted to receive her jewelry, clothes, furniture, etc. She could have told me what bills needed to get paid. But, then again, we never thought she was going to die.”

— Cindy Valadez, RN



“The hardest thing every day is to have to bet against your fears of a dreaded outcome, to pray that the inert patient in the bed is not suffering, to hope that their family will see them again, to bat away fears of futility and the memories of the times you’ve withdrawn patients from care. It is a struggle to consciously expend energy to undermine the validity of your instincts and experience, all in the name of hope.”

— Kimberly Coppin, RN

“For my entire career, if I ever intubated someone for what I believed could be the last time, I invited their loved ones into the room while I prepped and encouraged both parties to say to each other anything they wanted to say. I could write a book about the final words I have heard, often fighting back my own tears. Being present in those moments is hard in its own way, but now, often it’s just the docs and the patient, and so many of these patients are terrified, crying and often asking the health care professionals in their final moments to not let them die. Now we are the only ones who might hear their last words.”

— Tisha Wang, MD (RES '05, FEL '08), pulmonary/critical care clinical chief



“I’ve gained an even deeper admiration and respect for my nurses and respiratory therapists, the true frontline heroes in this COVID nightmare we are living. My ability to help any patient is only as good as those who execute my orders, and I am thankful I work with so many like-minded heroes and heroines.”

— Jaime Betancourt, MD, attending physician

“We trached a man despite his COVID PCR continuing to be positive, because we didn’t think this represented true infection. But, truth be told, even if it was absolutely clear he was positive, I would still have done the trach, because I wanted so badly to give him a shot. He went home after a long hospitalization, and he was doing well. Then I heard he had a sudden cardiac arrest. It’s been story after story like this for months. These stories have taken a piece of my soul that I don’t think I’ll ever get back. Like many of us, I’m certain I’m going to emerge a different person when this is all said and done, hopefully for the better, but who knows.”

— Nathan Yee, MD, third-year pulmonary/critical care fellow

“There I was, making out my will, preparing to die, nauseated, scared and in scrubs going to work in the COVID unit. It is not what you think. Well, yes, it was, and is, a war zone. But in the war zone was LIVING, BREATHING TEAMWORK, GENEROSITY OF KNOWLEDGE, CARING, CHEERING WHEN A PATIENT MADE IT, YELLING WHEN A NURSE WENT IN A ROOM WITH NO PROTECTION TO PREVENT A PATIENT FROM EXTUBATING THEMSELF. I was witnessing and experiencing a type of nursing like no other. Everyone trained me. I loved working in MICU. We were doing everything together as a team. The more we learned about COVID, the more we became the warriors against it.”

— Meilani Renger, RN

“Our souls may never be the same.”

— Tisha Wang, MD (RES '05, FEL '08), pulmonary/critical care clinical chief

***Editor’s Note:** These reflections have been lightly edited for clarity and length. Patients or the families of patients referenced in these reflections have given their permission to be included.

About the Illustrations: The illustrations for this article, by award-winning courtroom artist Bill Robles, are based on photographs taken by the men and women who work in UCLA’s ICU units. For five decades, Robles has chronicled such trials as those of Charles Manson, Patricia Hearst, O.J. Simpson, the Unabomber and Michael Jackson.



Illustration **Noma Bar**

HOW TO BUILD A VACCINE

Once the coronavirus pandemic took hold, the race was on to develop a vaccine against COVID-19. This is a story of UCLA's efforts to confront the crisis and find a solution.

By **Mark Wheeler**

Photography **Jessica Pons**

Marcus A. Horwitz, MD, knew he would be an outlier. It was March 2020, COVID-19 had exploded and everybody was frightened and frantic to stop it. A vaccine was one answer, and therapeutics was another. Long before Pfizer and Moderna would make headlines with their vaccines, multiple pharmaceutical companies and universities in the United States and around the world were steaming ahead with their own research. In the race for a vaccine, some 200 potential candidates were in the works. Some were yet just a gleam in a scientist's eye, others were further along. Dr. Horwitz wanted in.

Dr. Horwitz is a Distinguished Professor of Medicine, Microbiology, Immunology and Molecular Genetics in the David Geffen School of Medicine at UCLA. He was not a COVID-19 expert, but for 35 years he has been building and perfecting vaccines against Tier 1 agents of bioterrorism — anthrax, tularemia, plague and the like — that cause respiratory infections and can be lethal. He also was instrumental in developing a vaccine against tuberculosis, which is spread through coughs and sneezes and kills some 1.4 million people worldwide every year.

So it wasn't hubris that Dr. Horwitz was bringing to the table; it was expertise. "We were late to the game, but we thought we might have something that could help," he says. "Even though we hadn't worked with viruses before, we felt we might be able to make a contribution."

Still, there were hurdles. First, his comment that "we hadn't worked with viruses before" could easily have been a non-starter. Dr. Horwitz is an expert in bacterial diseases; SARS-CoV-2 is a virus that causes the disease COVID-19. Second, they had no money. As an academic laboratory, Dr. Horwitz and his team were not eligible to apply for funding from Operation Warp Speed, which had been initiated by the administration of President Donald Trump to cover the huge costs of research and development to turbocharge development of a COVID-19 vaccine.

And, again, they already were way behind. So the question then became, why bother?

There were several reasons. What if other efforts didn't pan out? What if they work but their efficacy plunges after a few months? What if the SARS-CoV-2 virus substantially mutates? And what of the cost and time delay in producing the millions of vaccine vials needed, and delivering them efficiently?

For all of these reasons, as Dr. Horwitz walked across a locked-down UCLA campus to his lab on a March morning, he decided to take a shot. Sitting down with Qingmei Jia, PhD, a project scientist in his lab, they devised a plan and got to work. A jump-start came in the form of a \$50,000 grant from the UCLA AIDS Institute and its Charity Trek fundraiser, and, later, with permission from the National Institutes of

Health, he and his team were able to use some money from one of their existing NIH grants.

DR. HORWITZ DID HAVE ONE BIG ADVANTAGE: He already had a solid vaccine "platform" with which to work. Over the course of his long career — Dr. Horwitz began his academic career at The Rockefeller University in 1980 and joined the UCLA faculty in 1985 — he had developed and refined a workhouse vector. A vector is the mail truck of biology, delivering antigens, a bit of the bacterium or virus that causes the particular disease you're hoping to prevent, to provoke — hopefully — a response from the immune system. Using a harmless bacterium or virus as a vector to deliver antigens is one type of vaccine. Dr. Horwitz and his colleagues had created vaccines to protect against several bioterrorism agents, including tularemia, plague, melioidosis and anthrax. That work is ongoing.

Even though his vector was bacterial, he believed it could be modified for COVID-19. But building a vaccine is not an easy process. Scientists know that using a living organism as a vector to deliver a vaccine packs the biggest wallop. "When you inject a live organism into a body," Dr. Horwitz says, "it basically sends out a lot of danger signals that tell the body to pay attention," prodding the immune system to respond.

But it's tricky, because one doesn't want an organism that is going to harm the host. The scientists must design a vector that will give the immune system a kick in the pants to get its attention, but not cause harm.

In creating his original suite of vaccines, Dr. Horwitz used an organism that in the wild causes a less severe form of tularemia than the one caused by the closely related bioterrorism agent. (Tularemia is an infectious disease that attacks the skin, eyes, lymph nodes and lungs.) "So we started out with a strain of bacterium which is less virulent to begin with," he says. They took a vaccine that utilized the same organism, called Live Vaccine Strain, or LVS, that was developed by other researchers decades earlier and had been used to deliver millions of



Dr. Marcus A. Horwitz.

doses, but it proved to be too virulent for Dr. Horwitz's taste. "When given as a vaccine, it could give you a nasty infection," he says.

To improve the LVS vaccine and make it safer, they searched for and knocked out — deleted — a gene they thought rendered the vaccine harmful. It was not an easy task. Dr. Horwitz refers to it as the search for the "Goldilocks gene." Like Goldilocks, whose first bowl of porridge was too hot (ouch), the second too cool (blah) and the third just right (yum), "It's very easy to knock out some gene that's going to make the organism so harmless it won't arouse the immune system," he says. "And it's very easy to knock out a gene that doesn't do much of anything to reduce the virulence of the organism. So, to get just the right one takes a little bit of experimentation," he says.

Eventually, they found it — a major gene called capB. This made their modified

vaccine, now called LVS ΔcapB, more than 10,000 times less harmful than the original vaccine tested in mice, yet it retained its ability to induce a strong immune response.

The next step was to use this platform to express antigens for the most virulent strain of tularemia, and it worked; the stronger immune response would now allow the vaccinated host to repel the highly virulent foreign invaders if it ever encountered them in the future. In subsequent work over the years, the researchers used this same strategy to develop vaccines against each of the other Tier 1 bioterrorism agents.

Now, they have applied the same strategy to combatting SARS-CoV-2, the virus that causes COVID-19. So far, the results continue to be "very promising," Dr. Horwitz says.

IN ALL, THE RESEARCHERS CREATED SIX VACCINES, expressing four different proteins, using their vector. One was the S protein, the now infamous spike protein, which rests on the surface of the coronavirus, and is what the majority of the other vaccine candidates are targeting. By the end of April, five of the six had failed, but with the last, Dr. Horwitz had a potential winner. It was not the S protein. "The



one we had great results with was the vaccine targeting the M and N proteins of the coronavirus,” he says. “The M protein stands for the ‘membrane protein,’ and the N protein stands for the ‘nucleocapsid protein.’ The M proteins are at the surface of the virus, and N proteins are inside the virus surrounding its RNA.” The two proteins proved to alert the immune system in an animal model to provide protection.

Indeed, before clinical trials can take place, every new drug must be tested in animals to ensure its safety and efficacy. With the other COVID-19 vaccines, most, says Horwitz, were tested using the rhesus macaque monkey, which he thinks is not the best animal model to use; in fact, he calls it a “low bar.” “With COVID-19, the rhesus macaque does not get sick,” he notes. “It doesn’t even get a fever. So, it’s a model of asymptomatic infection or very mild disease.” That means the only thing they can measure in the macaque given SARS-CoV-2 is the amount of virus in the mouth, throat or lungs.

While it’s too early to say, Dr. Horwitz fears that some of the other vaccines might only protect against “COVID-19 lite.” He hopes that’s not the case but says, “I don’t want to make a vaccine to protect against mild disease. I want to protect people who are going to get severe disease.”

To test his vaccine, Dr. Horwitz used the golden Syrian hamster. “Hamsters get severe COVID-19 disease, so they show substantial weight loss and they get a lot of lung pathology,” he says. The results are very promising. The animals challenged with SARS-CoV-2 were highly protected by the vaccine from severe weight loss, and they had virtually no pathology in their lungs.

Two other aspects of Dr. Horwitz’s vaccine stand out, assuming, of course, it proves to work in humans. Millions of doses of a bacteria-based vaccine can be grown overnight in a simple broth, he says. That’s unlike a virus-based vaccine, which must be grown in host cells and then extensively purified. Producing a virus-based vaccine “is an expensive, time-consuming process, which is why it will take these companies six months to make 50 million or so doses,” Dr. Horwitz says. “I can make 50 million



Shawn Griffin (top), Dr. Jesse Clark (middle) and Chris Blades (bottom) together outside the Vine Street Clinic (opposite page).

doses in my own lab overnight, because bacteria replicate that fast. Extensive purification isn’t needed,” he says. (The vaccines being developed by AstraZeneca and many other companies are viral-vectored vaccines, while still other companies are developing vaccines utilizing inactivated or attenuated forms of the virus that causes COVID-19. The Pfizer and Moderna vaccines were developed on what is known as a messenger-RNA — mRNA — platform, and no virus is involved.)

For purposes of transporting to hospitals, clinics and local drugstores, another advantage is that a bacteria-based vaccine can be freeze-dried and kept viable as a powder, which then can be shipped at normal refrigerator temperatures. That eliminates the need for expensive sub-zero refrigeration, as is necessary for the Pfizer vaccine, which must be stored at minus-94 degrees Fahrenheit.

Finally, Dr. Horwitz is optimistic his COVID-19 vaccine may provide protection for future SARS-related infections. That’s because viruses mutate. Dr. Horwitz notes there was a SARS epidemic in 2002-03 caused by SARS-CoV-1. Now we have SARS-CoV-2. “If you compare the proteins of SARS-CoV-1 and SARS-CoV-2, the spike protein, for example, is 76 percent identical. From the standpoint of biology, that’s a huge difference,” he says. But if you look at the M and the N proteins, the ones Dr. Horwitz’s vaccine targets, they’re 90 percent identical — they’ve changed much less. “Because they’re so similar, our vaccine potentially could protect against a future SARS-CoV-3, in addition to the current SARS-CoV-2,” he says.

Now it is a waiting game. The next step would be to manufacture Dr. Horwitz’s vaccine and conduct human clinical trials. He has been in discussions about this with the National Institutes of Health. Time will tell which vaccine, or vaccines, will prove to be the magic bullet the world is hoping for.

IS IT SAFE, AND DOES IT WORK? THOSE ARE THE NEXT QUESTIONS to answer once construction of a vaccine is complete. For that, clinical trials are the gold standard.

Conducting and completing a clinical trial for any drug is not an easy task. There are lots of trials, people lead busy lives and many are understandably nervous about putting a new drug into their bodies. This is particularly true among many Blacks and Latinos, whose communities have been hardest hit by COVID-19. In fact, in the U.S., only 32% of Black adults say they would definitely or probably take a COVID-19 vaccine, according to the Pew Research Center.

Dr. Jesse Clark, MD (FEL ’08), an infectious-diseases specialist and associate professor-in-residence in the UCLA Department of Medicine, is medical director of the UCLA Vine Street Clinic, in Hollywood, which was a site for the Moderna vaccine clinical trial last year.

“There’s a historical legacy of discriminatory treatment in people of color being used as sort of guinea pigs in a trial

without actually reaping the benefits of a study,” Dr. Clark says. “Understandably, they are concerned.” Because COVID-19 hits Blacks and Latinos so hard, “we were particularly invested in working with these communities to make sure people of all ethnicities were involved in the trial.”

The clinic had a team that put out feelers and publicized the study in the local community and through social media, Dr. Clark says. There was a clinical trial network that had a national website where people can register. UCLA Health also set up a referral website on its main page.

“We really wanted to make an effort to reach communities and populations that are underrepresented in research,” says Chris Blades, community program manager for the Vine Street Clinic. “There has been such a heavy burden on them during this pandemic.”

While response from the community generally was good, many people still were anxious about participating in the trial, Blades says. “There was a bit of hand-holding, a bit of phone tag before setting up an appointment. There was confusion about the science and about what was being reported in the media, and so it was very important that the messages we were putting out were clear and consistent.”

Once that trust was established, the clinic worked with willing volunteers to reach out to others within their social network “to bring more people into the trial who look like them,” Blades says. That approach proved to be very fruitful. “Because someone they trust would vouch for us, they went out on a limb and joined,” he says. “I feel we were able to attract people that way who probably would not otherwise have participated in a study like this.”

Shawn Griffin didn’t need any encouragement to join the study. He is 58 years old and African American. “I had read about trials in general and that not enough people of color were involved,” he says. “Too many people don’t trust what’s going on.” But he wanted to be involved. “I don’t know anyone who’s been sick or died from COVID-19, but hearing people’s stories and having empathy for what they’re going through really encouraged me,” Griffin says. “With everything going on politically with people not trusting scientists, it makes me want to bang my head against a wall. Something’s got to happen. And if we all just sit around, nothing’s going to happen. I want to be a part of the something that happens.”

Griffin said he also is honoring the memory of his mother, a nurse who died in 2020 from causes unrelated to the pandemic. “She taught me that you’ve got to do stuff for the greater good, even if sometimes the greater good doesn’t understand you,” he says. To those who tell him he shouldn’t participate in the trial, “I tell them I am happy with my decision. I feel good about my decision.”

EVEN AS THE BIG PHARMACEUTICAL COMPANIES WERE GETTING READY TO ROLL OUT THEIR VACCINES and a national inoculation program was to begin,

some lawmakers continued to advocate for letting the virus run its course in the hopes of achieving what is called “community immunity,” or “herd immunity,” which is when enough people have become immune to an infectious disease, either through being infected themselves or having been vaccinated, that the virus has no place left to spread and fades away.

But taking such a course would come at a terrible cost. “We are not in the middle of a second or third COVID-19 wave; we’re in the midst of a COVID-19 tsunami,” says Robert J. Kim-Farley, MD, MPH, professor-in-residence in the UCLA Fielding School of Public Health and former director of the Division of Communicable Disease Control and Prevention at the Los Angeles County Department of Public Health. In such a scenario, up to 2 million Americans would die before the country reaches community immunity, he says. That’s too high a price to pay, and Dr. Kim-Farley believes the virus itself will help us achieve community immunity by encouraging more people to accept taking a vaccine. “This tsunami of cases will have people reevaluating their opinion about vaccines, and they will be more inclined to take it as they see more people they know become sick and, perhaps, die,” he says.

But given the cynicism about Big Pharma — a 2019 Gallup Poll found that Americans rank the pharmaceutical industry last for confidence among 25 industries that Gallup evaluates — people have concerns about manufacturers cutting corners to speed up the process. They are concerned about political pressure, too, the “warp speed” to develop a vaccine quickly.

That level of unease, too, should abate as vaccines show themselves to be efficacious and safe. “People will get more comfortable with receiving COVID-19 vaccines as they see the FDA and independent medical boards reviewing all these data, ensuring these vaccines have high efficacy and a strong safety profile,” Dr. Kim-Farley says. He also notes it is not in pharma’s self-interest to cut corners. “Can you imagine the public relations disaster

if one of these companies were caught falsifying data?

Finally, he anticipates a rolling wave of public health messaging that encourages vaccination and addresses any remaining concerns that people may have as the vaccination program gains speed.

It eventually will be clear how effective the current vaccines — and possibly outliers like the one developed by Dr. Horwitz — will be. But it remains everyone’s hope that an end to the pandemic will come soon. Says Griffin, the clinical trial participant, “It breaks my heart on both ends of the spectrum — the older people who have died alone, isolated in an ICU, without

Dr. Robert J. Kim-Farley.

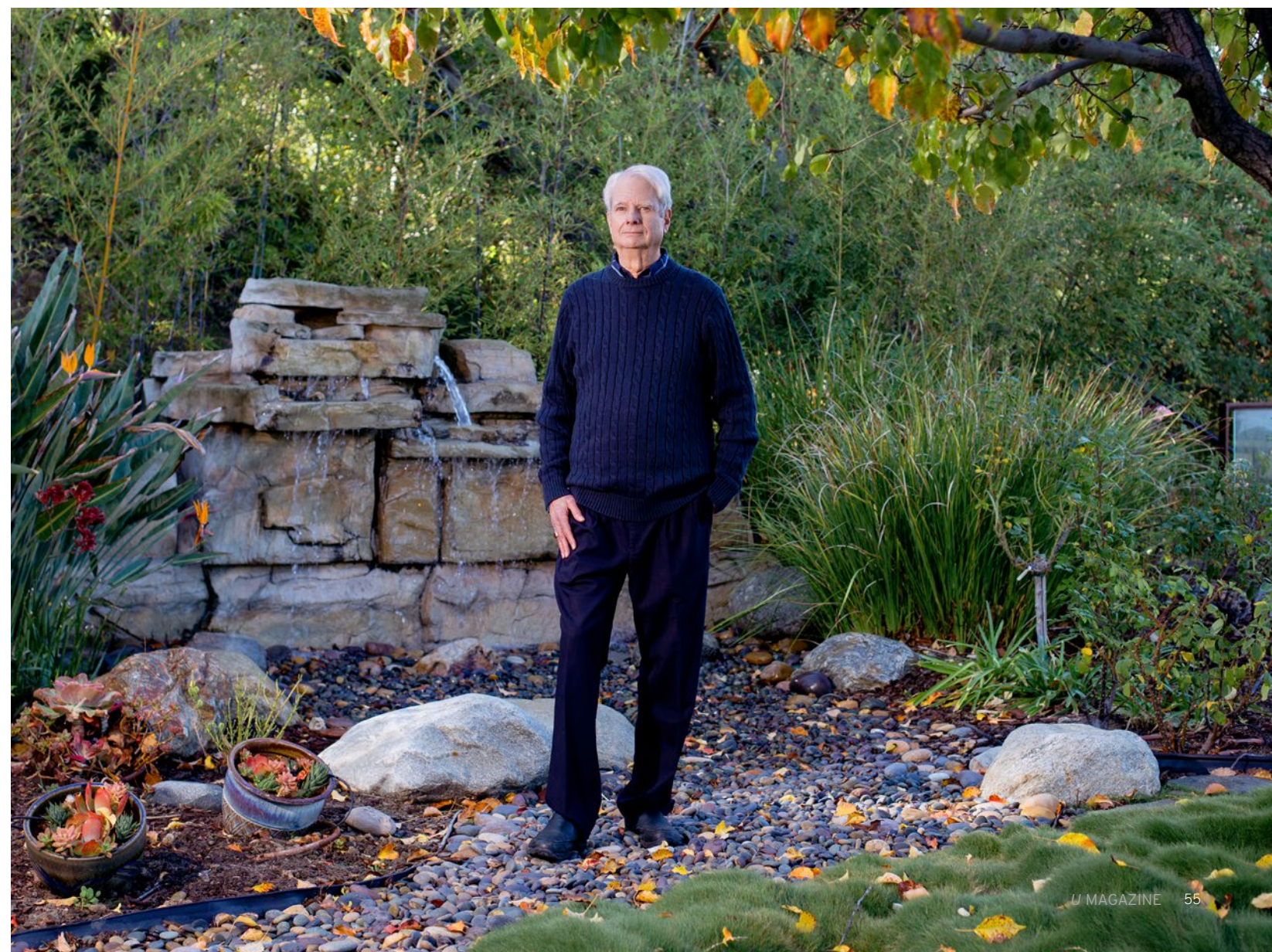
having a chance to say goodbye to their loved ones in person, and the younger people who are losing their moment in time and having to put their lives on hold.

“I just want for all of us to get back to the life that we knew before.”

Mark Wheeler is a freelance science writer and a former writer and editor for *Discover* magazine and media relations officer for UCLA Health. **Tiare Dunlap**, associate manager of communications at the UCLA Broad Stem Cell Research Center, contributed to this article.



To read about how the Pfizer, Moderna and AstraZeneca vaccines were developed so quickly, click on the link to this article at: uclahealth.org/u-magazine



Into the Woods

By Dan Gordon



Some 3.5 million acres of hiking trails, lakes, canyons and breathtaking vistas lie south of Yosemite National Park and west of the Sierra Nevada crest, making up what's commonly known as the Southern Sierras. Just a few hours by car but a world apart from the UCLA campus, it is where S. Thomas Carmichael, MD (FEL '01), PhD, professor and chair of the Department of Neurology at the David Geffen School of Medicine at UCLA, and his sons Chap and Grant have taken regular backpacking pilgrimages over the past 15 summers.

Away from the daily grind — and unable, even if he wanted to, to respond to any of the 300 or so emails he receives each day — Dr. Carmichael, a renowned brain scientist, looks deep into nature, recharges and then returns with renewed purpose to his task of climbing figurative rather than literal mountains.

As a clinician-scientist, Dr. Carmichael divides his time between caring for stroke patients and conducting research in the lab to unravel the mysteries of how the brain reconstitutes itself

after a stroke, with the ultimate goal of translating those insights into medications that enhance the brain's plasticity and ability to repair.

But those tasks seem distant when Dr. Carmichael climbs out of his tent on a chilly morning to begin his first day in the woods, soaking in the tranquility as he watches the sunrise. "I'm usually the first one up in the group, and for me, that's the start of the full wilderness immersion," he says. "I really enjoy that feeling of beginning, with the whole day in front of you."

Backpacking is a family tradition for Dr. Carmichael, an activity that has been integral to the lives of his father, brothers, uncles and great uncles. He began taking his sons into the woods when they were 10 and 12 — Grant now is 24 and Chap is 26 — and it's been a summer ritual ever since, most often to the Southern Sierras to minimize the time on the road, though the family has made it to Wyoming, Montana and Northern California as well.

The bonding on these trips occurs along several routes. "Walking on the trail, with the repetitive movement, frees the mind and gets you to talk a lot," he says. "Then, working as a team to make camp and cook brings you together. You also tend to experience unexpected situations where you might be a little more open to certain conversations. When you're on a mountaintop, sitting there looking

"Look deep into nature, and then you will understand everything better."

— Albert Einstein

over the ridgeline, you have a tendency to think more broadly."

Beyond the opportunity to bond with his sons, Dr. Carmichael relishes the elemental nature of the experience. He remembers the "learning moment" on their first outing together when, walking downstream after assigning his youngest the task of filtering water, he watched as the water purification gear floated by. He jokes about catching and cooking trout at one of the high-altitude lakes — a process of casting, patiently waiting, reeling in, cleaning and cooking that, because the altitude keeps the fish small, typically yields a bite-sized hors d'oeuvre. He describes the ritual hoisting of the "bear bag" — the essential task of placing all yummy-smelling items out of the reach of bears for the night by tying twin ropes in opposing trees, so that the bag hangs high between them — as "a competition in accuracy, distance and arm skill."

"When you're backpacking, you're dependent on your actions simply to exist, whether it's catching a fish for dinner or making it that six miles to the next campsite," Dr. Carmichael says. "It's a parallel disconnection from everything else, where it's impossible to have the trappings of modern life with you." As for all those emails: "Normally, when you travel, people assume you're still going to respond. But in this case, with no cell reception, I can't even if I wanted to."

Not surprisingly, this love affair with nature has fueled Dr. Carmichael's passion for conservation. "The idea of treating wilderness areas and the environment as commodities is really dangerous and extremely outmoded," he says. "We have to actively



Backpacking is a family tradition for Dr. S. Thomas Carmichael (opposite page center) and sons Grant (left) and Chap, taking them to the high country in California, Wyoming and Montana.

Photos: Courtesy of Dr. S. Thomas Carmichael

manage our lands — limiting roads, motorized vehicles and other things that degrade them."

In his professional life, Dr. Carmichael's research focus is driven by a tremendous unmet clinical need. Stroke is the leading cause of disability in adults, with no treatment capable of reversing

the damage. "We can help with the plumbing — we can open a clot and get the blood in — but we can't address patients' deficits in any meaningful way," he notes.

The pursuit is also scientifically compelling. "The mechanisms that the brain uses to recover are very similar to the mechanism it uses to wire itself as it develops," Dr. Carmichael says. "Philosophically, it's very interesting to consider reactivating a younger state of the brain as a means of getting it to recover and repair."

When he's not in the wilderness or at work, Dr. Carmichael can often be found running or mountain biking on trails in the brushy hills near his home. It's during those activities that he tends to think about his research. "It's almost like part of the brain disengages, and you can think more creatively during those experiences," he says.

That's not what happens in the serenity of the Southern Sierras and his other backcountry escapes. There, in a universe fully removed from everyday city life, Dr. Carmichael finds that rather than thinking about work, he clears his brain for better use when he returns. He likes to cite a quote from the Roman naturalist Pliny the Elder: "Fields left fallow recover their fertility."

Dan Gordon is a regular contributor to *U Magazine*.

Awards and Honors

Dr. Kerian M. Backus, assistant professor of biological chemistry, was chosen as a 2020 Packard Fellow for Science and Engineering.

Dr. Christopher B. Cooper, professor emeritus of medicine and physiology, received the 2019-2020 Edward A. Dickson Emeritus Professorship Award.

Dr. Sherin U. Devaskar, physician-in-chief at UCLA Mattel Children's Hospital and assistant vice chancellor of children's health, was awarded the 2021 American Pediatric Society APS John Howland Award.

Dr. John A. Glaspy (MD '79, RES '82, FEL '83), professor of medicine and hematology/oncology and chair of scientific protocol review at the UCLA Jonsson Comprehensive Cancer Center, has been named the inaugural Simms/Mann Family Foundation Endowed Chair in Integrative Oncology.

Dr. Weizhe Hong, associate professor of biological chemistry and neurobiology, received the Young Investigator Award from the Society for Neuroscience.

Dr. Antoni Ribas, director of the tumor immunology program at the UCLA Jonsson Comprehensive Cancer Center, has

been named to the National Academy of Medicine, and he received the 2020 European Society for Medical Oncology's Award for Translational Research.

Dr. Efe Chantal Ghanney Simons (RES '23), fourth-year urology resident, is the inaugural winner of the Diversity Equity and Inclusion Award, presented by the Association of Women Surgeons and the Society of Black Academic Surgeons.

In Memoriam

Dr. Lawrence W. Bassett (RES '74), professor emeritus of radiological sciences, died December 15, 2020. He was 78 years old. A member of the UCLA faculty since 1974 and holder of the Iris Cantor Endowed Chair in Breast Imaging until his retirement in 2016, Dr. Bassett is considered one of the "Fathers of Breast Imaging" and played an important role in gaining its recognition as a subspecialty. Dr. Bassett was internationally known for his role in the development of national guidelines to ensure high-quality mammography through the Mammography Quality Standards Act. Of all his accomplishments, he was most proud of the UCLA Breast Imaging Fellowship, which he established in 1987.

Helene Brown, a member of UCLA's Jonsson Comprehensive Cancer Center and a trailblazing advocate for cancer research and public education, died October 4, 2020. She was 91 years old. Brown served as director of community applications for research. Although she had no formal medical training, Brown referred to herself as a "political oncologist." She received numerous awards while at UCLA, and she was instrumental in getting the American Cancer Society to publish the first guidelines outlining what cancer screenings and tests doctors should give to patients, which greatly increased public awareness of preventive care services such as mammograms and Pap tests.

Dr. Jeffrey J. Eckardt (RES '79), Distinguished Professor Emeritus of Orthopaedic Surgery, Helga and Walter Oppenheimer Endowed Chair of Orthopaedic Oncology and former chair of the UCLA Department of Orthopaedic Surgery, died November 13, 2020. He was 74 years old. Dr. Eckardt joined the UCLA faculty in 1980, following his service as a Navy flight surgeon, residency in orthopaedic surgery and fellowship in orthopaedic oncology. Dr. Eckardt developed many limb-sparing surgical techniques for bone and soft tissue sarcomas. He received the Sherman M. Mellinkoff Award in 2003; the Jeffrey J. Eckardt, M.D., Term Chair in Orthopaedic Surgery was established recently to honor his accomplishments and service.

Bernard (Barney) Robert Strohm, a senior administrator for 24 years of what was then known as UCLA Medical Center, died November 16, 2020. He was 94 years old. With a master's degree in counseling and psychology and a certificate in physical therapy, he came to UCLA in 1959 to head the Department of Physical Therapy, and then became associate director/administrator of the medical center, with responsibility over many areas, including clinical laboratories, spiritual care, physical and occupational therapy and risk management. Strohm served in the Pacific Theater during World War II. He always emphasized the importance of "doing the right thing," and he continued to be engaged in community service after his retirement in 1983.

Dr. Charles Dillon Woody, emeritus professor of psychiatry and biobehavioral sciences and neurobiology, died August 16, 2020. He was 83 years old. Dr. Woody came to UCLA in 1971 and was on faculty until his retirement in 2006. He was a member of the Brain Research Institute and did important work in sleep research. Dr. Woody was a prolific author who wrote and contributed to more than 90 scientific publications. His book *Memory Learning and Higher Function: A Cellular View* continues to be a valuable resource in the field of neurology.

UCLA Health Expresses Gratitude for Board of Advisors Leadership



Outgoing Reagan Board Chair Todd Katz.

Photo: Dana Katz

UCLA Medical Centers in Santa Monica and Westwood have transitioned to new Board of Advisors leadership. Kathy Volz, a frequent supporter of the UCLA Health - Santa Monica Medical Center staff, concluded her 2018-2020 term as chair of the UCLA Health - Santa Monica Medical Center Board of Advisors in summer 2020. While serving as chair, she approved timely initiatives, such as supporting employee childcare during COVID-19, and has remained active with the annual awards ceremony. The board welcomed Kenneth T. Friedman as the new chair.

Todd M. Katz's two-year term as chair of the Ronald Reagan UCLA Medical Center Board of Advisors concluded in fall 2020. As a dedicated member of the Reagan Board and other hospital boards, he undertook several important initiatives, including increasing board membership and diversity. A UCLA alumnus, Katz has supported high-priority initiatives, such as UCLA Health Operation Mend and the COVID-19 Patient Care and Healthcare Provider Protection Fund. During his tenure, he oversaw the creation of a community-engagement committee to enhance community relations



Outgoing Santa Monica Board Chair Kathy Volz.

Photo: Sue Peters

and fundraising, and a health-information-technology (HIT) committee to stay abreast of the hospital system's HIT initiatives, both of which are valuable UCLA Health assets. The board welcomed Beth C. Friedman as the new chair.

In addition, the Reagan Board of Advisors appointed six new board members: Troy Carter (Q&A music and technology company), Derek Collison (Synadia Communications, Inc.), Susanne Daniels (YouTube), Kwanza Jones (Kwanza Jones & José E. Feliciano SUPERCHARGED Initiative), Janice Min (media executive) and Margarita "Maggie" Paláu-Hernández, Esq. (Hernández Ventures). Highly regarded in their respective fields, the new members will bring new perspectives and diverse areas of expertise to support UCLA Health's mission to elevate medical and patient care.

 For more information, contact Jennifer Gray at: 310-367-9051



TOP: Singer John Legend performs "All of Me" for the 21st annual Party on the Pier. MIDDLE: Party on the Pier attendees received event boxes filled with Mattel toys. BOTTOM: Richard Dickson, Mattel president and chief operating officer, playing a virtual game of Uno.

Photos: Courtesy of 15/40 Productions

Games, Special Guests and Music Highlight UCLA's Virtual Party on the Pier

On October 18, 2020, the 21st Party on the Pier shifted to a virtual event and raised more than \$700,000 for UCLA Mattel Children's Hospital. This signature fundraiser, sponsored by Mattel, provides crucial unrestricted support for a wide variety of high-priority programs. Funding advances children's-health initiatives, research and innovative discoveries that improve the lives of young patients treated at UCLA Mattel Children's Hospital and around the world.

Registered guests, patient families and sponsors enjoyed access to the event website, featuring a main stage program that aired at 11 a.m. and a virtual pier that included a variety of games, activities and exclusive programming. Incorporating elements from the in-person event, normally held on the Santa Monica Pier, participants enjoyed celebrity guest appearances, an event kit filled with Mattel toys and the opportunity to explore a virtual beach-themed pier with games and activities throughout the day. Notable talent who participated in the event included Rico and Raini Rodriguez, Jake T. Austin, Barbie, The BeatBuds, Cheryl Burke, former Los Angeles Laker Michael Cooper, UCLA Men's Head Basketball Coach Mick Cronin, Mattel president and COO Richard Dickson, Danielle Fishel, London and Sedona Fuller, Laker Girls Cameryn Hernandez and Janaya Cradle, Vanessa and Nick Lachey, Los Angeles Dodger Gavin Lux, JD McCrary, UCLA gymnast Katelyn Ohashi, Los Angeles Dodgers Foundation CEO Nichol Whiteman, Phil Wright, and many more. Grammy Award-winning artist John Legend closed the program with a special prerecorded performance.

The event co-chairs, Hillary Milken and Loris Lunsford, and the entire event-planning committee helped make the event a success. Due to the virtual nature of the event and generous support of the sponsors, all the patients at UCLA Mattel Children's Hospital were given free access to Party on the Pier, and everyone received a pizza lunch donated by Mattel to complement the Wolfgang Puck Catering pizza-dough recipe featured in the event kits.

Additional major sponsors include the Michael and Lori Milken Family Foundation, Dr. Neal and Beth Cutler, Dr. Organic Mommy, Mia and John Janick, the Los Angeles Dodgers Foundation, the Anthony and Jeanne Pritzker Family Foundation, Ellen and Richard Sandler, Iris and Michael Smith, Wolfgang Puck Catering and Wachtell, Lipton, Rosen & Katz.

 For more information, contact Danielle Dietz at: 310-694-6539

 To view the mainstage program, go to: partyonthe pier.ucla.edu



Inaugural chair holder Dr. Fady Kaldas (left) and Kelly Lee Tarantello.

Photo: Courtesy of Delphine Lee

Family Establishes Endowed Chair to Memorialize their Daughter

In memory of her beloved daughter Kelly Lee Tarantello, Delphine Lee made a philanthropic gift to establish the Kelly Lee Tarantello Endowed Term Chair in Integrative Liver Transplantation in the UCLA Department of Surgery. Lee established the chair to provide support for a transplant surgeon who has shown commitment to the care and management of patients with combined heart and liver disease, and to facilitate the development of the UCLA heart/liver disease program. On May 1, 2020, Dr. Fady Kaldas (FEL '10), associate professor of surgery, director of the UCLA Multi-Organ Transplantation and Hepatobiliary Surgery Fellowship Program and medical director of Liver Transplant Services, was named the inaugural Kelly Lee Tarantello Endowed Term Chair holder.

Dr. Kaldas, a liver-transplant surgeon, co-organized the first heart/liver disease symposium at UCLA. He has been invited to speak at national and international meetings as an expert in organ transplantation, including double organ transplantation. The gift from Lee will continue Kelly Lee Tarantello's legacy and create a lasting impact by funding Dr. Kaldas' research to advance procedures and the success of combined heart/liver transplantation.

 For more information, contact Gretchen McGarry at: 310-794-4746

Annual Tour de Pier Stages a Successful Virtual Event



The top 10 fundraisers for Virtual Tour de Pier riding on the roof of the Shade Hotel.

Photo: Patrick Record/Tour de Pier

Stationary cyclists in Los Angeles and from across the country took to their bikes on September 13, 2020, to virtually pedal for a cancer cure at the 8th Annual Skechers Tour de Pier. Once again sponsored in part by UCLA Health, the unique outdoor-fitness charity event that annually attracts more than 10,000 cyclists and attendees shifted from its traditional location on the Strand overlooking the Manhattan Beach Pier to a digital environment due to the COVID-19 pandemic. The innovative Virtual Tour de Pier enabled participants from across the country to ride, spin, run or do their activity of choice for a cancer cure.

“Considering the current global health crisis, we are pleased that Tour de Pier was able to continue raising money for cancer research and support services,” said Lisa Manheim, co-founder of Tour de Pier and executive director of the Hirshberg Foundation. “We know that cancer hasn't stopped because we are in a pandemic. Our family, friends and neighbors are still being diagnosed every day. Pivoting our event to a virtual one ensured that we remain united in our mission to cure cancer and provide much-needed support for our beneficiaries.”

Following health protocols that included physical distancing and wearing a mask, the top 10 fundraisers rode in person on the rooftop of the Shade Hotel in Redondo Beach overlooking the Pacific Ocean, and in-person cycling took place outdoors at four partner studios: the Bay Club in Redondo Beach, CycleBar in Culver City and Santa Monica and the Los Angeles Dodgers Training Academy in Redondo Beach.

UCLA radiology staff members rode virtually as part of the UCLA Radiology Gold team. Other virtual cyclists included Ric McGill, director of UCLA Radiology for the UCLA Health partnership with the Los Angeles Lakers; Dr. Timothy Cloughesy (RES '91, FEL '92), director of the UCLA Neuro-Oncology Program; and Dr. David Nathanson (PhD '11, FEL '13), assistant professor of molecular and medical pharmacology.

The event raised more than \$680,000 for three cancer charities, two of which provide significant support for cancer studies at UCLA: the Hirshberg Foundation for Pancreatic Cancer Research and the Uncle Kory Foundation for brain-cancer investigations. Since 2013, Tour de Pier has raised more than \$7.9 million, helping cancer charities advance innovative research and provide support services for patients with cancer and their families.

 For more information, contact Elizabeth Naito at: 310-206-6749

Dr. Jessica Rexach Honored with Endowed Chair

On November 19, 2020, members of the UCLA Department of Neurology and John Douglas French Alzheimer's Foundation Board members gathered virtually to celebrate the gift from the foundation to establish the John Douglas French Alzheimer's Foundation Endowed Chair. The evening also honored Dr. Jessica Rexach (PhD '10, MD '12, RES '16, FEL '18), assistant professor of neurology in the David Geffen School of Medicine at UCLA, as the inaugural John Douglas French Alzheimer's Foundation Endowed Chair holder.

An early-career faculty member in the UCLA Department of Neurology, Dr. Rexach is committed to eliminating Alzheimer's disease and dementia through her scientific research. She received her medical and doctorate degrees through the UCLA-Caltech Medical Scientist Training Program. As a physician-scientist, her work has been widely published across the disciplines of chemical biology, bioinformatics and systems biology, and clinical and translational neurogenetics. Funding from the chair will enable Dr. Rexach to advance her research to identify therapeutic targets for Alzheimer's disease and translate these discoveries to the patient. Honorary chair statues were previously presented to Dr. Rexach and Dr. Cheryl Craft, president of the John Douglas French Alzheimer's Foundation.

 For more information, contact Elizabeth Naito at: 310-206-6749



Dr. Cheryl Craft, president of the John Douglas French Alzheimer's Foundation.
Photo: Courtesy of Dr. Cheryl Craft



Inaugural chair holder Dr. Jessica Rexach.
Photo: Courtesy of Dr. Jessica Rexach

Fine Family Establishes Endowed Chair in UCLA Department of Surgery

Dr. Marjorie Fine and Arthur Fine have made a gift to establish the Marjorie Fine, M.D., Endowed Chair in Clinical General Surgery within the Department of Surgery of the David Geffen School of Medicine at UCLA. Dr. Fine, the first female to be admitted to and complete an internship/residency in the UCLA Department of Surgery, and her husband Arthur established the chair in 2019 to support a highly regarded surgeon with a commitment to the delivery of clinical general surgery and training generations of clinical general surgeons to follow.

On July 1, 2020, Dr. Catherine J. Juillard (MD '05, RES '12), associate professor-in-residence in the UCLA Division of General Surgery and co-director of the Program for the Advancement of Surgical Equity, was named the inaugural Marjorie Fine, M.D., Endowed Chair holder. Dr. Juillard examines methods to improve surgery in under-resourced countries and promotes diversity, equity and inclusion in medical education. She has authored 49 peer-reviewed published papers and has given more than 100 presentations at national and international meetings. Funding from the Fine Chair will enable her to continue advancing research in the delivery of clinical surgery and care, and the patient experience.

 For more information, contact Gretchen McGarry at: 310-794-4746

Gifts

The **Held Foundation** made a \$100,000 gift to support COVID-19 research, specifically to accelerate the development of UCLA's novel mass-testing technology for SARS-CoV-2, called SwabSeq. In contrast to standard clinical testing, in which one person's sample is tested in a single test tube, this technology is capable of simultaneously testing thousands of samples and producing accurate results in 12 to 24 hours.

The UCLA Jonsson Cancer Center Foundation continues to benefit from the generosity of the **Jonsson** family through a donation of \$1.3 million. This meaningful contribution will advance the development of new treatments for pancreatic cancer under the direction of Dr. Michael Teitell (PhD '91, MD '93), director of the UCLA Jonsson Comprehensive Cancer Center (JCCC), UCLA Jonsson Cancer Center Foundation president, and Lya and Harrison Latta Endowed Chair in Pathology in the David Geffen School of Medicine at UCLA.

Linda and **Ken Suslow** have contributed \$1 million to benefit those receiving care at UCLA. Half of the gift will support the Chase Child Life Program at UCLA Mattel Children's Hospital, providing holistic developmental therapies and services for UCLA's youngest patients and their families. The other half established the Suslow Family Patient Emergency Assistance Fund in the UCLA Department of Care Coordination and Clinical Social Work, which will help cover housing, food vouchers, transportation, durable medical goods and other needs identified by care teams.

Co-chairs of the UCLA Arline and Henry Gluck Stroke Rescue Program's Council of Advocates, **Laura** and **Mark Wittcoff** made a gift to establish the Marjorie Scherck and Raymond Wittcoff Nursing Fellowship in Stroke Care Innovation. Memorializing Laura's grandmother and Mark's father, committed champions of quality nursing care, the fellowship will help sustain crucial nursing staff in the program's mobile stroke unit under the direction of Dr. May Nour (RES '13, FEL '14, '15). The program currently reaches western, southern and South Bay regions in Los Angeles County, with plans to expand to additional areas in the future.

 For more information, contact Health Sciences Development at: 310-206-6484

A Final Hug with “Mi Amor”

BY TISHA WANG, MD (RES '05, FEL '08)

Like most ICU physicians, I've witnessed my share of death and tragedy, both pre- and post-pandemic. Despite that, watching a long-term outpatient succumb to their illness — this is what always hits me the hardest. It feels like such a profound loss, and in my younger days, my rational mind could never understand it. They aren't family or a close friend, so why does it hurt so much?



Writing has been a means for Dr. Tisha Wang to process her emotions during the COVID-19 pandemic, and in “Mi Amor,” she writes about a special patient, Imelda Saucedo (top).

Photos: (Dr. Wang) Milo Mitchell; (Saucedo) Courtesy of Angélica S. Gutiérrez

Reflecting on this, I think most outpatient physicians are fortunate enough to have a handful of patients whom they've seen for years; and through those years, our patients regularly cheered us up, made us smile, hugged us, shared their lives with us, respected us and made us feel important and valued. Maybe it isn't all that different from an old friend after all.

I put one such patient on hospice recently, in the midst of the seemingly never-ending COVID pandemic. She sat there in clinic in her wheelchair, barely recognizable. But somehow, underneath her frail body, rapid breathing, silver hair and masked, tired-appearing face, I could still see her bright and slightly mischievous eyes. Her lungs were clearly struggling. And now her heart was failing, and there was little else to do.

I lingered for a bit, not wanting the appointment to end. When the time came, I couldn't even give her a final goodbye hug because of the ongoing fear of COVID. Instead, we sat there with our masked faces blowing endless kisses to each other as I told her over and over again in my broken Spanish that she was “Mi Amor.”

As the tears started falling, my focus shifted to not letting my mask get too wet for fear it would be ruined for the rest of clinic. I quickly looked over at her loving daughter, who earlier was also

fighting back tears but now was crying freely. Her tears flowed under her mask, over her mask, down the sides of her cheeks. In that moment, I realized how much sadness one can see even with masks — it's all in the eyes. Our grief-stricken eyes met for a brief moment of shared compassion and understanding.


COVID-19 has undoubtedly changed every single relationship in every one of our lives. We often can't even hug or kiss our own friends and families. But the way it's ruined people's ability to say a final goodbye to those they love is one of the great tragedies in this pandemic. No one will ever get these lost moments back.

Though my sincere hope throughout this entire crisis is for these experiences to somehow make us better and kinder people — and physicians — in the long run, it doesn't change how incredibly heartbreaking and unbearable it is. We are not going to be able to count the number of times that we had to witness the unthinkable sorrow of a loved one who can't sit with and say goodbye to those most dear to them as they leave this world. Or, maybe, if they're lucky and the timing is right, one or two people could visit as an exception to hospital restrictions, restrictions that are sadly in place to try and prevent the spread of infection from getting even worse. But even seeing the anguish of families forced to choose one or two people has brought my most resilient ICU physicians to tears.

In the end, the closeness and intimacy of these last moments also isn't the same. There are often no hugs, no kisses, no closeness. I'm grateful that I at least got to see my dear patient in person one last time. But what I wouldn't give for a final hug with “Mi Amor.”

Dr. Tisha Wang is clinical chief of the UCLA Division of Pulmonary, Critical Care and Sleep Medicine, vice chair of inpatient services for the UCLA Department of Medicine and program director of the UCLA Pulmonary and Critical Care Medicine Fellowship. She received the 2020 Mellinkoff Award, which honors the ideal of the finest in doctor-patient relationships and medical education and is the highest faculty honor of the David Geffen School of Medicine at UCLA.



 To view a video of Dr. Tisha Wang reading her essay “A Final Hug with ‘Mi Amor’” and speaking about her experience as an ICU physician during the COVID-19 pandemic, go to: tinurl.com/Tisha-Wang-Essay

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U.S. News & World Report's Best Hospital Survey ranks UCLA #1 in California and #4 in the nation.

David Geffen School of Medicine at UCLA ranks #6 in Research and #11 in Primary Care nationwide.



Photo: Milo Mitchell

In her essay "A Final Hug with 'Mi Amore'" (page 64), Dr. Tisha Wang writes of a special patient and their last goodbye.