UC DAVIS HEALTH

FALL 2019 · VOL 16 / NO 1

A publication for alumni, donors, faculty and friends of UC Davis Health

Q&A:
Our new deans

Two decades of PECARN power

Lessons from vaccinating millions

New pediatric heart cath options

Can *one* exam room question **reduce gun deaths?**

Evidence suggests that clinicians can play a unique role in helping to prevent gun violence — no matter what their own personal politics might be.

page 16


FOR CLINICAL TRIALS OR ATHLETIC TRIALS
At UC Davis Health we're proud to offer our region access to care ranked among the best in the nation and near everywhere you are. From Auburn to Davis and Natomas to Elk Grove, we have 17 convenient neighborhood clinics, new video visits, and more — plus nationally renowned telehealth capabilities and expanding options for physician referrals.
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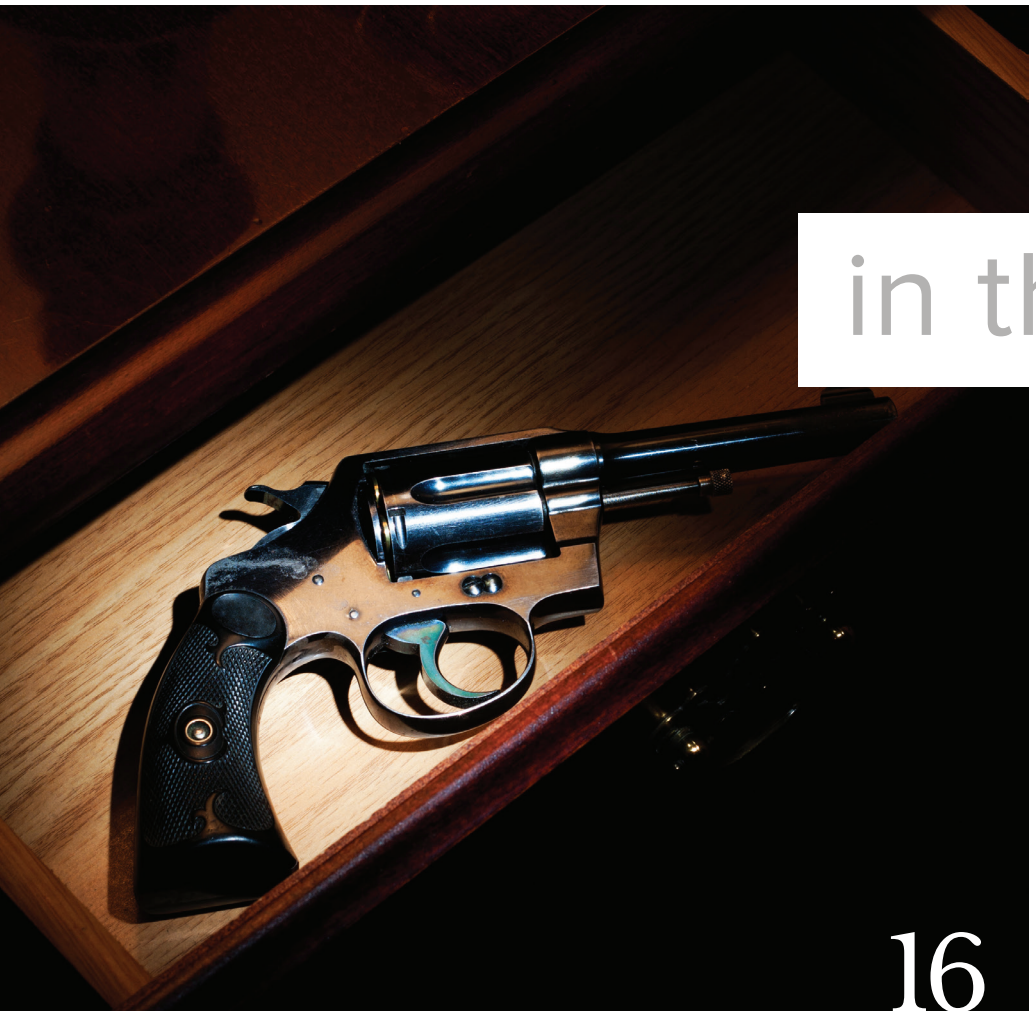

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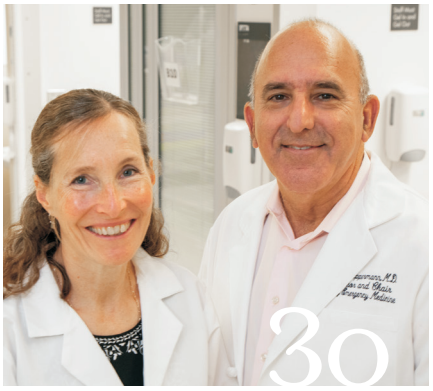


alumni profiles

departments

Changing the health trajectory through education

We have lofty goals at UC Davis Health — because we should. As an academic medical center, we have both the ability and a responsibility to make our community, our state and our world happier and healthier.

We've already been working toward this in all of our mission areas — clinical care, research and education. In this issue, you will get to know more about the two people leading our education mission: Stephen Cavanagh, Dean of the Betty Irene Moore School of Nursing, and Allison Brashear, Dean of the School of Medicine.

Both have begun working together to develop nation-leading programs teaching team care and building upon our efforts to address health disparities and the health workforce needs of our state. The California Future Health Workforce Commission said by 2030, California will be short 4,100 primary care clinicians, 600,000 homecare workers and one-third of the psychiatrists it needs. Currently, 7 million Californians live in Health Professional Shortage Areas, the majority of them Latinx, African American and Native American.

To address those disparities, who we train is vitally important. Our goal is to become a center for diversity and for people from a vast range of backgrounds. Being a great doctor, nurse or care giver requires empathy, the ability to keep learning throughout your career, and an understanding of our patients' worlds.

Diversity and shared background leads to greater trust from patients and a greater probability they'll adhere to their prescribed care. The needs in this area are clear. The Workforce Commission said Latinx residents comprise 39% of California's population but only 7% of the state's physicians, and it said only 3% of medical students nationwide come from families with incomes in the lowest 20th percentile.

UC Davis Health is doing its part to address the need for a diverse physician workforce. This year, our School of Medicine started off with its most diverse class ever, including 22 African American students, the greatest number in its 50-year history. And 65 percent of the new class qualifies as socioeconomically disadvantaged, also the largest in our history. In addition, for the third straight year, about two-thirds of the class is women, far above the national average.

We also have a number of pipeline programs to recruit and prepare students from underrepresented backgrounds to enter medical professions. Prep Médico, a four-year old partnership with Kaiser Permanente and The Permanente Medical Group, has graduated 175 Latinx students from this summer-long program that mentors and inspires minority applicants seeking a medical career. One student from the first cohort was accepted into Michigan State University's medical school last year, and others are preparing for the MCATs or applying to medical schools.

We're training people to practice **at the top of their licenses, together,** *to provide the right care, at the right time, in the right place.*

By instilling teamwork and the concepts of team-based care into the training of our students in both schools, we're addressing another future need. We're training people to practice at the top of their licenses, together, to provide the right care, at the right time, in the right place. It will make us more efficient and make work more rewarding for doctors and nurses — helping to reduce provider burnout. It will help us deliver better care. It will expand access to care. Most of all, it will help our patients.

There is still much work to be done though, as the only academic medical center between San Francisco and Portland. Our goal is to help eliminate disparities in both access and outcomes of medical care across all of Northern California, the Central Valley and right here in the urban core of Sacramento. I'm confident our new deans and all of UC Davis Health will rise to the occasion, because our patients, and because a future that is both healthier and socially just, demand it.

David Lubarsky, M.D., M.B.A.
Vice Chancellor of Human Health Sciences
Chief Executive Officer, UC Davis Health

Ranked among *America's* best

NATIONALLY RANKED IN 10 ADULT SPECIALTIES

U.S. News & World Report ranked UC Davis Medical Center among the nation's top 50 hospitals in 10 adult medical specialties for 2019–20, including:

- cancer care
- cardiology and heart surgery (#17)
- ear, nose and throat (#12)
- geriatrics (#18)
- gynecology (#16)
- nephrology
- neurology and neurosurgery
- orthopedics
- pulmonology and lung surgery
- urology

The hospital also earned "high performing" acknowledgement in gastroenterology and gastrointestinal surgery and in diabetes and endocrinology.

HIGH-PERFORMING IN MULTIPLE COMMON PROCEDURES

U.S. News & World Report also released ratings for common types of care and procedures, with "high-performing" considered the highest level of recognition. UC Davis Medical Center earned that rating in:

- abdominal aortic aneurysm repair
- chronic obstructive pulmonary disease
- colon cancer surgery
- heart bypass surgery
- heart failure
- knee replacement
- lung cancer surgery

The hospital met expected standards of care for hip replacement and aortic valve surgery.

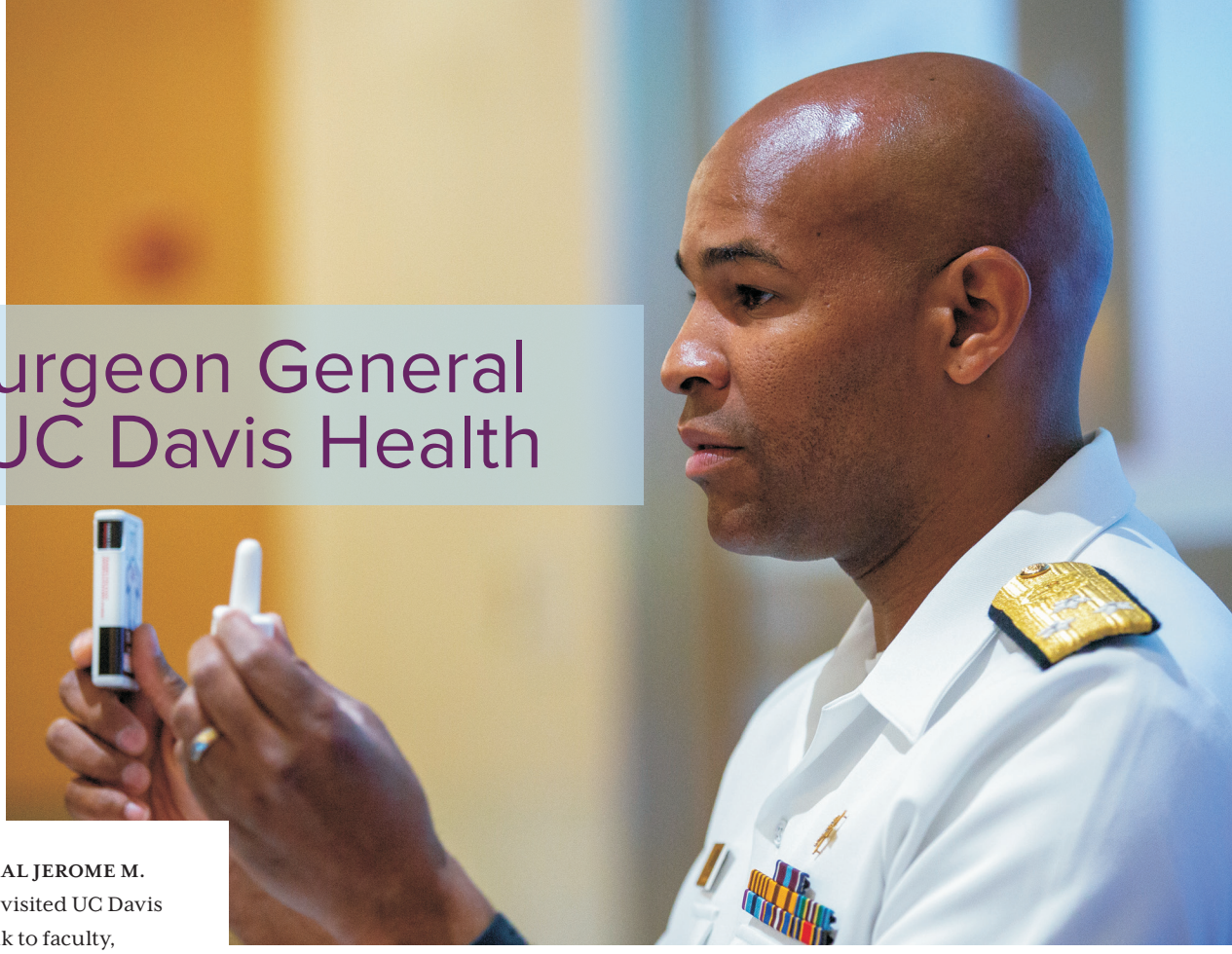
NATIONALLY RANKED IN FIVE PEDIATRIC SPECIALTIES

U.S. News & World Report ranked UC Davis Children's Hospital among the nation's best in five pediatric specialties for 2019–20, including:

- neonatology
- nephrology
- orthopaedics (#8)
- pediatric diabetes and endocrinology
- urology (#20)

Orthopedics and urology rankings were received in collaboration with Shriners Hospitals for Children – Northern California, UC Davis' long-standing partner in caring for children with burns, spinal cord injuries, orthopedic disorders and urological diseases.

U.S. Surgeon General visits UC Davis Health



U.S. SURGEON GENERAL JEROME M. ADAMS, M.D., M.P.H., visited UC Davis Health in June to speak to faculty, students and staff about the opioid epidemic and other contemporary topics. His talk, "Opioids and Better Health through Better Partnerships," encourages providers, governments and community organizations to leverage their resources to prevent and treat opioid use disorder.

As surgeon general, Adams declared opioid substance abuse a public health emergency and issued a rare advisory that led to more Americans carrying naloxone. He also stresses stigma reduction and the normalizing of addiction as a disease.

UC Davis Health providers and staff are working to address the opioid crisis through initiatives such as primary care screening and expanded withdrawal treatment and counseling. A model ER-based treatment program has been highlighted by national media and is expanding to other hospitals.

Workshop highlights plight of migrants and refugees

California Attorney General Xavier Becerra was a keynote speaker at a June symposium — "The Humanitarian Crisis at the U.S.-Mexico Border: A Deeper Dive from Diverse Lenses" — hosted by UC Davis Health's Office for Equity, Diversity and Inclusion and Center for Reducing Health Disparities. The event brought together leading experts in immigration, health, law, academia and philanthropy, as well as advocates, students and UC Davis Health employees. Center for Reducing Health Disparities director **Sergio Aguilar-Gaxiola, M.D., Ph.D.**, organized the conference after being moved while touring migrant shelters in Tijuana, Mexico, late last year in his role as a California Health Care Foundation board member.

Cancer Center director named deputy chair of SWOG

Primo "Lucky" Lara, M.D., has been named deputy chair of SWOG, a cancer research organization of more than 12,000 people at over 1,000 hospitals, clinics, and cancer centers. SWOG designs and conducts publicly funded cancer clinical trials and represents a major force in cancer advances worldwide. Lara, the director of the UC Davis Comprehensive Cancer Center, will oversee SWOG's National Clinical Trials Network (NCTN) and direct the science, policy, operations and strategic planning for the group.

Neuroscience director awarded for pioneering work on schizophrenia

Cameron Carter, M.D., director of the UC Davis Behavioral Health Center of Excellence, has been awarded the George N. Thompson Award for Distinguished Service from the Society of Biological Psychiatry. Carter's research includes innovative therapies for cognitive disability in schizophrenia and other brain disorders, and he has advanced the early detection, intervention and treatment of psychosis. Last year he was named in the 2018 Highly Cited Researchers List, an annual compilation of scientists whose citation records position them in the top 1% in their fields.

PEDIATRIC CARDIOLOGY CHIEF RECEIVES MASTER INTERVENTIONALISTS DESIGNATION

Frank Ing, M.D., chief of pediatric cardiology and co-director of the UC Davis Pediatric Heart Center, has received a Master Interventionalists designation from the Society for Cardiovascular Angiography and Interventions (SCAI). The designation showcases excellence in invasive/interventional cardiology and a commitment to clinical care, innovation, publication and teaching. The society recognized Ing's achievements in the development of transcatheter techniques, delivery systems and cardiovascular devices to treat congenital heart disease from the fetus to the elderly.

RADIOLOGIST EARNS TOP PHYSICIST AWARD

John Boone, Ph.D., has received the highest honor — the William D. Coolidge Gold Medal — from the American Association of Physicists in Medicine (AAPM) for his long-standing efforts on the local, national, and international stage in diagnostic radiology. Boone, a breast imaging scientist and professor of radiology and biomedical engineering, has led the design and testing of breast-imaging systems, and was a co-researcher in the development of a small CT scanner specifically designed to detect breast cancer. He has authored more than 200 peer-reviewed papers and co-authored *The Essential Physics of Medical Imaging*, the leading textbook for radiology residents.

FIRST IN NATION TO USE ADVANCED CT SCANNER ON PATIENTS

UC Davis Health is first in the nation to use a new ultra-high-resolution computed tomography (CT) scanner for research and diagnoses. The device, an Aquilion Precision™ scanner from Canon Medical Systems USA, has the highest resolution of any clinical CT scanner in North America, and can provide imaging of human anatomy as small as the size of three human hairs. The higher-resolution scanner will likely improve the detection of diseases and injuries at earlier stages and with greater accuracy.

3-D printing helps surgical planning

UC Davis Health reconstructive surgeons have begun using three-dimensional printing to enhance surgical planning and outcomes. Specialized 3-D printers can create patient-specific replicas of the skull and other patient body parts from CT images, enabling surgeons to visualize, practice and then perform reconstructive surgery while saving time and increasing precision. With the ability to bend and customize surgical plates, challenging medical puzzles will become much easier to solve.

Brad Strong, M.D.

Center for Virtual Care now Center for Simulation and Education Enhancement

The UC Davis Center for Virtual Care is now the UC Davis Center for Simulation and Education Enhancement. Recently reaccredited as a Comprehensive Education Institute by the American College of Surgeons, the center has been nationally recognized for giving learners at all levels hands-on clinical practice in a safe, risk-free environment. Over 17 years the simulation center has grown to include more than 10,000 square feet of resources including a trauma bay, operating room, inpatient unit, patient ward, task training room, technology enhanced classrooms and standardized exam rooms.

Recognized for high-quality care to Medicare Advantage patients

UC Davis Health earned a 4.5-star rating from the Integrated Healthcare Association (IHA) for providing high-quality care to Medicare Advantage patients. The nonprofit association promotes integrated care that improves quality and affordability for patients across California and the nation. The designation recognizes a high level of Medicare Advantage quality achievement.

Calendar

October 21

Neurology Update 2019 for the Primary Care Provider
For physicians, pharmacists, physician assistants, nurses, nurse practitioners and other primary care team members. UC Davis Conference Center, Davis. Info at **health.ucdavis.edu/cme**.

November 1-3

30th Annual Anesthesiology Update
Evidence-based methods and strategies for anesthesiologists, pain medicine physicians, nurses, nurse anesthetists, residents and fellows involved with the perioperative care of surgical patients. Monterey Plaza Hotel, Monterey. Info at **health.ucdavis.edu/cme**.

November 2

6th Annual UC Davis One Health Symposium
Hosted by the One Health Institute and Students for One Health in the School of Veterinary Medicine. This year's theme is "Interfaces: One Health at Borders and Margins," including disease at urban/rural interfaces and political interfaces/borders. UC Davis School of Medicine Education Building, Sacramento. Info at **ce.vetmed.ucdavis.edu**.

A leader in LGBTQ Healthcare Equality

For the ninth consecutive year, the Human Rights Campaign Foundation named UC Davis Medical Center a "Leader in LGBTQ Healthcare Equality" for 2019. The foundation is the nation's largest organization for lesbian, gay, bisexual, transgender and queer Americans, and produces an index each year that evaluates health care facilities' policies and practices on equity and inclusion of LGBTQ patients, visitors and employees. LGBTQ patients use the index to find facilities that provide welcoming and inclusive care.

New partnership increases Medi-Cal specialty care services

UC Davis Children's Hospital and Community Medical Centers (CMC) clinic have partnered to expand world-class specialty care to young patients and families throughout the Stockton area. As a Federally Qualified Health Center (FQHC), CMC provides high-quality primary, dental and behavioral health services to nearly 90,000 patients each year. Adding UC Davis Health specialists such as cardiologists, endocrinologists and gastroenterologists is intended to support a united approach to improving the health of children in the San Joaquin Valley.

TWO UC DAVIS STUDIES ASSESS THE HEALTH EFFECTS OF THE CAMP FIRE

UC Davis researchers are conducting two studies to better understand the health effects of last year's Camp Fire, as part of a larger ongoing research portfolio on California's massive wildfires at the UC Davis Environmental Health Sciences Center. Researchers are surveying those living in Butte and other affected counties about their lives and health before and after the fire, with the potential to participate in a longer-term study of wildfire-related health effects. They've also invited women who were pregnant around that time to help determine if the disaster affected them or their babies, by submitting biological samples for markers of physiologic responses. Additional ongoing research includes analyses of ash and air samples.

November 2–3

39th Annual Update in Gastroenterology and Hepatology for the Primary Care Provider
A look at dysphagia, Barrett's esophagus, proton pump inhibitors, colon cancer screening, liver diseases and IBS for primary care clinicians. Hyatt Regency Monterey Plaza Hotel and Spa, Monterey. Info at **health.ucdavis.edu/cme**.

Events are in Sacramento unless otherwise noted. For more information about upcoming educational courses, please visit health.ucdavis.edu/cme. Or contact the Office of Continuing Medical Education at **916-734-5352** or **cmereg@ucdavis.edu**.

Note: Before making travel arrangements, please call the Office of Continuing Medical Education at **916-734-5352** to confirm there are no changes to dates or locations printed in this calendar.

Notable quotes

"What was lost was 20-some years of effort to understand and prevent a huge health problem. Consciously, deliberately, repeatedly, over and over, we turned our back on this (gun violence) problem. It's as if we, as a country, had said, 'Let's not study motor vehicle injuries. Let's not study heart disease or cancer or HIV/AIDS.' "

UC Davis emergency medicine physician **Garen Wintemute, M.D., M.P.H.**, in a "CBS Sunday Morning" feature after two early-August shootings killed 30 people. Wintemute was lamenting the effect of legislation in the 1990s that defunded federal firearm research.

"My coach's advice was trying to stay true to who I am as an individual, and that I didn't have to become a robot when talking to patients. It's a fine line to walk."

Second-year UC Davis medical student **Duane Kim**, in an *AAMC News* article discussing a new student coaching program that helps students ask questions they may not feel comfortable posing in formal classes. At issue was an emotionally difficult case involving a child with metastatic cancer.

"We found education with an on-site champion reduced inappropriate antibiotic use by a third across the board. Our study shows that this relatively simple approach can get us to near-zero inappropriate antibiotic use for acute respiratory infections."

Larissa May, M.D., professor of emergency medicine and director of emergency department antibiotic stewardship, in a *United Press International* article about the promise of a new antibiotic stewardship toolkit.

"A lot of scientists in other countries don't necessarily think about the ethical issues — they just kind of plunge in."

"You can do all these incredible things, but you should maybe take a step back…do we need a dragon?"

UC Davis stem cell researcher **Paul Knoepfler, Ph.D.** (first quote), and his 17-year-old daughter Julie (second quote), in a *Los Angeles Times* article describing their blueprint for using gene-editing techniques to create a dragon. The duo explores how they would biologically design the creature in their new book *How to Build a Dragon or Die Trying: A Satirical Look at Cutting-Edge Science*.

"Within minutes our physicians are able to see the child and talk with the family members and help assist in the care that way."

James Marcin, M.D., M.P.H., director of the Center for Health and Technology, in an *NPR* article explaining how using telehealth for primary care can break down barriers for patients living in rural communities.

A summary of recent findings in clinical, translational and basic-science research at UC Davis

Body of Knowledge

In the first large, multicenter study to assess the amount of advanced imaging occurring during pregnancy, researchers found that CT scans — which expose mothers and fetuses to high doses of ionizing radiation — have significantly increased over the past two decades. The *JAMA Network Open* report found that imaging rates were highest in women aged **20 to 40 who delivered preterm, or were black, Native American, or Hispanic.** Authors suggested alternative methods should be considered whenever possible to avoid unnecessary exposure and potential health risks.

A UC Davis-led study published in the *Proceedings of the National Academy of Sciences* is the first to show that a vaccine can prevent transmission of cytomegalovirus (CMV) across mucosal surfaces, such as the mouth and nasal passages. Researchers simulated how the virus spreads and were able to target a viral gene that prevents the immune system from responding to the infection. The findings provide an approach to prevent infection in pregnant women while reducing the chance that babies become infected and develop disabilities.

Researchers at UC Davis and Johns Hopkins have uncovered a better understanding of MRSA with the help of specially engineered mice, advancing the field a step closer to developing a staph vaccine or cell-based therapies. Published in the *Proceedings of the National Academy of Sciences*, the study identified the exact type of immune cells that travel from lymph nodes to the infection site to fight the bacteria. The teams are collaborating again to investigate whether there is a parallel cell type in humans that can form a similar protective response to infection.

A UC Davis study of emergency departments and urgent care centers found that educating physicians and patients about safe antibiotic use can cut overuse by one-third. Published in the journal *Academic Emergency Medicine*, the findings highlighted important behavioral modifications that helped improve antibiotic-prescribing decisions, such as providing an on-site physician champion; physician feedback on prescribing rates; and a public commitment to reduce unnecessary use.

Researchers from UC Davis Health and Oregon Health Sciences University found that extensive cardiac testing for chest pain did not predict major cardiac events, and should only be performed when initial assessments indicate heart disease is likely, according to a study published in the *American Journal of Cardiology*. The study concluded that with a clinical history, exam, and more highly sensitive methods to predict major cardiac events, these evaluations could help better determine who should and should not get advanced cardiac testing.

A UC Davis research team has uncovered a cellular link between diabetes and blood vessel constriction that increases risks of serious health conditions such as heart disease and stroke. The study published in *The Journal of Clinical Investigation* found that high glucose can damage the vascular system and arteries that control blood flow. The findings are an important target for further investigations into new treatments for the vascular complications of diabetes.

UC Davis Health CEO appointed to Governor's Alzheimer's task force

California Gov. Gavin Newsom has appointed UC Davis Health CEO David Lubarsky, M.D., M.B.A., and neurology researcher Oanh Meyer, Ph.D., M.A.S., to the Alzheimer's Prevention and Preparedness Task Force announced in his spring State of the State address.

Chaired by former California First Lady Maria Shriver, the group's purpose is to create recommendations about how communities, organizations, businesses, governments and families can prevent and prepare for the expected rise of Alzheimer's cases.

"As we work to fight Alzheimer's disease, it's important that we pursue both cures and prevention," Lubarsky said. "More research is essential to help those with the disease, but we already know that it's also important to promote healthy habits throughout life."

His task force colleague Meyer is a UC Davis assistant professor of neurology who studies cognitive and mental health disparities in minorities and older adults.

UC Davis' own Alzheimer's Disease Center is one of 27 nationwide designated by the NIH's National Institute on Aging. Its location in melting pot California (and additional state funding) allows researchers to study the effects of the disease on a uniquely diverse population.

The center has hosted novel neuroimaging investigations that have significantly advanced understanding about brain changes associated with dementias, with director Charles DeCarli, M.D., receiving the 2010 J. Allyn Taylor International Prize in Medicine for such work. In 2017 he also received one of the nation's largest NIH Alzheimer's grants, a $14.7 million award to study the disease and cerebrovascular injury in Hispanics.

The center is now expanding its expertise with the addition of several large grants led by Rachel Whitmer, Ph.D., appointed associate director this year. Whitmer brings a strong public health perspective to the study of dementia and its toll across populations underrepresented in research.

"Rachel's participation is part of a long-term strategy of the center, and she fits in beautifully because she brings us the true epidemiological skills to allow much deeper phenotyping of people with dementia," DeCarli said.

Whitmer's portfolio includes projects such as the $8.9 million KHANDLE study concerning ethnic disparities in brain health and dementia; and the $12.1 million Life After 90 study, focused on the role of early-life influences in very late-onset dementia risk.

In July, UC Davis received $6 million to participate in another national study, U.S. POINTER, to determine if lifestyle changes can protect memory and thinking in older adults. Whitmer is a principal investigator.

"This is the first large-scale effort to test whether multiple lifestyle changes can prevent cognitive decline," she said.

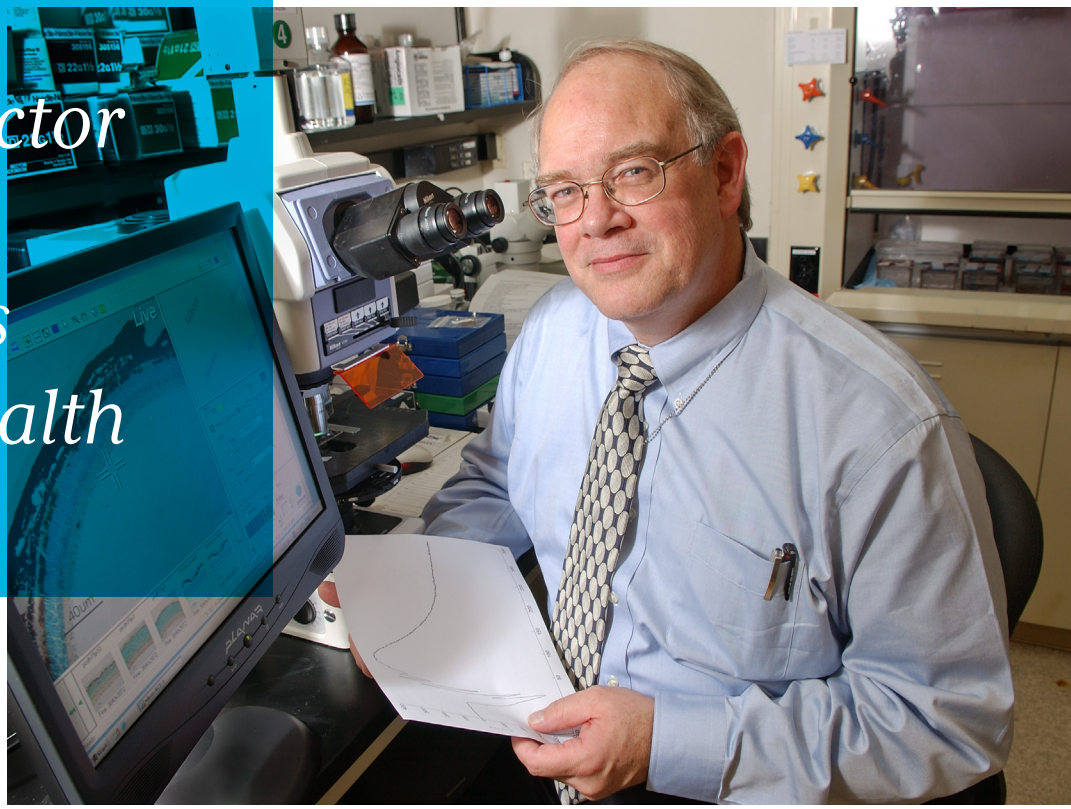
Charles DeCarli

Rachel Whitmer

Oanh Lee Meyer

The panel will recommend how California's different social sectors can help prepare for — and prevent — an expected surge in Alzheimer's cases.

National Eye Institute director and vision scientist joins UC Davis Health



Paul Sieving charted a course for interdisciplinary research with a focus on innovation

Internationally renowned physician, vision scientist and thought leader Paul A. Sieving, M.D., Ph.D., joins the faculty of the UC Davis Health Eye Center this fall.

Sieving has served as the director of the National Eye Institute (NEI) since 2001, where he managed an $800 million budget that supported 550 physicians, researchers and staff. He was elected to the National Academy of Medicine in 2006.

At UC Davis he'll hold the title of professor of ophthalmology, and is expected to assume an endowed chair in retinal research at the Eye Center. As director of research, he'll establish a new Center for Ocular Regenerative Therapy to advance gene-based treatments.

"The clinical and vision science faculty at the UC Davis Eye Center and Center for Vision Science have an outstanding reputation for conducting leading-edge research and treating the breadth of challenging eye conditions," Sieving said. "There's a strong culture of collaboration within basic science departments and programs across the UC system, and it creates a dynamic environment for advancing science and health."

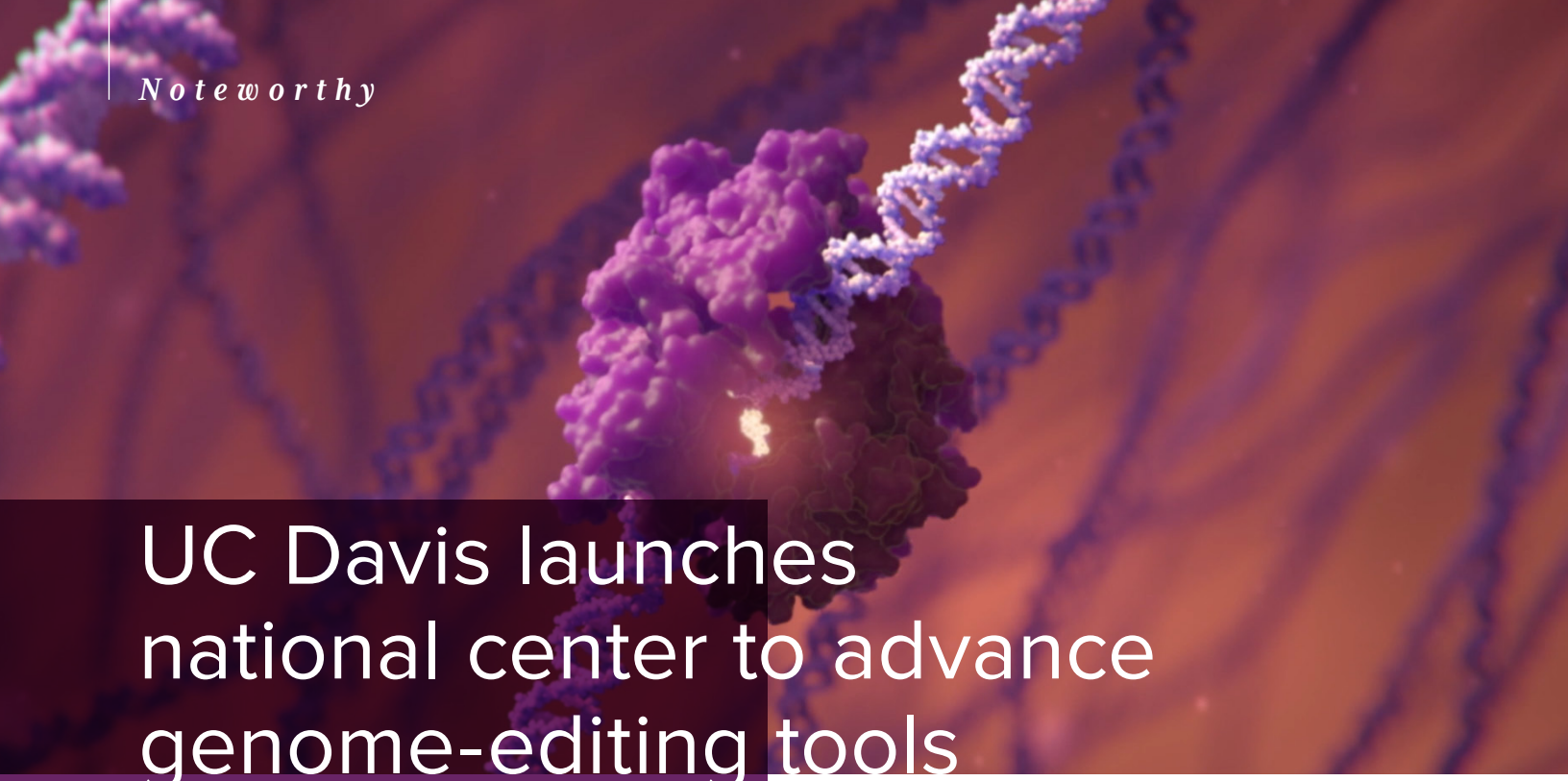
As a senior NIH investigator, Sieving developed new treatments for retinitis pigmentosa, Stargardt disease and other inherited disorders of the retina and macula — parts of the eye responsible for clear central vision. Studying these conditions in transgenic animal models, he looks for pharmacological approaches to slow the disease process. His work led to the first human clinical trial for retinitis pigmentosa, a rare genetic disorder in which cells in the retina break down and die.

> *Sieving developed new treatments for retinitis pigmentosa, Stargardt disease* **and other inherited disorders** *of the retina and macula*

Sieving also is known for developing a treatment for X-linked retinoschisis (XLRS), a form of retinal degeneration that causes central vision loss in children and young adults. His lab developed a mouse model and successfully used gene therapy to reverse the condition, and he's now conducting studies in patients.

In 2014 he launched the NEI Audacious Goals Initiative (AGI) for Regenerative Medicine, a 15-year research effort that aims to restore function of vision-critical nerve cells even after disease damage.

"UC Davis has a unique combination of resources that provide fertile ground for Dr. Sieving's research and innovations — top-ranked medical and vet med schools, a stem cell program, a primate center, a world-class EyePod imaging laboratory, and robust vision science program," said Mark Mannis, M.D., professor and chair of the Department of Ophthalmology & Vision Science. "We're deeply honored to have him join our faculty."



UC Davis launches national center to advance genome-editing tools

The NIH-supported center will serve as the country's testing site for safety and efficacy

A new federally funded research center at UC Davis is designed to help the nation develop safe, effective genome editing tools to treat patients with both common and rare diseases.

Funded by an approximately $9 million grant from the National Institutes of Health, the UC Davis Nonhuman Primate Testing Center for Evaluation of Somatic Cell Genome Editing Tools will support funded projects for research institutions that are part of the NIH's Somatic Cell Genome Editing (SCGE) Program.

"This is an incredibly exciting opportunity to advance translational research that will one day enable the treatment of a range of human diseases," said Alice Tarantal, Ph.D., a UC Davis professor of pediatrics, cell biology and human anatomy who will direct the new center. Tarantal also serves as core scientist and unit/core leader at the California National Primate Research Center.

"UC Davis has all of the relevant research expertise and capabilities," she said, "which made it a logical choice to be selected as the nation's testing site for evaluating the safety and efficacy of new genome editing tools in nonhuman primates."

This is an incredibly exciting opportunity to advance translational research that **will one day enable** *the treatment of a range of human diseases*

While gene-editing technologies hold great promise in correcting disease-causing DNA within the human body's somatic (non-reproductive) cells, the NIH says many challenges remain before they can be widely used in patient care to treat genetic diseases.

Advances in genome editing made over the past decade — such as the well-known CRISPR/Cas9 system — now make it possible to change DNA code inside living cells. However, to avoid or minimize unintended consequences, genome-editing tools must be able to target very specific disease genes. The tools also must work selectively on only those cells affected by a disease, while not altering other cells.

"The modern tools of gene editing have given scientists the possibility to treat genetic diseases in ways that did not exist just a few years earlier," said David Segal, Ph.D., a professor of biochemistry and molecular medicine and faculty member in the UC Davis Genome Center. "However, before we can realize the dream of helping people, we must ensure these treatments are safe and effective. That is the work we will be doing now."

Segal will help Tarantal lead the center along with Dennis Hartigan-O'Connor, M.D., Ph.D., associate professor of medical microbiology and immunology and core scientist and core leader at the primate research center. Other key faculty members include UC Davis researchers Megan Dennis, Ph.D., Nicholas Anderson, M.S., Ph.D., and Daniel Tancredi, Ph.D., and Stanford University's Matthew Porteus.

A new partnership to transform care in rural California and Oregon

COMPADRE will create dozens of training sites for residents from UC Davis and Oregon Health & Science University

A major grant awarded this summer to UC Davis and Oregon Health & Science University promises to expand access to quality care between Sacramento and Portland through a network of teaching hospitals and clinics in mostly rural areas.

The five-year, $1.8 million American Medical Association (AMA) grant will allow medical schools at OHSU and UC Davis to establish a robust graduate medical education collaborative known as COMPADRE, short for California Oregon Medical Partnership to Address Disparities in Rural Education and Health.

UC Davis Health and Oregon Health & Science University are establishing a new education collaborative for medical school and residency, designed to improve both current and future health care access in rural areas.

Over the next several years, COMPADRE will place hundreds of medical students and residents to train under faculty and community physicians at 10 health systems, 16 hospitals and a network of Federally Qualified Health Center (FQHC) partners throughout Northern California and Oregon. Students and residents will provide services in seven medical specialties.

The grant is part of Reimagining Residency, the AMA's response to better align the physician workforce to the needs of the U.S. health care system.

"Our mission is to train a diverse body of students who can transform the health of the communities they will serve, and COMPADRE will do just that," said UC Davis Health CEO David Lubarsky. "This will be a powerful regional coalition to reduce health disparities, strengthen the rural workforce, and better align medical education with specific needs in communities where physicians are in short supply."

Both schools also participated in the AMA's highly competitive Accelerating Change in Medical Education initiative, which allowed the UC Davis School of Medicine to team with Kaiser Permanente Northern California to launch one of the nation's first three-year medical school programs, the Accelerated Competency-based Education in Primary Care program or ACE-PC. The program targets California's primary care physician shortage by helping a select group of eligible students to complete medical school more quickly.

A similar grant allowed the OHSU to reengineer its curriculum to adjust to the rapidly changing digital era.

COMPADRE will be administered by five physician leaders, including UC Davis co-principal investigators Mark Servis, M.D., vice dean for medical education; Mark Henderson, M.D., associate dean of admissions; and Tonya Fancher, M.D., M.P.H., associate dean for workforce innovation and community engagement.

Q&A: Pediatric and fetal cardiac catheterization

WHEN HE ARRIVED AT UC DAVIS CHILDREN'S HOSPITAL LAST YEAR as the new chief of pediatric cardiology and co-director of the Pediatric Heart Center, Frank Ing, M.D., instantly expanded the region's options for minimally invasive pediatric cardiac interventions. Ing introduced a nonsurgical treatment for a common neonatal heart condition — a catheter-based procedure applicable to even the tiniest neonates — and is now working to expand local possibilities for in utero catheterization as well.

The internationally renowned catheterization expert is known for innovation and pioneering new techniques, and also for keeping an open mind about even the most complex or stubborn cases. The Society for Cardiovascular Angiography and Interventions (SCAI) presented him with its Master Interventionalists designation in May, noting achievements in "the development of transcatheter techniques, delivery systems and cardiovascular devices to treat congenital heart disease from the fetus to the elderly."

Ing came to Sacramento from Children's Hospital Los Angeles, where he served as chief of cardiology, co-director of the Heart Institute, and director of the cardiac catheterization laboratory. At UC Davis he codirects the multidisciplinary Pediatric Heart Center with surgeon Gary Raff, M.D., providing expanded opportunities for both hybrid and nonsurgical procedures.

You recently introduced the ability here to conduct nonsurgical patent ductus arteriosus (PDA) closures via catheterization for premature infants as small as 600 grams. Twenty to 60 percent of all preemies report having a significant PDA. What advantages does catheterization give these patients?
Compared to surgical ligation, catheterization reduces risks of a thoracotomy and the resultant need for healing the chest wall after surgery. While it does require general anesthesia, you're looking at a much faster recovery — we see the lungs starting to clear by the next day, or even the same evening in most cases. We're seeing immediate improvement. And there's less pain.

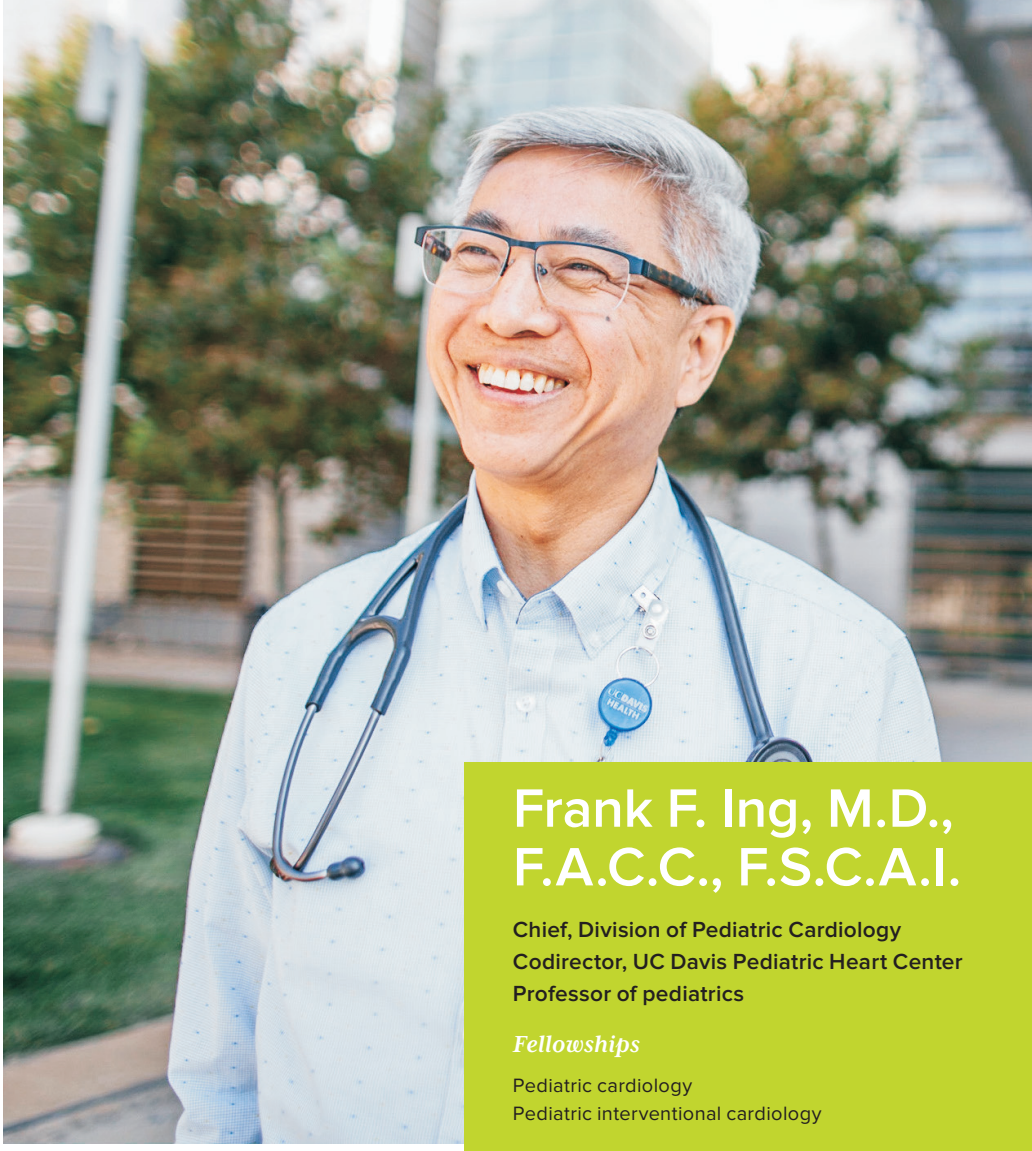
Still, these are fairly precarious patients, so it takes a multidisciplinary approach that leans on the expertise of our entire team — the nationally ranked neonatology service and our anesthesiologists, respiratory therapists, cath lab staff and bedside nurses.

Advances in miniaturization over just the last couple years have given us the technology to tackle this in preemies this small — we're now using delivery wires as thin as a hair. We're constantly tracking these developments in the field, and one of my passions is helping to safely advance them as well.

You're also using catheterization for in utero fetal heart intervention?
We're working to add fetal aortic valvuloplasty and atrial septal stenting as part of our in utero services at our Fetal Care and Treatment Center. I previously performed these procedures in L.A., and at Texas Children's Hospital. The valvuloplasty can promote improved heart growth for patients with critical aortic stenosis at risk of hypoplastic left heart syndrome (HLHS), and help reduce need for procedures after birth.

When HLHS is already present and involves a restrictive atrial septum, we use the atrial septal stenting to help improve lung function, reduce overall morbidity and mortality, improve chances for successful delivery, and reduce future disability.

At the Pediatric Heart Center you're also pursuing hybrid approaches involving surgical and catheter-based procedures?
This allows us to be creative with unique challenges. One recent example involved an extremely large ventricular septal defect (VSD) diagnosed in utero by Dr. Jay Yeh, medical director of our peds echocardiography lab. For such a large defect, using a traditional approach to repair would create significant scarring and



weakening of the healthy heart muscle. We asked ourselves if there was a better, safer way. After an initial neonatal procedure to band the pulmonary artery, the patient was given two years to grow, and then we used a hybrid approach to deliver a large VSD closure device. Dr. Raff surgically removed the band and passed a needle followed by a catheter through the surface of the right ventricle across the VSD, and we proceeded to occlude the VSD using a special VSD plug. All of this was performed with ultrasound guidance and was another demonstration of strong teamwork. The hybrid technique allowed us to close the VSD without cutting open the muscular wall of the heart.

You've had patients come from as far as Dubai for treatment, after their other physicians declined further procedures. In that particular case, you performed a successful catheterization for severe pulmonary atresia, on an outpatient basis. I generally do welcome inquiries about seemingly difficult cases. Technology, and our skills with it, are constantly improving and providing us new opportunities.

In this particular case, the patient was told, "nothing more can be done" by their local physicians. The family sought me and flew to Sacramento for treatment. We were able to recanalize and rehabilitate the occluded pulmonary artery, restoring flow to the entire right lung. Previously, the patient was basically getting oxygen from only half of her left lung, and she was quite cyanotic. That was a very satisfying outcome.

You currently chair SCAI's Congenital Heart Disease Council. What are your thoughts on current trends in pediatric cardiology and catheterization, and how are they coming into play at UC Davis? We see premature infant PDA occlusion as a real benefit for our region, so we're working to expand awareness. I'm involved in development of new valves for transcatheter implant, and in work to secure FDA approval of new pediatric cardiac devices in general. We're also involved in quality assurance projects, and in national registries outcomes data. I enjoy sharing at our Pediatric Heart Center's annual congenital cardiac care symposium.

Frank F. Ing, M.D., F.A.C.C., F.S.C.A.I.

Chief, Division of Pediatric Cardiology
Codirector, UC Davis Pediatric Heart Center
Professor of pediatrics

Fellowships

Pediatric cardiology
Pediatric interventional cardiology

Board Certifications

Pediatric cardiology
Pediatrics

Special interest areas

- Pediatric and adult congenital heart disease
- Pediatric interventional cardiology
- ASD, VSD and PDA occlusions
- Transcatheter valve implants
- Stent implantation for congenital heart disease

What kind of experience can referring physicians and their patients expect from the center? Expect the best care and the most up-to-date protocols. Besides our Sacramento and Roseville locations, we also provide consultation and evaluation at monthly outreach clinics in Redding, Chico, Marysville, Auburn and Stockton to serve the region.

Can an extra exam-room question help

reduce gun-related deaths in America?

Clinicians have a unique ability to influence gun violence outcomes in the scope of their daily practice with patients, according to one of the nation's foremost firearm violence researchers. He and UC Davis colleagues have assembled a pragmatic toolkit to help.

In June, the national news media quietly reported that U.S. suicide rates had reached their highest since World War II, including a 33% increase between 1999 and 2017. Firearms are the most common means, now used in roughly half of suicide deaths.

A month later, media outlets worldwide erupted when a 19-year-old gunman opened fire with a semiautomatic rifle at Gilroy's Garlic Festival, killing three and wounding 12. "Who shoots up a garlic festival?" one eyewitness exclaimed while fleeing the latest in a year of shootings that involved workplaces, schools, nightclubs, banks, synagogues, hospitals and even a video-game tournament. Within days of Gilroy, more incidents followed in Texas, Ohio and other communities.

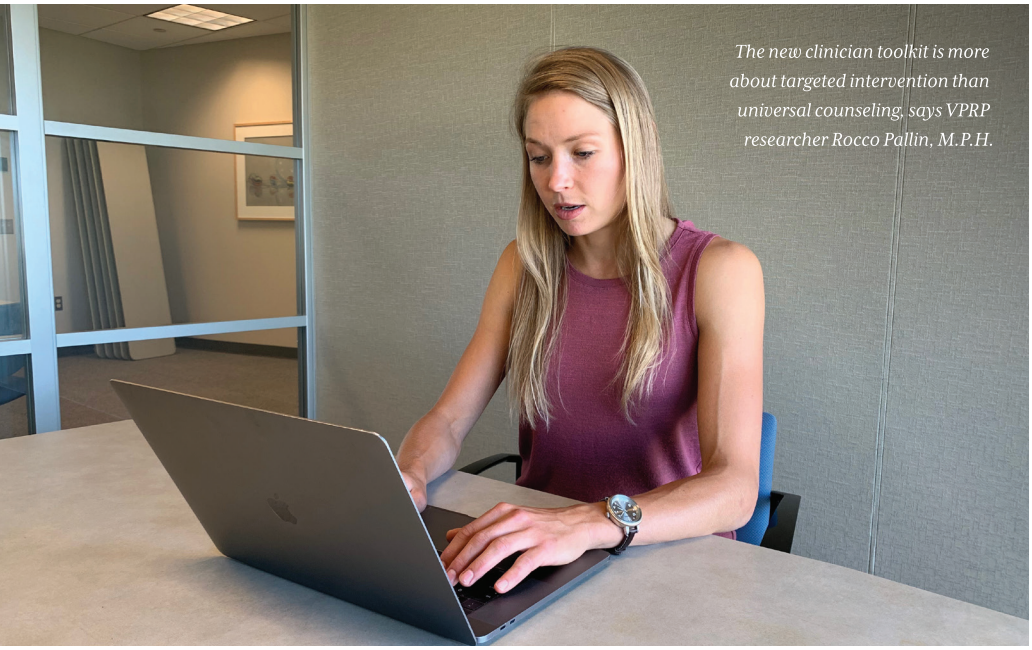
Although covering opposite ends of the spectrum, the contrasting media cycles were the latest reminders that as a whole, firearm-related homicide and suicide rank among the 10 leading causes of death for Americans for most of the lifespan. Roughly 60% of U.S. firearm deaths are suicides, while deaths from higher-profile mass shootings represent less than 1%. But the mass shootings "really hit home for people," according to Garen Wintemute, M.D., M.P.H., an emergency medicine professor and director of UC Davis' Violence Prevention Research Program (VPRP), who's been studying gun violence trends for three decades.

"You can put distance between yourself and other forms of violence by proximity or demographics — you can pawn it off as something that's not your problem," Wintemute (M.D. '77) told sister publication *UC Davis Magazine* this year. "Mass shootings are different; you recognize that this could actually happen to you, and it could happen at any of the normal places you go, like the mall, movie theater or place of worship."

Wintemute is widely regarded as one of the nation's foremost gun violence researchers, featured routinely in highest-echelon publications ranging from *Nature* to *The New York Times* after a three-decade career studying gun violence causes and trends. While much of his work concerns public policy and the realm of elected lawmakers, he and colleagues have identified another population with a potentially unique ability to reduce gun violence in its most common forms — clinicians.

Surveys indicate a majority of health providers feel it's within their clinical responsibilities to prevent firearm violence, he said. Surveys also suggest a potentially receptive audience and at least a modicum of a chance of success.

Nationally known firearm violence researcher Garen Wintemute and colleagues have produced an extensive toolkit to help clinicians decide when and how to ask patients about guns.



The new clinician toolkit is more about targeted intervention than universal counseling, says VPRP researcher Rocco Pallin, M.P.H.

To help, he and VPRP researchers like Rocco Pallin, M.P.H., have produced an extensive on-the-ground toolkit for providers. Available online on the VPRP's website, and expanded upon in a June *Annals of Internal Medicine* article with colleagues from Stanford, Brown and the University of Colorado, the materials are a pragmatic means of helping clinicians prioritize who among their patients to ask about firearms, and how.

Evidence-based approach

Supported by published evidence curated by Wintemute and colleagues where available — and based on their expert opinion where political barriers to gun violence research have left evidence thin — the toolkit includes provider instruction available for CME credit, as well as patient materials. The resource is specifically designed to have clinical relevance, they said, leaving the policy debate outside the exam room.

"This isn't about politics or partisanship — it's about targeted intervention to prevent injury. And we're not recommending universal counseling, either," Pallin said. "We're recommending that when a patient exhibits risk factors for firearm injury and has access to one, you talk with him or her about strategies to reduce that risk.

> This isn't about politics or partisanship—it's about targeted intervention to prevent injury.
>
> ROCCO PALLIN, M.P.H.

"We've developed resources that help providers prepare to have these risk-based conversations in a culturally competent way — considerate of patients' reasons for owning firearms, and what strategies might work best for them to keep themselves and those around them safe."

Nearly a dozen of the nation's most prominent health professional associations have endorsed the health care provider's role in firearm violence prevention, including risk assessment and counseling on safe firearm practices. And surveys suggest more than 70% of doctors across specialties such as internal medicine, pediatrics and surgery believe that physicians should have a role in firearm injury prevention, according to the VPRP.

However, fewer than half of physicians report ever discussing firearms with patients.

Do barriers exist?

The *Annals* article notes that while concerns about legal barriers could be one issue, no state or federal statutes prohibit health care providers from asking about patients' access to firearms, when the information is relevant to the health of the patient or someone else. It also says that no state statutes prohibit clinicians from discussing firearms with patients, or documenting such discussions.

At least some patients may also be ready to talk. Research in older adults and in Veterans Affairs settings has shown patients are generally receptive to provider questions on firearm access and safety, VPRP researchers said.

Evidence also suggests that clinician counseling can significantly increase safer firearm storage, Pallin and Wintemute said. And interventions that distribute safety devices in conjunction with counseling may be promising for encouraging safer storage behaviors, they said.

"These conversations about firearm risk are entirely analogous to what clinicians do for other behaviors that can be associated with risks to health," Wintemute said.

The opportunity

Approximately 31% of U.S. households have firearms

Firearm prevalence

- When a firearm is in the home, all household members are at increased risk for homicide, suicide, and unintentional injury.
- Risk of suicide increases by a factor of 4.8, and risk for homicide by a factor of 2.7.
- Individuals with risk factors are less likely to safely store their firearms.

60% of U.S. firearm deaths in 2017 **were suicides**

Firearms and suicide

- Firearms are the means in approximately half of suicides.
- As many as 90% of suicide attempts with a firearm result in death.
- When firearms are present in the home, suicide risk increases by a factor of 4.8.
- About 4% of U.S. adults have had suicidal ideation in the past 12 months.
- Risk is highest among middle-aged and older white non-Hispanic men.
- In a series of 44 adolescent suicides with a known firearm source, 82% of weapons were owned by a parent or family member.

Firearms and accidental death

- Accounted for less than 2% of firearm deaths in 2017.
- Approximately 20% of homes with children have guns stored in the least-secure manner.

Firearms and mass homicide

- One review found 85% of school shooters obtained their guns from the home.

Public mass shootings account for **less than 2%** of U.S. firearm deaths

Firearms and homicide

- 36.3% of deaths from firearms in 2017 were homicides.
- Firearms were the means for almost 75% of homicides.
- When firearms are present in the home, homicide risk increases by a factor of 2.7.
- Risk is concentrated among young African American men.

Only **4% to 5%** of interpersonal violence is primarily attributable to diagnosed mental illness

What you can

Developed by the UC Davis Violence Prevention Research Program, the "What You Can Do" initiative and toolkit aim to support health providers in preventing firearm injury and death among the patients they already interact with. EXCERPTS »

Step 1: Ask

Identify at-risk patients, and ask about access to firearms

Identifying risk factors in patients is the first step to planning an informed conversation about risk for firearm injury and firearm safety. Risk-based screening is most feasible and relevant to patients' health and safety.

There are three main categories of risk for firearm injury and death:

- **Patients at acute risk** displaying behaviors that signal acute risk for harm to themselves or others, such as suicidal or homicidal ideation
- **Patients with individual risk factors** suggesting increased risk for firearm violence:
  - » Alcohol and other substance misuse
  - » A history of violent behavior or victimization
  - » Dementia or another form of impaired cognition
  - » Serious and poorly controlled mental illness
- **Patients belonging to a demographic group at risk**:
  - » Middle-aged and older men, for suicide
  - » Adolescent and young men, for homicide
  - » Children and adolescents

What organizations support clinician risk assessment and counseling on firearms?

Several health professional associations have endorsed increased member involvement in firearm violence prevention, including risk assessment and counseling on safe firearm practices.

- American Academy of Family Physicians
- American Academy of Pediatrics
- American College of Emergency Physicians
- American College of Physicians
- American College of Surgeons
- American College of Obstetricians and Gynecologists
- American Medical Association
- American Psychiatric Association
- American Public Health Association

Still from a CME-eligible educational video available at **health.ucdavis.edu/what-you-can-do**.

do

» **Detailed resources**

The What You Can Do toolkit includes:

- suggested phrasing and video role playing
- handouts for providers and patients
- the *Annals* article
- FAQs and a resource glossary

Visit **health.ucdavis.edu/what-you-can-do**
Provider questions and comments: **hs-WYCD@ucdavis.edu**

Step 2: Counsel

Advise at-risk patients on safe firearm practices

After identifying risk factors for firearm injury, the goal in counseling is to reduce that risk.

The most appropriate strategies vary from patient to patient, and in different circumstances.

If someone at risk has access to firearms, you'll want to know how the firearms are stored, and consider together with the patient if storage changes could reduce risk — and which are most feasible and acceptable to the patient.

Aim to inform of the importance of safe storage:

- Unloaded
- Locked up, using a safe-storage device such as a cable lock, lock box, or safe
- Stored separately from ammunition, which is also locked up

Take a respectful approach:

- Tailor the approach to the individual patient's risk factors, and relate it clearly to their health (or that of someone else in the home).
- Convey respect for the patient's decision to own firearms. Acknowledge local customs and keep in mind ownership can be reflective of longstanding beliefs and values.
- One way to begin a conversation: "I want to ask you a couple of questions about firearms. Are there any firearms in or around your home?"
- Replace alienating language such as "restrict" or "surrender" with terms such as "keep safe." Additional suggested phrasing is available on the WYCD website.
- Remember to follow up during the next visit.

Step 3: Intervene

Take action if it's an emergency

It's an emergency if a patient is at acute risk of violence to self or others, such as when a patient expresses suicidal (or homicidal) ideation or intent.

- In emergencies, when there is serious and imminent threat, clinicians may legally disclose what would otherwise be considered protected health information to law enforcement, family, or someone who can reasonably lessen that threat, authors explain in the *Annals* article.
- Referrals to social services or mental health services, substance-abuse referrals, or lethal-means counseling might be appropriate.
- Depending on the circumstances, you may need to contact local law enforcement or the patient's family.
- If the patient or someone in the patient's home is in a time of crisis, you can recommend firearms be temporarily stored outside the home. Though policies vary from state to state, some gun stores and law enforcement agencies may be able to store firearms temporarily. In some states, an ad hoc guardian may be an option.
- In some states legal interventions may be available, such as the gun violence restraining order (GVRO), also called an extreme risk protection order or ERPO. These court orders allow firearms to be temporarily removed from individuals in crisis, or can even be used to prevent firearm purchases.

  These are civil orders and in most states are available to immediate family members, household members, and members of law enforcement. California was one of the first states in the country to adopt this particular legislation, and 14 states have implemented this measure.
- Many states have also developed duty-to-warn laws that providers should be aware of.

FAQ: ‘Patients are generally receptive’

Discussing firearms is analogous to what clinicians do for other patient behaviors associated with health risk, according to violence researcher Garen Wintemute.

Garen Wintemute and Rocco Pallin on the clinician's potential role in reducing firearm-related harm:

What do we know so far about how patients regard being asked about firearms? Are they really receptive to the question?

Survey research has shown that patients, including firearm owners, are generally receptive to conversations about safe firearm storage. Patients may be more receptive when risk has been established, and when conversations happen in an established patient-provider relationship.

Patients may not believe providers to be credible sources of firearm-safety advice. Ideally, providers should prepare for these conversations by learning the risks and benefits of firearm ownership—and understanding safety recommendations that may be most appropriate in certain circumstances.

Are there downsides to asking, and how can providers avoid them?

Clinicians do face time constraints that can be a barrier to asking about access to firearms and safety practices. One option is for providers to pursue a focused approach — bringing up the topic with patients who have risk factors for firearm-related injury — rather than taking a universal approach.

What kind of evidence do we have so far that discussions between providers and patients are, or can be, effective in preventing firearm deaths and injuries?

Safe storage of firearms can reduce risk of firearm-related harm, and evidence suggests that conversations about firearm safety between providers and patients can increase safe-storage practices. These conversations may be most effective when safe-storage devices are provided to patients.

Going forward, we do want to comprehensively evaluate the effects of provider-initiated discussions on firearm safety, just as we want and need to conduct more research in other firearm injury prevention interventions.

In addition to What You Can Do, what other kinds of measures are you working on to help guide evidence-based firearm violence prevention?

We'd invite readers to visit the UC Davis Violence Prevention Research Program website at **health.ucdavis.edu/vprp**. It's grown pretty robust with information about our research and findings, trends, facts versus myths, and what's new nationwide in the firearm violence prevention arena.

One example is the California Safety and Wellbeing Survey, which we fielded with state support last fall. The survey covered a wide range of topics related to safety, neighborhoods, firearms and firearm violence, and some initial findings are posted at **health.ucdavis.edu/vprp/UCFC/Research_Findings.html**. More findings are coming soon.

» Evidence-Based Violence Prevention: Saving Lives, Preserving Futures

Big IDEAS

bigideas.ucdavis.edu

Garen Wintemute has devoted his life to studying the effects of violence after seeing countless patients in the emergency room — many with firearm wounds. Along the way, he's made major contributions to policy decisions and been named a "hero of medicine" by *TIME* magazine.

Now UC Davis has a vision to expand the reach of his world-renowned Violence Prevention Research Program by creating the Center for Violence Prevention Research. The initiative is one of several "Big Ideas" — forward-thinking projects that build upon the university's strengths to positively impact the world for generations.

To help turn science into action, UC Davis seeks partnerships with donors, corporations and foundations to accomplish the following:

- Create a dedicated center that will spearhead a national effort to understand and prevent violence in all its forms
- Enhance the interdisciplinary breadth of the center with six new faculty positions — spanning fields from medicine to law to the social sciences — to address critical questions related to violence
- Translate research into evidence-driven policy and outreach programs that demonstrate to lawmakers and communities workable solutions for decreasing violence

To learn more, please contact Brenda Betts, assistant vice chancellor of development, at **bkbetts@ucdavis.edu**. *or* **916-734-9583**, *or visit* **bigideas.ucdavis.edu/center-violence-prevention-research**.

When the new deans of the UC Davis School of Medicine and the Betty Irene Moore School of Nursing at UC Davis began work on the same date this summer, it was no coincidence.

The joint July 22 start date for Allison Brashear, M.D., M.B.A., and Stephen Cavanagh, Ph.D., M.P.A., R.N., F.A.C.H.E., F.A.A.N., was a symbolic gesture, meant to reflect heightened collaboration between their top-50 schools in order to promote team-based care — and in doing so, help diffuse a looming health-workforce crisis.

California "doesn't have enough of the right types of health workers in the right places to meet the needs of its growing, aging and increasingly diverse population," according to a 185-page report released this spring by the California Future Health Workforce Commission. The panel of prominent health, policy, education and workforce-development leaders — including School of Nursing Dean Emerita Heather M. Young — was assembled by major California health philanthropies and co-chaired by UC President Janet Napolitano.

The report's multiple recommendations include several that emphasize or lay a foundation for team-based care, such as optimizing the contributions of nurse practitioners, physician assistants and other team members to help fill primary care gaps, and boosting scholarship support for education in those areas.

Noting that "The health care of the future will be team care," UC Davis Health CEO David Lubarsky has asked Cavanagh and Brashear to work jointly to develop models around integrated care delivery and advanced practice for both of their disciplines. In doing so, they'll build upon an existing foundation of interprofessional education at UC Davis that sees nursing and medical students learn several skills together in specially designed active-learning case-based curricula, cross-disciplinary graduate groups, and interprofessional simulation exercises.

In a joint interview this summer, Cavanagh and Brashear spoke about educating medical and nursing students to work in teams, and preparing them to adapt to — and hopefully influence — today's rapid-fire disruptions in health technology, policy and finance. Excerpts:

California faces rising health care costs, a looming provider shortage, and a health workforce that doesn't reflect the population. To help, UC Davis Health's new medical and nursing school deans plan to make team-based care an education cornerstone.

This really is the way forward—and probably the *only* way forward'

SNAPSHOT: *Allison Brashear, M.D., M.B.A.*

DEAN, UC DAVIS SCHOOL OF MEDICINE

Before coming to UC Davis Health

- Endowed chair of neurology at Wake Forest School of Medicine
- Internationally known researcher on movement disorders, including dystonia and spasticity
- Headed multicenter trials leading to federal approval of three medications
- Instrumental in crafting a leadership program for women at the American Academy of Neurology
- Described by former colleagues as a change agent

Professional activities

- Board member, American Board of Psychiatry and Neurology
- NINDS career development study section
- Past board member, American Academy of Neurology
- Past board member, American Neurological Association

Education

- M.D. and residency, Indiana University School of Medicine
- M.B.A., Health Sector Management, Duke University
- Harvard School of Public Health leadership program for physicians
- Executive Leadership in Academic Medicine program for female leaders
- Council of Deans Fellow, Association of American Medical Colleges

Another near-term priority

"I believe all of our patients should be offered enrollment in clinical trials if they so choose. We're about bringing things more quickly to the community."

What others say

"Allison is a leader for these times in medicine and health care. She has great skills at analyzing problems, facing them squarely and developing real-world solutions." *–Darrell Kirch, president emeritus of the American Association of Medical Colleges*

UC Davis Health's Vice Chancellor and CEO David Lubarsky has said that "The health care of the future will be team care." Why is it important, and how do we achieve it through collaboration?

BRASHEAR: I think we would both agree that it really creates better care when everybody is contributing what they can bring to the team. It creates a better environment for the patient and the family, and probably keeps the patient in the home longer.

CAVANAGH: Teams enable every group to bring out their own expertise collaboratively — in ways we may not think about otherwise. In the past, maybe there's been a little siloed thinking in health care. Team-based care is all about bringing the best of everything together, and that's really where we can impact patient care and outcomes as much as possible.

What's the state of the union for team-based care?

CAVANAGH: I would say it's been around for a while, but the art and the skill of it will now be how best to bring about opportunities for team care to be taught to current students and existing practitioners. So it's not new, but I think we are changing the way that we're looking at it — as being a major thrust going forward, and not just an add-on. It's a major way of thinking about everything we do now.

> If we don't start changing the way we teach and provide care, I think costs will continue to go up, and that's just something that the society can't handle.
>
> ALLISON BRASHEAR

BRASHEAR: It's important for students to learn about team-based care and see it role-modeled by their faculty, either in the School of Nursing or School of Medicine. And also to know that it's the way things are going to be in the future. Team-based care is probably better care at lower costs, because everybody's at the top of their skill set. And it engages the patient and family together into the community that is caring for the individual. Medicine is not as much of a team sport right now. Physicians will be leaders of teams or members of teams, but their roles will change, just like the nurses' roles will change and the other providers' roles will change as things evolve.

CAVANAGH: There's an ability in teams to create interesting solutions that individual professionals might not think about. What I like about team-based care is the creative solutions that emerge, particularly involving families. And of course all the time we're improving outcomes and

reducing costs. This really is the way forward — and probably the only way forward.

What's likely to happen if we don't fully embrace this change?
BRASHEAR: There's some evidence to show that team-based care decreases length of stay and readmissions and improves outcomes. If we don't start changing the way we teach and provide care, costs will continue to go up, and that's just something that the society can't handle.
CAVANAGH: Costs, quality and safety — all of those things are very important. It's really important to pull everybody together as a team working together on the same goals and outcomes.

How can we build models of health care delivery here, and share them?
BRASHEAR: The right provider, for the right place, for the right disease state is important. Figuring out what skill set is needed for that situation will be incredibly important. And also developing communication tools: how many times have we all heard in the past about someone who's discharged from the hospital and the family doesn't understand the medicines, they don't

There's an ability in teams to create interesting solutions that individual professionals might not think about.

STEPHEN CAVANAGH

know when the follow-up is, and the patient ends up back in the emergency room? It should be rare that any patient has to be managed in the hospital — we need to develop methods and teams to manage people in the outpatient setting.
CAVANAGH: Absolutely. And that goes right to the heart of what we've been discussing about communication, how best we communicate the care plan with other professions, families and caregivers. That's very important.

How can team-based care help to address health disparities and unmet needs for underserved populations?
BRASHEAR: Oftentimes people from underserved populations don't have access to care. And they get care later, and sometimes don't get the same quality of care. Team-based care can help provide wraparound services for those who may face more challenges because of their socioeconomic backgrounds, and in doing so make it less likely for them to be admitted to the hospital or go to the ER for their primary care. Instead they're getting their medicines and the appropriate care in the home. Those things are so incredibly important, because then they get the higher quality of care.

SNAPSHOT:
Stephen Cavanagh, Ph.D., M.P.A., R.N., F.A.C.H.E., F.A.A.N.

DEAN, BETTY IRENE MOORE SCHOOL OF NURSING AT UC DAVIS

Before coming to UC Davis Health

- Dean of the College of Nursing at the University of Massachusetts Amherst
- As CEO of Birmingham and Solihull College of Nursing, led large-scale reform by moving nursing education from the UK's National Health Service into the university sector
- Recognized for developing the health care workforce, maximizing use of advanced-practice nurses, and creating new forms of interprofessional education
- Researches innovation and technology use within nursing's unique regulatory framework

Professional activities

- Nominating committee, American Association of Colleges of Nursing
- Fellow, American Academy of Nursing
- Fellow, American College of Healthcare Executives
- Fellow, Royal Society for Public Health
- Fellow, Institute of Leadership and Management

Education

- Ph.D., Nursing, University of Texas at Austin School of Nursing
- M.P.A. and M.S., Health Care Management, University of La Verne
- Executive Certificate in Strategy and Innovation, M.I.T.
- Robert Wood Johnson Foundation Executive Nurse Fellow
- Johnson & Johnson/UCLA Health Management Fellow

Another near-term priority

"There are some things I think that are national tragedies and national trends, and I think community mental health is one that rises right to the top. Not just linked to homelessness, but also to the reality that as folks grow old, we have to manage their needs differently. And we need to look after young people too."

What others say

"Stephen is a proven and strategic leader who will thrive in this extraordinary interdisciplinary environment." *–Antonia Villarruel, Dean of the University of Pennsylvania School of Nursing*

CAVANAGH: That leads very nicely into team-based education, where UC Davis has done very well in bringing in a wide variety of students from different backgrounds. And the teaching and learning environment becomes an opportunity to share different cultural backgrounds — and many things we might not think immediately important to the delivery of health care in a strict technical sense — in an environment where we can practice and model those things to prepare for when we're actually caring for patients.

BRASHEAR: Making sure the care team is diverse is absolutely key. When patients see providers that look like them, there's much more of an uptick in understanding, coming from the same cultural backgrounds. That's really important. The UC Davis School of Medicine has made substantial strides in the number of underrepresented groups entering our classes. Health care needs to have more of a diverse face, and I think that will help provide better care.

CAVANAGH: The Betty Irene Moore School of Nursing has also made great strides in achieving greater diversity in students, and this is not something that we'll become complacent about. It's always going to be important for us to look for ways to encourage people to come into nursing or other professions who have not thought about them, and to consider the impact of educating teams who ultimately deliver care to their own communities.

So increasing the diversity of our providers is important.

BRASHEAR: Our panels of providers need to look like the communities they serve. We're moving towards that, but certainly not there yet. Interestingly, the number of medical students going to medical school now is more than 50% women. But there still are challenges in terms of diversity, particularly among groups such as African American males for example. And we as leaders need to make sure that we're encouraging and facilitating that pipeline. Patients really want to go to a provider that understands their background, and we need to figure out how to provide that.

CAVANAGH: In nursing as well — even though we've made great strides in improving diversity, it's very important to come to an environment where there is a sense that there is a connection between community, their own communities, and other students on campus that's going to improve learning. It's going to improve retention, but at the end of the day, it's going to improve the opportunities for better outcomes.

> Every practitioner we educate is in a position to influence and advocate.
>
> STEPHEN CAVANAGH

> Patients really want to go to a provider that understands their background, and we need to figure out how to provide that.
>
> ALLISON BRASHEAR

Our health care system is very complex, and is being disrupted in many ways by technology. How do we prepare future providers for this change, and to adapt to advancements that we haven't even realized yet?

BRASHEAR: Gone are the days where medical students memorize things. What we really want is students who are lifelong learners and who know how to problem-solve, because whatever we teach them — about a specific drug for example — is likely going to change in two years' time. We want them to learn how to think, to be problem solvers, to work in teams, and to have the patient at the center of anything they do. They're also going to need to work in different environments, like telemedicine. There are doctors now who just do telemedicine. Part of the new learning environment is going to have to be understanding and adapting to accelerated change.

CAVANAGH: Absolutely. And another element of this is giving students the ability to understand a little more about the policy and politics of change. Every practitioner we educate is in a position to influence and advocate. I think students should come to understand that this is an important part of what their roles are going to be going forward, as well as delivering fantastic care and great outcomes.

In the future, health care is more likely to be delivered in the home or near home settings. Does this change how we educate the providers?

CAVANAGH: Absolutely. And I think finding the balance for students who obviously need to be with patients in hospital situations to begin with, but also to increase opportunities for community care. Actually understanding how care can be delivered into the community, and how our lives and health are so intricately interwoven with our communities. And so I think part of our responsibility has to be preparing practitioners for all sorts of opportunities.

BRASHEAR: We're fortunate that UC Davis already has some amazing facilities for teaching students how to provide care in the home through telemedicine. It's one of the hallmark programs of UC Davis.

How do we balance technology with the human touch?

CAVANAGH: I think almost all practitioners are reminded — and sometimes we have to remind ourselves regularly — that it all begins with the relationship between the patient and their caregiver. Technologies and other things that wrap around that are supportive adjuncts. We work very hard to remind our students that it begins with a patient and their families. All of the other things are useful tools — but if you don't build that relationship, that communication, that rapport, you'll have a long way to go if you just rely on technology. And that's not a way we wish to go.

BRASHEAR: We always remember that the patient is at the center of all we do.

The challenge

Some of the conditions identified by the California Future Health Workforce Commission:

- By 2030, California will face a shortfall of 4,100 primary care clinicians and 600,000 homecare workers, and have only ⅔ of the psychiatrists it needs
- 7 million Californians live in Health Professional Shortage Areas, the majority of them Latino, African American, and Native American
- Latinos make up 39% of California's population and comprise 7% of its physicians
- Only 3% of medical students nationwide come from families with incomes in the lowest 20%
- More than ⅓ of California's physicians and nurse practitioners are expected to retire or reduce hours in the next decade
- Up to an estimated 75% of primary care services could be provided by NPs and PAs
- Approximately 25% of all people seen in primary care have diagnosable mental disorders
- PCPs provide over half of all U.S. mental health treatment
- ⅔ of California adults with a mental illness don't receive treatment
- 1 in 5 Californians will be 65 or over by 2030
- 76% of older adults prefer to age in place
- Less than 5% of the health professions workforce is certified in geriatrics

Some ways UC Davis is helping:

- 49% of first-year medical students and more than 25% of nursing graduate students come from underserved populations
- In the more than 45 years of UC Davis programs, roughly 70% of graduates work in primary care
- Both UC Davis Health schools have programs that prepare providers to practice in underserved areas

"There's nothing like caring for really sick children to make you think,

'Is there a better way of doing things?'"

Nathan Kuppermann, M.D., M.P.H.

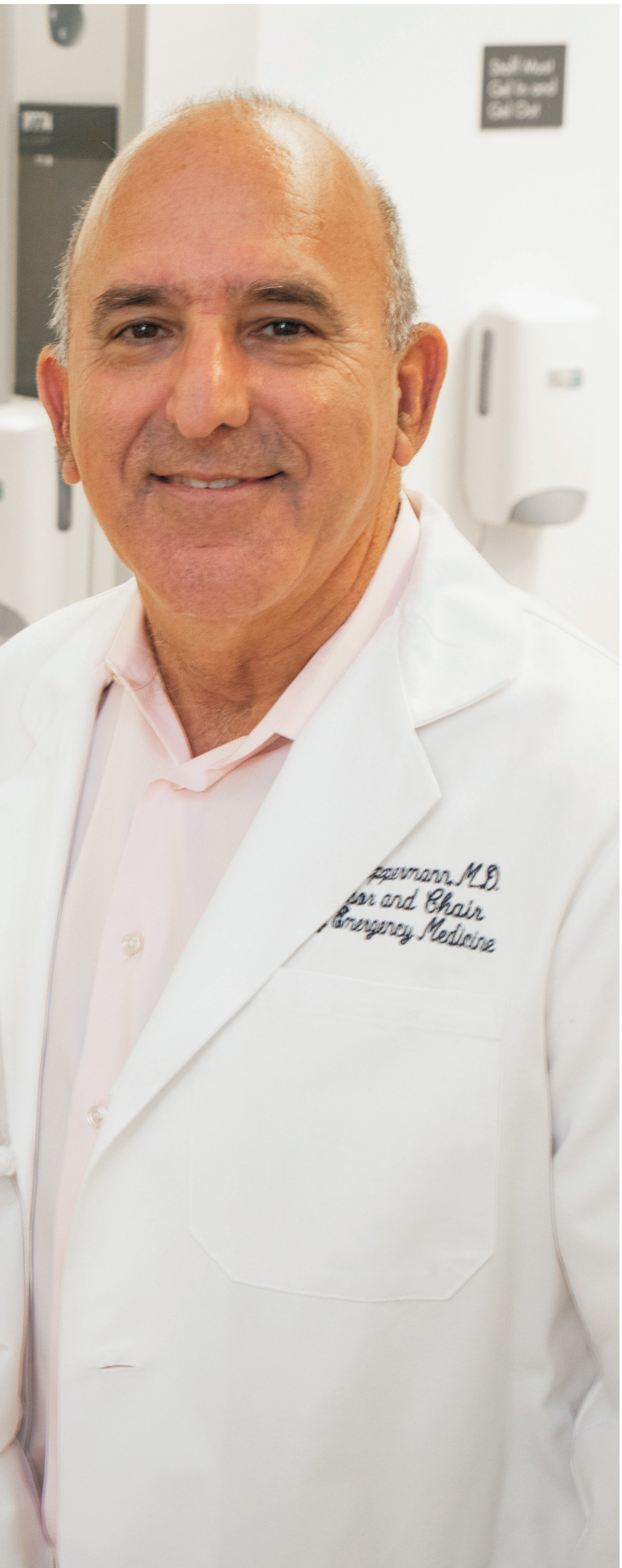
- Bo Tomas Brofeldt Endowed Chair of Emergency Medicine
- Professor of emergency medicine and pediatrics
- Founding chair and principal investigator, Pediatric Emergency Care Applied Research Network (PECARN)
- Executive committee member, Global Pediatric Emergency Research Network (PERN)
- Elected to the National Academy of Medicine, 2010
- Lifetime award, Society for Academic Emergency Medicine (SAEM)

B.Sc., Stanford
M.D., UC San Francisco
Fellowship, Children's Hospital Boston
M.P.H., Harvard

Nicole Glaser, M.D.

- Professor of pediatrics and pediatric endocrinology
- Dean's Professorship in Childhood Diabetes Research
- Dean's Award for Excellence in Research

B.A., Swarthmore
M.D., Harvard
Fellowships, UC Davis and UC San Diego



In the two decades since Nathan Kuppermann helped found the Pediatric Emergency Care Applied Research Network, its major studies have helped care teams across the world to make treatment decisions with more evidence-based confidence — and less side effects on children.

As a pediatric emergency medicine physician in the 1990s, Nate Kuppermann, M.D., M.P.H., could only dream of uniting hospitals across the country to improve the health of children in life-and-death situations.

That type of network didn't then exist in the U.S. What did exist was essentially a volunteer group of pediatric emergency physicians, organized in the American Academy of Pediatrics. Kuppermann's collaborators, which included his wife and fellow UC Davis Health physician Nicole Glaser, M.D., were performing simple chart-review studies on shoestring budgets.

It took years for Kuppermann's dream to become reality, but today the clinician and researcher remains a leader in the nation's first and only federally funded pediatric emergency medicine research collaborative, the Pediatric Emergency Care Applied Research Network. Known as PECARN, it's funded by the Health Resources and Services Administration's Emergency Medical Services for Children program.

The group of 18 pediatric emergency departments in academic, urban and children's hospitals serves more than 1 million acutely ill and injured children every year. Kuppermann was one of its founding principal investigators in 2001, and its chair for its first eight years. He continues as a principal investigator to this day, and was recently refunded for four more years in PECARN for $2.8 million.

It's a remarkable accomplishment — yet those who know Kuppermann are not surprised. Whether in the ED with patients or editing a study, he's always bubbling with energy and enthusiasm. It's a sparkling liveliness, not unlike the fizz in the mineral water he keeps in a refrigerator under his desk.

That effervescence helps explain how he maintains the energetic pace of an emergency physician, department chair and research leader. Kuppermann is always in motion — and students, colleagues, and patients nationwide are the better for it.

"Nate has always been a great partner in research. He does this humbly and collaboratively, and is largely responsible for the success of PECARN," said longtime network colleague James Chamberlain, from Children's National Health System in Washington, D.C. "He's had a larger national and international impact on the field of pediatric emergency medicine than any other single individual."

Size + scope = strength

As Kuppermann once said: "There's nothing like caring for really sick children to make you think, 'Is there a better way of doing things?'" That deep desire to provide the best possible information for improving outcomes was the motivation to create PECARN.

The network's strength is its vast size and scope. PECARN includes six research groups or "nodes" of three hospitals each, as well as nine EMS agencies and a data-coordinating center in Utah.

> "He's had a larger national and international impact on the field of pediatric emergency medicine ***than any other single individual***."
>
> –James Chamberlain, from Children's National Health System

"It's for the numbers, for the statistical power and patient diversity," Kuppermann says. "You want study results that are applicable across the spectrum to a wide population. You need patient data from a great diversity of centers, including both children's and non-children's hospitals."

PECARN launched its first large study in 2004 and focused it on traumatic brain injury (TBI), the leading cause of death and disability in youngsters older than one year. The goal was to determine the higher- and lower-risk indicators for brain injury.

TBI doesn't occur very often in children with minor head trauma, and PECARN wanted to give ED physicians a reliable way to assess them. They considered that patients with low-risk indicators might not need a computed tomography (CT) scan, whose downsides include cancer-contributing radiation.

The large PECARN network made it feasible to launch the study, which involved more than 42,000 children, and to develop precise results published in the prestigious journal *The Lancet* in 2009.

Kicking into high gear

What helped kick PECARN into high gear was another big study published in *The New England Journal of Medicine* in 2007. The network tackled the question of whether steroid treatment should be used for infants with bronchiolitis, a common lung infection that leads to more hospitalizations in the first two years of life than any other childhood illness.

A small Canadian study had suggested steroid therapy could be beneficial, but Kuppermann and colleagues wondered whether the practice was appropriate in such young children. "What do steroids do to the infant brain?" he said. "Patients with true bronchiolitis are really small and vulnerable. You don't want to give them steroids if you don't have to."

With Kuppermann as senior investigator and author, PECARN enrolled 600 infants with bronchiolitis to test whether steroids actually worked — and with the large sample size, found the drugs had zero benefit.

Other PECARN studies swiftly followed. Chamberlain led a *Journal of the American Medical Association* study about seizure treatment. Another *JAMA* study, with Kuppermann as principal investigator, evaluated RNA biosignatures, a novel and sophisticated way to distinguish bacterial infections from viral infections in babies with fevers.

$100 million awarded

In total, PECARN investigators have published more than 150 studies since the network's solidifying HSRA grant in 2001, and have been awarded more than $100 million. At any one time, network researchers are pursuing eight to 10 studies.

Research excellence and significant results play key roles in the continuing success of the grant applications, along with rigorous internal review. When the group gives the green light to a proposal, it has about a 70% chance of being funded by NIH, compared to 15% for a typical proposal.

"By the time something gets through the PECARN review process, it's in very good shape," Kuppermann said. "Plus, the network's research infrastructure is already in place, which makes the studies very efficient and cost effective for the NIH."

Yet competition is also fierce in academic medicine — so why has PECARN worked so well? "We were a group of investigators who all believed in a bigger cause and in each other," he said. "A lot of us knew each other pretty well, so we had the foundation of an *esprit de corps*, a group spirit and trust. We had already helped each other a lot on individually-led studies."

Sharing the PECARN approach worldwide

PECARN has taken Kuppermann to South America and Europe, where he's mentored others to help them establish their own research networks. He's also spent time in Nepal caring for the underserved.

Chamberlain points out that Kuppermann has always had a global perspective beyond the world of academic medical research. "Nate worked in a medical clinic in Nepal early in his career, and returned there to provide medical aid in 2013," Chamberlain said. "He returned again after the 2015 earthquake. And consistent with his mission to train the next generation, he brought his daughter with him to help and to gain an appreciation for global service."

Ultimately, PECARN is helping care teams around the world to provide better care and outcomes — and likely with less costs along the way.

"Eighteen years ago, we'd have never guessed we could have gone through this ride together, collaborating and growing up together — sharing honestly with each other, enjoying the power of social bonds and experiencing the development of trust," Kuppermann mused. "Our network has allowed us to discover some amazing results, and to change the world a bit."

Two decades of PECARN power

Since helping to found the Pediatric Emergency Care Applied Research Network, Nathan Kuppermann has led or helped to lead collaborative, practice-changing studies around key challenges in the pediatric ED. Some highlights:

TRAUMATIC BRAIN INJURY

Kuppermann was principal investigator and first author of a 2009 *Lancet* study that derived and validated **prediction rules for clinically important TBIs** in a large, diverse population with minor head trauma. The large sample — more than 42,000 enrolled infants and children — allowed for derivation and validation of separate rules for patients younger and older than two years. UC Davis ED colleague Dr. James Holmes was a close collaborator.

DIABETIC KETOACIDOSIS

In a pre-PECARN *NEJM* study of 400 patients in 2001, Glaser, Kuppermann and colleagues showed it was unlikely that treatment with fluids — a controversial practice — was contributing to further brain injury. They bookended that research last year with a more robust PECARN study published in *NEJM* in 2018, which found that **fluid infusion during treatment does not cause brain injury in children with DKA**.

BRONCHIOLITIS

Kuppermann was senior investigator on a 2007 *NEJM* study of 600 children that found **use of steroid medication to treat bronchiolitis does not prevent hospitalization or improve respiratory symptoms**. The findings from 21 PECARN hospitals resolved controversy from prior research, and were expected to help guide treatment for the most common cause of infant hospitalization.

FEBRILE INFANTS

In a 2016 *JAMA* study, PECARN researchers established a proof of principle for a high-throughput RNA analysis that can enable clinicians to **distinguish bacterial infections from other causes of fever in infants up to two months old**. The study could someday help ER doctors avoid invasive exams and unnecessary treatment for many of the more than 500,000 febrile infants who arrive at hospitals each year. Kuppermann was a principal investigator, along with Prashant Mahajan of the University of Michigan and The Ohio State University's Octavio Ramilo.

A *JAMA Pediatrics* study this year led by Kuppermann also derived and validated **a new ED protocol that can determine which young infants with fevers are at low risk of significant bacterial infections**. The research, which involved nearly 2,000 patients at 26 hospitals, has important implications for identifying the need for spinal taps or other invasive care.

TXA FOR TRAUMA

Kuppermann, co-principal investigator Daniel Nishijima and colleagues are evaluating feasibility of a confirmatory, multicenter clinical trial around **tranexamic acid (TXA) in children with severe trauma and hemorrhagic injuries**. The antifibrinolytic drug improves adult survival, but hasn't been clinically trialed in severely injured children.

Jon Andrus (M.D., '79) *has spent three decades working to extend lifesaving vaccinations to millions. We asked him about his immunization campaigns in some of the world's most impoverished regions — and about the reemergence of preventable diseases in one of its wealthiest.*

'Health conditions respect no national borders, and especially infectious diseases'

From Peace Corps service to deputy directorship of the United Nations' Pan American Health Organization, Jon Andrus (M.D., '79) has worked at every level in his journey to advance global health.

The physician, epidemiologist and immunization specialist has treated individual patients in hospitals without electricity or running water, and met with foreign presidents to rescue vaccination campaigns targeting hundreds of thousands.

Along the way, he's earned the federal government's highest public health distinction, the U.S. Public Health Service Distinguished Service Medal, as well as honors from nations across Central and South America. The latest came this summer with an honorary induction into the Mexican National Academy of Medicine.

Andrus currently serves as an adjoint professor and senior investigator at Colorado School of Public Health's Center for Global Health, where his work complements vaccine- and immunization-related efforts. He is adjunct professor of global health at George Washington University and also holds a faculty appointment at UCSF.

This must be a fascinating time for you. For decades, you've been part of an international effort to eliminate vaccine-preventable diseases in developing countries. Yet now we're at threat of losing measles eradication here due to burgeoning vaccine hesitancy. What runs through your head?

As you frame the potential threat, I am constantly struck how the current situation in many ways is absolutely mind-boggling. To put it into context, in 1993 the World Bank concluded that vaccination was one the most cost-effective public health interventions medical science has to offer. Its power to save lives had been realized with the eradication of smallpox.

Fast-forward to 2010 and measles vaccination in Africa, supported by the elimination initiative, had adverted more than 7 million measles-related deaths in less than 10 years. No other public health program in the history of mankind even comes close.

Yet today we see measles resurging in places like the U.S., Brazil, and Venezuela, and it is indeed very sad and disconcerting.

As a CDC medical epidemiologist, you were a member of a specialized team that worked to reduce measles mortality by 60% over five years, as a result of vaccinating 200 million children. What does it take to make such a major real-world impact?

Several factors contribute, first and foremost a political commitment to get the job done. In Africa, Ministers of Health understood that measles was a killer of their children, and more importantly, that such deaths were totally preventable with vaccination. What political leader doesn't want to be viewed by constituents as saving the lives of their children?

Resource allocation is another factor. By tackling multiple diseases where they overlap — such as we did with measles, rubella and congenital rubella syndrome in the Americas — you can galvanize more buy-in.

> Latin countries look to us in many ways, right or wrong, as an example or standard to live by.

You've served in Africa, Asia and the Americas. How do you work across different cultures?

I was very fortunate to grow up in a small farming community in California's Salinas Valley. My dad Hughes was a local doctor, as was his father Len before him. I remember Mom gathering all four kids into the station wagon on summer nights to accompany my dad while he made house calls to farmers. We were happy to go because that's how we learned to drive, and there was always a "milk nickel" ice cream bar waiting for us in some country store.

One thing my dad believed in was hard work, hence the after-hours house calls. He insisted that we all did farm labor growing up. I saw firsthand how the migrant families from Mexico — the Braceros, as they were called — worked in the fields. They were hardworking, very caring people. My dad was also passionate about serving the underserved — at the time, he was the nation's first private doctor to receive a Rural Health Project grant to provide primary care to migrant farm workers.

The point is that through my childhood experience, largely with my dad's commitment to the underserved, I strove to emulate such values. In a sense, I've always been inspired and motivated to expand what he did to more of a global level. The people I've been fortunate to meet and work with along the way motivate me more than ever.

What kind of resistance to vaccination did you encounter overseas, and how did you adjust?

I recall several examples where we met resistance. The one that upsets the most was a situation in Peru around 2005 or so. I was chief of PAHO's immunization program. Peru's Ministry of Health was planning a mass vaccination campaign to eliminate measles, rubella, and congenital rubella syndrome. Just before launch, a parliamentarian from the minority party (and a pediatrician by trade!) declared in Parliament the campaign would cause autism. It hit the papers, and the campaign halted.

On urgent notice, I flew to Lima to meet with the authorities. The "doubters" needed to understand that an in-utero infection of rubella virus actually caused autism — NOT the vaccine. The whole misunderstanding was a result of Andrew Wakefield's egregious claims in the *The Lancet* a few years before — the damage had been done. We had a chance to meet with President Garcia, and thankfully he was convinced the campaign should go forward.

You were quoted in an NPR piece about challenges to eradicating polio in Africa. In Nigeria for example, at times communities actively fought immunization campaigns. Religious leaders denounced vaccination drops as a Western plot to sterilize Muslim children. Vaccinators were shot and killed. How do you deal with these situations?
There is no easy answer. The bottom line is to work incredibly hard in each and every neighborhood to involve all the community leaders, including religious leaders. Do this at the beginning — don't wait. The focus must be on communicating effectively, and providing them opportunities to participate and to "own" their program.

There's a great story about a rural slum of Uttar Pradesh, India. After achieving polio eradication, community leaders actually erected a beautiful shrine to commemorate the remarkable achievement. That kind of result takes a lot of work and commitment, by all partners.

You worked on vaccination in Southeast Asia in the 1990s, not too long after the end of the Vietnam War. Did the legacy affect your efforts, and how did you adjust?
In India — the country which always reported annually half the world's polio cases — the legacy of the Vietnam War and the Cold War had a huge impact on our efforts. When I arrived in 1993, western corporations had been kicked out. There was a lot of tension. Being an American, I was put under the microscope.

From the moment that I arrived, I realized that I must earn and build respect and trust with my counterparts. I had the knowledge and experience, having been through the polio battles in the Americas, but I just needed to earn their faith in me as an advisor.

It may sound trite, but I really made a great effort to always place values (in the form of reducing inequities) and vision (a strategic plan) first. For seven years I worked weekends and was always available after hours. I attempted to follow the credo of never asking anyone to do anything that I wouldn't do myself.

The program was committed to reaching the unreached, regardless of race, religion or socioeconomic status. It was all about reducing inequities. Little by little, I think I earned that trust and commitment of colleagues, and eventually governments, to believe and commit. By the time I left in 2000, Bangladesh, Nepal, Myanmar, Thailand and Indonesia had eradicated polio. Cases in India had declined to an all-time low, in only two states.

Do you think today's vaccine debate in the U.S. has affected international advocacy?
Definitely, and the Peru example highlights this point. The parliamentarian would have never made his false claim if he hadn't been exposed to it elsewhere, in particular the U.S. Latin countries look to us in many ways, right or wrong, as an example or standard to live by.

> A bad day was to hear women wailing their grief over the death of a child during the night. I would hear them when I arrived in the early morning — my walk to work was almost a mile, and I could hear them from far away.

What can be done about attitudinal resistance here?
There's no simple answer, here or in any country for that matter. In my opinion, we shouldn't overlook the role of childhood education, especially for girls. Compulsory immunization for school entry has a definite role. Make immunization a child's right. And role models in sports and theater also have a place.

At a provider level, learn effective methods for communicating with patients. People have faith in the advice their family physician or pediatrician provides. Research shows that presumptive communication methods work. "Glad you came in for your child's vaccinations! Let's get started."

When parents express concerns, providers should always be empathetic and caring, but also try to avoid dwelling on "myths" presented by parents and instead bridge back to benefits. There will always be recalcitrant non-believers here, but fortunately they remain a small minority, perhaps 1–3% of the population. Unfortunately, the social media tools they use amplify misinformation in egregious ways.

In our culture, a sad thing is also that people often only see what they believe, rather than believe what they see. People react to their emotions, not to information. Science and evidence are not always the answer in America. So framing communication from the perspective of the parent is useful. A message a colleague likes to use is something like, "You provide a helmet for your child when she gets on the bike. You don't wait for the moment just before the accident to put it on and prevent the injury. That would be impossible. The same applies for vaccines."

During your Peace Corps service in Malawi, you were the only doctor for a district of more than 210,000 people. Can you tell us more?
After fulfilling my National Health Service Corps obligation in Lassen County, I joined the Peace Corps. My wife, a nurse, and I were assigned to the Mchinji District of Malawi.

Jon Kim Andrus (M.D., '79)

Professional career

- Adjunct/Adjoint Professor, George Washington University and University of Colorado
- Executive VP/ Director of Vaccine Advocacy and Education, Sabin Vaccine Institute, 2014–2017
- Deputy Director, Pan American Health Organization, Regional Office for the Americas of the World Health Organization (PAHO/WHO), 2009–2014
- Chief of Immunization Unit and Lead Technical Advisor, PAHO, 2003–2006
- Chief of vaccines and biologicals for WHO Southeast Asia Regional Office

Select honors

- UC Davis School of Medicine Transformational Leadership Award, 2014
- Philip R. Horne Award, CDC, 2007
- Distinguished Service Medal, U.S. Public Health Service, 2000
- UC Davis Emil M. Mrak International Award, 1998

As the District Medical Officer, I was responsible for all curative and preventive services. The first year I spent most of my time in the operating room doing complicated obstetrics — a large proportion of medical emergencies in Africa requiring hospital care are obstetrical.

It wasn't uncommon to operate on a woman with a ruptured uterus because of the long distance she had to travel in an ox cart with a transverse lie of the baby. We also did our share of ruptured ectopic pregnancies. We knew all the blood types of the school children in the surrounding area, because the hospital didn't have a blood bank. Or electricity, or running water.

A bad day was to hear women wailing their grief over the death of a child during the night. I would hear them when I arrived in the early morning — my walk to work was almost a mile, and I could hear them from far away. The feeling was awful. There was this gut-wrenching appeal to how terrible it must be to lose a child. And most of these deaths were preventable.

How did that experience shape your interest in global health and in vaccination?

1986 was the African Year of Immunization, and a bolus of funds from WHO and UNICEF reached the districts to train vaccination teams. District Medical Officers were tasked to ensure efficient trainings, microplanning, vaccination and outreach. It was really a defining moment for me.

The hospital staff became incredibly enthusiastic to get involved with activities that would prevent diseases killing their children on a daily basis. That enthusiasm and excitement, combined with a lifesaving technology like vaccines, was all it took for me to decide then and there that this was what I wanted to do for the rest of my life.

I came to realize the potential contribution of the team was greater than the sum of the parts, and greater than anything I'd ever been a part of. For me, the call transitioned from care of individual patients to care for the community. I had the amazing opportunity to work with dedicated people in need of a little support, all with a tremendous sense of how to save more lives more quickly.

How has working in international health changed over three decades?

Health conditions respect no national borders, and especially infectious diseases. Measles, tuberculosis, dengue, Zika are now truly only a plane ride away. Prevention and control require both regional and global coordination.

Another often overlooked factor is the need for country ownership. We must get away from the paternal relationship some donors have with countries. Nations must find ways to resource and own their own immunization.

Can you share some memories of UC Davis School of Medicine in the 1970s?

Professor Gibb Parsons was a mentor. He had a great sense of professionalism, but also a great sense of humor. I remember as a first-year student, I nervously presented my findings after completing my first complete history and physical exam on a patient. In my anxiousness, I reversed the order of results for respiratory rate and pulse. He immediately injected, "Jon, that is incompatible with life!"

Terry Smith, a classmate, almost fell out of his chair laughing. Terry, John Shepherd, Carolyn Shelby (later Carolyn Shepherd), Ann Searcy, and I were part of a wonderful study group. Terry never failed to mention in front of them every chance he got, "Jon, that is incompatible with life." Boy, did we get some laughs out of that one! We still try to keep in touch.

What advice would you give today's students, especially those interested in global health?

The short answer is that experience is golden. Go overseas and work. Get firsthand field experience. Also, get knowledgeable in the fundamentals of epidemiology, the language of public health.

Then, mentor younger colleagues every chance you get. We are students for the rest of our lives, and we should always be looking to build the next generation of professionals and leaders.

> UNTIL NURSES ADVOCATE FOR THE COMMUNITY, THINGS WON'T CHANGE

Carter Todd, M.S., R.N., C.C.R.N.

BARBERSHOP TALK

BETTY IRENE MOORE SCHOOL OF NURSING GRADUATE **CARTER TODD** ENGAGES THE COMMUNITY TO UNDERSTAND PERCEPTIONS OF AFRICAN AMERICAN MALE NURSES.

Being a nurse was always in Carter Todd's blood. As a pediatric intensive care unit nurse at UC Davis Medical Center, he's one of roughly 280,000 black registered nurses in the country. That's a number he hopes to grow.

"Early in my career in the hospital, I realized there weren't enough African American men who were nurses," said Todd, who received a master's degree in leadership in June from the Betty Irene Moore School of Nursing at UC Davis. "I want to change that, because nursing is a wonderful option for us."

Workforce doesn't reflect population

In a 2016 survey from the California Board of Registered Nursing, black or African American nurses represented only 4.3% of California's active nurses, as compared to 8% of African Americans in California.

The figure is even less when looking at black males.

"We need people who represent the communities we serve," says Piri Ackerman-Barger, Ph.D., R.N., an assistant clinical professor and Todd's thesis adviser. "That can inform what is taught in health professions schools, what is researched, policy development and resource allocations. We really do need more African American men in nursing."

Cultural hub promotes health discussions

The School of Nursing's master's degree in leadership prepares graduates for health care leadership roles in a variety of organizations, and as nurse faculty at the community-college level.

For his thesis project, Todd interviewed patrons at Sacramento barbershops that cater to black men in order to understand their perceptions about the nursing profession. Research shows that barbershops serve as cultural hubs of influence in the community and can be places of health care intervention.

In her study, "Caring, curing, and the community: Black masculinity in a feminized profession," sociologist Adia Harvey Wingfield found that the black men she interviewed were motivated to enter the profession because they believed this field offered opportunities to be of service to black communities. Todd's research participants also showed belief in nursing as a viable career path.

"The ah-ha moment for me was just how engaged the community was," Todd said. "I hope that moving forward, we're able to implement different projects in churches, barbershops and schools to try to increase the amount of African American men in the profession. Until nurses advocate for the community, things won't change."

National award

Todd continues that advocacy every day, caring for patients at UC Davis Health and serving as president of the Capital City Black Nurses Association. Last summer, he and fellow School of Nursing student Sherena Edinboro also received 45 and Under Awards for leadership, excellence and innovation from the National Black Nurses Association.

"Coming from a background like mine gives legitimacy to the younger African American men that I mentor that being able to refocus energy into serving others will ultimately take you wherever you want to go," Carter said. "The award does a lot to signify how critical the role of nurse is in not just the clinical setting, but also within the communities with which we serve."

WE WANT YOU, AS AN ALUM, TO FEEL THAT YOU ARE AN INTEGRAL PART OF OUR COMMUNITY. There are myriad ways to engage — opportunities that will make you truly proud of your alma mater.

It's an exceptionally exciting time to be a part of the UC Davis Health community.

- Follow our news on the School of Medicine Alumni Association (SOMAA) website (**health.ucdavis.edu/medalumni**) and our SOMAA Facebook page.
- Keep an eye out for our emails from "HS-UC Davis Medical Alumni." If you think we might not have your address, let us know via **medalumni@ucdavis.edu**. We promise not to inundate you!
- Share your thoughts in the short surveys we send now and then, to help us ensure our program engages and serves you.
- Accept our invitation to an event — big or small, in your locale or here in Sacramento.

With that last point in mind, remember that the School of Medicine's Alumni Weekend 2019 is Oct. 25–26. It's Class Reunion Weekend for the "4s and 9s!"

Come share, learn and celebrate with your classmates and friends. Meet our amazing students. Hear from fellow alumni on the faculty. Fete our 2019 SOM Alumni Award recipients, Frank Sousa (M.D., '74) and John Shepherd (M.D.,'79). For details and registration, visit **health.ucdavis.edu/medalumni/calendar**.

To close, we're pleased to welcome alumni from the Betty Irene Moore School of Nursing at UC Davis to the alumni section of *UC Davis Health* magazine. Founded by the nation's largest grant for nursing education in 2007, the school — and its five graduate-degree programs — play a critical role in preparing nurse leaders who will help shape the future of health care and inform health policy.

In 2018, School of Nursing alumni (406) surpassed current students (323) for the first time. Interprofessional education and care are cornerstones of the approach at UC Davis Health, as you'll see from the interview on p. 24 — and we're glad for you to meet more talented health leaders!

Doug Gross (M.D., '90)
President
UC Davis School of Medicine Alumni Association

M.L. Farrell
Director
School of Medicine Alumni Engagement
916-734-9408
mlfarrell@ucdavis.edu

School of Medicine Alumni Updates

1970s

1973

Paul W. Cosby

Retired emergency medicine lifetime fellow. Soon to be living on a boat in Key West, Florida.

1974

Ranya Alexander

As of January 2019, I stopped seeing medical patients in San Diego. I have been extremely fortunate to have spent four decades across several disciplines within medicine from pediatric endocrinology to adult and pediatric emergency

medicine. I have had exceptional physicians and health care workers as both mentors and students. Now, in my seventh decade, I have settled into my first UC Davis love, research. I am chief operations officer and part owner of a small biotech company, ICBI, in La Jolla, California. Determined to make a difference in neurodegenerative diseases of the CNS. Through all of these ventures I have been buoyed by my nurse practitioner wife of 40 years, Kamala (UC Davis undergrad '71–'72), my daughter, neuroscientist Daya Alexander Grant, and son, screenwriter, Gyan Alexander. I owe the 1974 UC Davis med class a big thank you for launching me onto this marvelous journey. Love to all.

1975

Thomas Koch

Semi-retired, with emphasis on retired. Ten years small town FP. Ten years major ER-trauma center and 15 years urgent care. Now mostly focused on the business end of things and consulting. Good health so far. Lots of travel. Life is good, though growing shorter. Still skiing, hiking, biking, and kayaking. Still in southern Oregon.

1976

John H. Sand

I am closing my solo OBG practice in September. Enough of getting interrupted for labor and delivery or the ER 24/7! I alternate between euphoria at the coming freedom, and feeling lost. I will do some call relief/hospitalist work for a couple of years. I am looking forward to more time with the family, grandchildren sometime in the future (come on boys, let's get going on this!!!), biking trips to Canada, and some cross-country ski races in Europe. Freight train

hopping anyone? I was delighted to see Dr. Pappagianis picture at the last reunion. I frequently recall our professors, and cite Dr. Chang whenever I rail against the anti-vaccinators. My notes (now "free text") are succinct, pertinent and highly appreciated by the other doctors navigating the data morass of the "EHR" (endless headless redundancy), thanks to Malcolm MacKenzie.

Martha Anne Shilling Bennett

Greetings to all! Hope you are all living the good life! I'm thankful to be semi-retired, off the gerbil wheel and able to enjoy seeing family practice patients without rushing three days/week, leaving time and energy for grandma camp and great travels with my husband of 43 years, family (three kids plus four grandkids) and friends. Next trip is to Botswana for our son's wedding to an Australian woman, then Newfoundland, Arctic, etc. The shortage of FP doctors has given me the opportunity to determine my own work schedule, which allows me to continue doing all that I love to do. The science and patient relationships in family medicine has been very rewarding.

1977

Charles F. Chong

I did a year of a family practice residency in West Virginia and went to work. After a few part-time jobs I took a full-time position at a state mental hospital. I compare my working at Weston State Hospital with missionary work in a third world country. With my education, experience, consultation with other professionals, CME, reading, and the actual "practice" of medicine with the mentally ill, I developed my clinical skills. In the early '90s I continued to work for the state of West Virginia at a clinic which provided care for the indigenous, the underemployed, and the uninsured for 14 years, then at a FQHC, and finished my full-time career at the new state hospital. I retired for the year of 2015 and currently work part-time as a medical consultant for a private nonprofit psychiatric hospital. All for love, and to live on a 220-acre West Virginia holler.

Anne Hazelton

Retirement has been just wonderful! I am still dancing Tango and playing pickleball, as well as enjoying my nearby three grandkids, especially while tent camping in Colorado this summer. I've also slept in my Model 3, most beautifully in the Redwoods last August on my 5,281-mile road trip, including stops in Sacramento, the bay area, Seattle, and Banff. This year I'm planning another big trip, over 7,000 miles to Maine (including a Windjammer six-day sail) and then meandering past the West Virginia radio telescope for a tour, hanging out with siblings in Virginia, and then down to Florida, hoping to catch a SpaceX launch. Can't miss the LIGO near Baton Rouge, and Houston's NASA center tour. I highly recommend taking care of yourself in order to enjoy these years!

1978

Michael Soman

Sara and I are still living on Bainbridge Island, Washington, though we spend a great deal of time in Baja California Sur near Loreto. We have enjoyed retirement as we get more into it over the years. We absolutely love our two grandsons (five and two years old) and travel has been a huge part of our lives for several years (Bhutan, Cambodia, Laos, Myanmar, India, Thailand, Vietnam, Israel, Jordan, and Palestinian territories). Life is rich and complex. Struggles still visit us, but that is a part of the deal, yes?

1979

Jon Andrus

On June 26 of this year in Mexico City, I had the honor and pleasure of being inducted into the Mexican National Academy of Medicine. I was inducted as an honorary member for contributions made in the field of global public health. I am very grateful for all those friends and colleagues with whom I have had the amazing opportunity to work with over the years. Thanks to all!

Paul Beninger

After a 30-year career at FDA and in the pharmaceutical industry, I transitioned to academia (yes, I know, it's usually the other way). From 2014-2017 I was both vice president of pharmacovigilance at Genzyme/Sanofi and director of Tufts University School of Medicine M.D./MBA program. I retired from Genzyme in 2017 and am now full time at Tufts. I was also recently promoted to associate professor. My wife, Betsy, calls this my encore career, and I'm really enjoying teaching and writing. We have two daughters and two granddaughters, all are doing well.

Casey Caldwell

My residency was at Mayo in internal medicine. I joined a group practice in Walla Walla, Washington before getting an offer to join Mayo Scottsdale when it opened in 1987. We were there for 11 years until transferring to Minnesota in 1998 in primary care internal medicine. I left Mayo in 2014 and have been working at community clinic (CHSI.org) caring for under and uninsured mostly Hispanic patients. I have also been leading a yearly

medical mission to Mexico since 1995 and volunteering at the local Salvation Army Clinic and at a free clinic in Worthington, Minnesota. Still married with two kids and four grandchildren.

John Stanley Friden

My wife, Peggy, and I continue to live in the same neighborhood (in Ogden, Utah) that we moved to when we began our family practice residency. I retired a few years ago, and we enjoy traveling and spending time at our cabin in Bear Lake. Our time is also filled with activities and events involving our five daughters, sons-in-law, and 21 energetic and unique grandchildren. We look forward to our 40th reunion in October.

John Shepherd

Rather than summarize my life of unmixed happiness, we must recognize our profound obligation to our nation and earth. We understand that we all become less human and less well when those around us in the world lack the right to adequate nutrition, education, housing, safety, health care, and indeed basic respect and the security of equality. Our transitory existence should not lead us to ignore the oppression of our brothers and sisters nor the specious meritocracy of the self-entitled rich. The election of 2020 requires dedication to the proposition that we can move beyond the anti-democratic current leadership and support humanity, compassion, science and truth over divisiveness and mendacity by not succumbing to our fears and inadequacies. "...Hope is more the consequence of action than its cause."

1980s

1981

David Manske

Finally doing it! Retiring, effective October 1, 2019, after 33 plus years at Kaiser Permanente South Sacramento. I've had a fabulous, sometimes challenging, but always rewarding, career there. I've had the pleasure to care for thousands of people and made many lives better, I think. But it's time to enjoy my home, my friends and family. Time to travel. Time for my hobbies and my home on the delta, the Sandpebble! I have three beautiful grandchildren to visit more often. I have many books to read. And I look forward to more "me" time! What will it be like to get to stay home every night, every weekend, and every holiday?! Thank you, UC Davis, for a wonderful professional life. Time for new adventures! Take care of yourselves and be kind to all.

Gregory Scott Spowart

Mostly want to say "hi" to everyone and hope you are all doing well! I remember my time at Davis fondly, not to mention it was also a great education that prepared me for what came next. I have been practicing cardiothoracic surgery in the Monterey area for over thirty years and hope to keep doing it as long as possible. Our three children are grown and off on their own. My wife is back to doing art, we do some ballroom dancing, and I am trying to take more vacations to warmer parts of the planet and try to surf again. Recently had a great trip to Indonesia. On the medical side, I have been chief of staff twice, and remain busy doing mostly heart surgery. Time goes too fast! Again, I wish everyone the best, good health, and the time that you need to enjoy your life!

1982

Becky (Rebecca) Klint

Hi, all! I'm so happy to report I have joined the every-day-is-a-weekend crowd, retiring from Kaiser Permanente in Fremont, California. We have moved back to Visalia, where I grew up and have family, and are enjoying the slower pace, friendly people and lower housing costs. I am enjoying helping Scott, my husband, with some of his nonprofit work and getting to see my great nephews, nieces and other family. Please look me up if you are on your way up to Sequoia National Park and stop to say hello!

1983

Randall D. Reed

2018 was a great and horrible year. Our son, Grant, married a wonderful young woman, Anna, in August and they are living in Walnut Creek, only an hour from us. Linda (Davis-Reed, M.D., '86) and I lost our lovely home in Paradise due to the Camp Fire in November 2018, and have been homeless wanderers since. We've relocated to Sonoma and should be in our new (old) home October 1, 2019. It is intimidating to establish a new social/support system in a new place at this stage in life, but we're both retired and still somewhat charming, so we're hopeful. Once established, we'll gladly welcome friends and family to the wine country. Our best to all.

Patty and Ron Sand

Ron and I lost our home in the Carr Fire last year and are transitioning to early retirement (Patty) and part-time work (Ron). We are relocating to Jacksonville, Oregon near our daughter and her family (M.D. '11). Ron enjoys his palliative care practice, mostly via Televideo into patient's homes so they can stay out of long-term facilities and hospitals. I will miss my pediatric patients and my colleagues, but playing with grandchildren, attending local music and play events, and traveling turns out to be fulfilling too!

1984

Ralph Delius

Can't believe it's been 35 years! My memories from med school are as vivid as if they happened last year. It's been a good life... four kids, three grandkids, a career as a congenital heart surgeon, including a short stint at our alma mater in the late '90s. For what it's worth, Bill Blaisdell was just as awesome as a colleague as he was as an intimidating, yet inspiring attending when we were third year students. After sacrificing much for my career over the years (we've all been there), I've decided to slow down a bit as my 60s have arrived, and have just started working at a vein clinic, of all things. Still trying to figure out what to do with my days since I only work 9-to-5! Hope all of you are happy and healthy!! Picture is with youngest daughter.

Robert F. McLain

I've experienced an absolutely wonderful year in the service of the Mid-American Orthopedics Society (MAOA), culminating in an outstanding program, spectacular presentations, and a great kids program so everyone could try to relax. Elected society president in 2017, and served on the board and finance, and on the crucial program committees. MAOA experienced its largest turnout in our history, with 650 attending orthopedists and residents filling the Hilton Sandestin Resort for my 2019 annual meeting. Olympic skater and Davis alum Eric Heiden (R-Orthopaedic) provided the Keynote Steele Lecture, while Kristy Weber, M.D., presided over the academy portion of the meeting. Dr. Weber got a warm standing ovation from the group, as the first female physician elected to the presidency of the America Academy of Orthopaedic Surgery, our national leadership organization! Becky had a blast, ran the spouses program and educated about 100 kids on the majesty of sea turtles.

1985

Brian Guthrie

I retired in June 2018 after 30 years of pediatric practice at The Permanente Medical Group in Clovis, California. My wife and I finally got to move to Colorado (Arvada) and I absolutely love it. Retirement has been very busy so far and our first adventure was a month of trekking in Nepal where I made it to 20,000 ft. I've been volunteering at a nonprofit pediatric practice in Thornton a few days a month and looking forward to an international medical mission trip to Uganda in the fall. Life has been good.

1986

Linda Davis-Reed

See Randall Reed – 1983

Greer M. Murphy, Jr.

I received the 2019 David A. Mrazek Award in Psychiatric Pharmacogenomics from the American Psychiatric Association. I was among the first to apply genetic technology to predict medication response in psychiatric patients and have published a series of pioneering studies, including research that identifies genetic markers that affect responses to antidepressants.

1987

Robert L. Berkowitz

I continue to enjoy my private practice in psychiatry, especially the way that it leaves me time to pursue another passion, my interest in piano. I continue to participate in the New England Conservatory School of Continuing Education and was honored to discover that a video of my January 2019 end-of-semester recital performance was posted by the conservatory on its official YouTube channel. You can find it by going to youtube.com and searching for "New England Conservatory Robert Berkowitz." It is the one that appears at the top of the list.

1990s

1992

David Boardman

Now 20 years in practice as a joint replacement specialist, I've remarried and started with a small orthopaedic group in Northampton, Massachusetts. Hello to the class of 1992!

1995

Abdul Harris

Recently relocated family to Central Valley (Fresno) to be close to wife's family. Huge transition after more than 16 years in a successful surgical practice in Santa Rosa, California. Now working at Saint Agnes Medical Center as a member of Saint Agnes medical providers surgical services. Wife and kids have adjusted well. I'm starting over but rediscovering community surgical practice outside of trauma. Also getting a chance to reconnect with fellow UC Davis alumni in the area. Looking forward to the next half of my career!

1997

David Inwards-Breland

Hello all! The last 20 plus years have been quite full for me. I completed residency at Children's Hospital Oakland and a National Health Service Corps obligation in Albany, Georgia. After completing this service, I completed an adolescent medicine fellowship at UCSF. I am currently an associate professor of pediatrics at the University of Washington School of Medicine, Seattle Children's Hospital in the Division of Adolescent Medicine. Currently, I am a founder and medical director of the Seattle Children's Gender Clinic. I married my husband Ric in 2017 and we welcomed our daughter Amari in December 2018. She is a bright and shining star in our lives.

2000s

2001

Rom Kandavel

Hi all, Monica and I have been married now for 17 years! It has been a great time in our lives raising our two kids, Jayan (12) and Leela (nine). Monica is practicing

pediatrics at Kaiser Panorama City, and I have been in private practice in Encino for 14 years. Time seems to be accelerating as the years go by. We enjoy skiing and traveling together, which we try to do as much as our schedule allows. I hope that all of you are doing well and would much appreciate reconnecting. If you are ever in Encino look us up!

2002

Monica Kandavel

See 2001 – Rom Kandavel

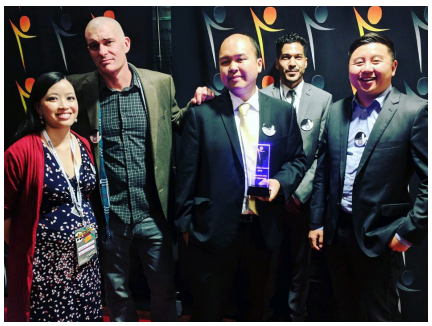
2004

Stephanie Eden

I moved back to the Sacramento area (now living in Granite Bay) after 10 years in the bay area. I'm currently an emergency medicine physician at Kaiser Roseville/Sacramento. I have three kids (ages six, four, and two) that keep me busy when I'm not at work.

2008

David Law



I recently began pursuing my passion for film and won "Best Film" last year at the Utah Film Festival as a first-time director. My next film deals with the topic of physician burnout and will hit the festival circuit this fall!!

2010s

2010

Andrew Last

After taking (another) circuitous route, I finally completed my residency training in family practice at Natividad Hospital in Salinas, California. The whole family (I + Ronda, Flora, Fauna and Will) are going to France to celebrate. Then we are moving to the Midwest, where Ronda has taken a job with the Wisconsin School for the Deaf and I will be working for the Mayo Clinic, doing full-spectrum family practice. The kids are going to be starting third, fourth and eighth grades respectively, and Flora — remember her? The tiny preemie? She's now taller than Ronda. If anyone is passing through Chicago, Minneapolis or Rochester, drop us a line! We'd love to catch up.

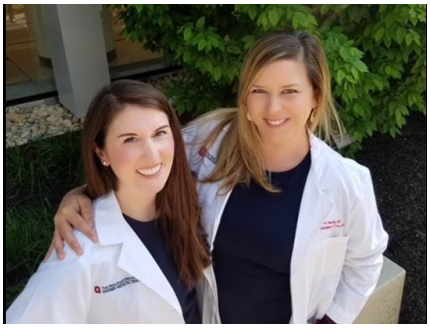
2012

Sukhjeet Batth

My wife, Nitasha, and I moved back to my hometown of Fresno where we're both in private practice. Our biggest news is the arrival of our first child, Arjun, who is now a year old! He has been the best thing that has happened to us, and it's been such a joy seeing him grow. I've picked up golf, and we've been traveling quite a bit. Arjun has already been to Cabo San Lucas and the Bahamas, and we're off to Japan in the fall!

2014

Erin Healy



I completed residency in radiation oncology at Ohio State University on June 17, 2019. I will be staying on and starting as faculty in August 2019, treating breast and gynecologic cancers.

2016

Reihaneh Forghany

It is so hard to believe that I am starting my last year of anesthesiology residency here at UC Davis. These past few years have truly flown by! UC Davis has been my home for the past eight years, including four years of medical school, one year of internal medicine internship, and three years of anesthesiology residency. It was just yesterday that I began as a new medical student and am now embarking on my journey as chief resident. I am excited to have time to complete a research study this upcoming year, assessing the role of anesthesia providers in hospital deficiencies, published by the CMS over a 10-year period. I look forward to the many more opportunities this upcoming year.

RESIDENCY/ FELLOWSHIP ALUMNI

1989

David Manske

Orthopedic Surgery Residency

See M.D. 1981

1991

Robert F. McLain

Spine Fellowship

See M.D. 1984

2001

Abdul Harris

General Surgery Residency

See M.D. 1995

Betty Irene Moore School of Nursing Alumni Updates

Krystle Banfield, M.S. '14, R.N., C.C.R.N. and Zoey Goore, M.D., M.P.H. '13, F.A.A.P.

Graduate year: M.S.-Leadership '14

Last March I led a podium presentation at the 2019 Quality and Safety in Children's Health Conference in Atlanta, Georgia. Along with physician partner and UC Davis M.P.H. alumna Zoey Goore, we presented, "Partnering with Patients and Families as Equals to Transform Care." We discussed a new approach, CoDesign, which allows us to incorporate input from patients and their families to make improvements to care at Kaiser Permanente Roseville Women's and Children's Center. The initiative resulted in improved patient experience scores. I am an assistant nurse manager at the pediatric intensive care unit at Kaiser Permanente, Roseville. The conference, led by the Children's Hospital Association, brings together pediatric quality and safety professionals across the country to share discoveries and collaborate to lead improvements in children's hospitals.

Crissi Patel, M.S.N., R.N. and Cassi Carter, M.S.N., R.N.

Graduate year: M.S.N. '18

After my twin sister Cassi Carter and I graduated from Betty Irene Moore School of Nursing, we felt nervous about many things, including that dreadful NCLEX, that first interview, and landing a job. Yet, we often discussed how prepared and confident we were in our ability to execute person-centered care. We were taught many aspects of nursing that have easily transcended into our everyday practice. We are fortunate to be Betty Irene Moore School of Nursing at UC Davis alumni and honored to now both work at UC Davis Medical Center as registered nurses. #UCDtwinRNs

Barbara Baranishyn-Hanna, Ph.D. '15, R.N., P.H.N., C.C.M.

Graduate year: Ph.D. Nursing Science and Health Care Leadership '15

I received the Lois C. Lillick Lifetime Achievement Award from the California Association for Health Services at Home (CAHSAH) on May 21, 2019. The award honors an individual for outstanding contributions to the continuing development of local, state, and national home care associations. During the Camp Fire in Butte County, I spearheaded the management of the Caring Choices Disaster Volunteer Center. The center processed over 4,000 spontaneous volunteers who responded to a call for medical and other assistance. Together, we continue to support the communities affected by the Camp Fire through grant-funded free mental health and case management assistance.

Neal Oppenheimer, M.S.N. '17, R.N., C.C.R.N.

Graduate Year: MSN '17

I am currently working in the pediatric ICU at UC Davis Children's Hospital and obtained pediatric C.C.R.N. certification in June.

Charis Ong, M.S. '18, R.N.

Graduate year: M.S.-Leadership '18

Since graduating from the Master's in Nursing Science and Health-Care Leadership program in 2018, I have embarked on several personal and professional journeys. I hiked through the Andes and ruins of Peru, and have traveled solo on a spiritual journey of self-discovery to Japan and South Korea. In between these adventures, I grew professionally as a nurse by teaching for the Master's Entry Level Program in Nursing (MEPN) at Betty Irene Moore School of Nursing. Today, I am a part of the impeccable teaching team that supported and cultivated my growth. I do not believe I would be where I am today if I had not chosen to step outside of my comfort zone each day and challenge my fears. Thank you to Betty Irene Moore School of Nursing, because this personal journey of growth started the day I stepped into graduate school. "Trust the process," words that still resonate with me today.

Paul Francis Gulyassy

PAUL GULYASSY, M.D., EMERITUS PROFESSOR, LEADER AND FIRST CHIEF OF THE DIVISION OF NEPHROLOGY AT UC DAVIS, passed away this summer. Colleagues remember Gulyassy as a pioneer, an accomplished scholar, a scientist, and a compassionate physician who had a warm place in his heart for people with end-stage kidney disease.

Colleagues remember Gulyassy as a pioneer, an accomplished scholar, a scientist, and a compassionate physician who had a warm place in his heart for people with end-stage kidney disease.

Gulyassy established California's first dialysis clinic in 1962, and with surgeon John Najarian started the state's first kidney transplant program at UC San Francisco. He supported state legislation that eventually led to federal funding of dialysis, and helped develop the hollow fiber kidney currently used worldwide.

When he was recruited to join the fledgling UC Davis faculty in 1972 as division chief, Gulyassy was broadly recognized as an investigator in kidney physiology and kidney replacement by dialysis.

With NIH backing, he was the first to measure amino acid levels in the serum of ESKD patients, which led to further investigations at UC Davis of the now-well-recognized generalized defect in albumin binding that contributes to uremic toxicity and is poorly responsive to dialysis.

At UC Davis Gulyassy also established Sacramento's first peritoneal dialysis clinic. He was recently honored with an endowed professorship in his name that supports research linking the basic sciences with clinical nephrology research.

Gulyassy leaves behind his wife, June, two daughters, Adrienne and Susan, three grandchildren, and a host of admirers.

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World's first total-body PET scanner up and running

A September ribbon-cutting celebrated the world's first total-body PET scanner, invented by UC Davis scientists and now being used to image both patients and research participants at UC Davis Health. The ceremony at the EXPLORER Molecular Imaging Center took place after a day-long symposium on the technology featuring presentations from around the country and remarks from Paula Jacobs, acting chief of the National Cancer Institute's Molecular Imaging Branch. The NCI and the National Institutes of Health helped support the project — the brainchild of UC Davis professors Simon Cherry and Ramsey Badawi — and United Imaging Healthcare later joined the effort to manufacture the machine.