A PROMISE FULFILLED

A revolutionary technology opens doors to the brave new world of personalized medicine.
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Yes, the future does often exist somewhere. In the case of genomic medicine, that place is UCLA. I witnessed it firsthand when I participated last July in the eye-opening weekly case conference of our Clinical Genomics Center (CGC). This collaboration among multiple departments in the David Geffen School of Medicine at UCLA and UCLA Health System has set the standard for the transformation of molecular medicine to the new era of genomic medicine.

Moving beyond traditional genetic testing of one or a few genes at a time, the CGC utilizes so-called “next-generation” or “massively parallel” DNA sequencing to obtain full DNA sequences of all the protein-coding regions in the human genome, about 30-million nucleotides of genetic code comprising about 20,000 genes.

The technology allows examination not only of the small subset of known genes associated with genetic disorders, but also of all other genes that might be involved. And all 20,000 genes are interrogated in parallel, in a single test, offering the chance to quickly put an end to the “diagnostic odyssey” that so many patients with mysterious illnesses typically go through. Just such a case impressed me on the day I attended, that of an infant with neonatal hepatitis of unknown cause despite extensive diagnostic work-up at an outside hospital. The UCLA genomic test identified two mutations in the gene for an ultra-rare recessive genetic disorder, which informed not only the likely prognosis, but also potential targeted drug and enzyme therapies.

Our UCLA group has pioneered not only the technical applications, but also a unique approach to interpretation of the mass of data produced by a single patient’s DNA sequence. The session I attended demonstrated this concept in real time, as this multidisciplinary team evaluated the clinical significance of the many DNA-sequence “variants” revealed in each patient’s genome and decided which ones to report out. This entity, the Genomics Data Board, which is modeled after the familiar Tumor Board concept, is now being emulated by other centers across the country. Meanwhile, other centers lacking the resources or expertise to establish such a service are referring cases to UCLA, and the ordering physicians are invited to sit in via videoconferencing technology on the Genomics Data Board conference when their own patients are discussed.

I am proud of UCLA’s leadership in this realm of genomic and personalized medicine, which is already helping patients who formerly were without hope, and will soon be transforming all of clinical practice. It is one reason why we have targeted genetics/genomics as one of UCLA’s top strategic priorities to pursue in the coming years — an adventure all of us will share.

A. Eugene Washington, MD, MSc
Vice Chancellor, UCLA Health Sciences
Dean, David Geffen School of Medicine at UCLA
Gerald S. Levey, MD, Endowed Chair
Your writer confuses a positive outlook, optimism and fellowship, which are all tangible and probably useful attributes, with the nonsense of spirituality (“Faith & Healing,” page 14). The article quotes Dr. Harold G. Koening, who has been looking at this issue since 1960, as saying, “Research in this area is not as clear as one would hope.” It is clear; after half-a-century of investigation, no support for the thesis can be found. There is no such thing as “alternative” medicine; there’s only stuff that works and stuff that doesn’t.

As a physician, I have always tried to be as clear and supportive as possible with patients and family, but that has never meant joining in their celebration of spirituality or magic. And as a patient with both non-Hodgkin lymphoma and stage IV melanoma, and coming as close to death as is possible, there was never a moment of doubt that god and spirituality are vacant pursuits. Americans’ grasp of science is already tenuous. People “believe” vaccinations are wrong or their cancer will go away if only they eat better and feel better about themselves, or bring god into their lives. But adults and children get sick, and some die grasping for something not there. UCLA should not be encouraging these medieval beliefs.

Albert Stroberg, MD (RES ’79)
Ojai, California

How very inspiring it was to read the article by Douglas Yakich (“Patient, Advocate for Thyself,” page 37), who told a brief history of his experience as an ostomate. One reads of his initial and understandable concern that his serious Crohn’s disease and surgery leading to his being an ostomate would lead to a life not well lived, one he changed to being a life very well and fully lived as he found family and community support and, over some years, the confidence and enlightenment to become a social advocate for those like himself. His advice is excellent and, over some years, the confidence and enlightenment to become a social advocate for those like himself. His advice is excellent as to how one can become such an activist, and his story certainly deserves the attention it is now receiving in this wonderful and useful publication! Thank you.

Elaine Livesey-Fassel
Los Angeles, California

In the U.S., religion and spirituality are clearly an important part of life and culture for many people. It appears there is good reason for this. For patients where faith is a resource in difficult times (“Faith & Healing”), the benefits have been well documented by years of spirituality and health research. Attitudes that exhibit faith, hope and other positive emotions are simply healthier. The immune system tends to function more effectively when people engage their faith in a manner that helps manage their stress. The mind and the body are connected. So, not only are patients, who are struggling with health issues, psychologically benefited by a positive attitude, their health can be positively affected, too. Healthcare providers who understand this connection will practice patient-centered care that supports their patients’ faith practices. Of course, not all religious attitudes are helpful. Research identifies such conditions as despair or spiritual crisis as posing significant risk for poor health outcomes. A best-practices approach suggests that caregiving involves more than just providing clinical treatment. Though supported by many scientific advancements, at the end of the day, the practice of medicine requires artful skills.

Bruce Nelson
Director of Community Services
Glendale (California) Adventist Medical Center

I too, like Ann Donato (“Faith and Healing”), have a Catholic upbringing and have always relied on my faith to help steer me through life’s challenges and to help me understand how oftentimes good comes from challenges. In times of illness, it is natural and necessary to turn to the spiritual and to prayer, and I’m so pleased to see that UCLA has a Department of Spiritual Care with chaplains providing emotional support to the souls of patients. When doctors add this spiritual aspect to the care of their patients, it completes the relationship and strengthens the power of healing. I believe that when we open our hearts to heavenly help, we receive the courage and fortitude to tackle just about anything. I applaud the doctors and nurses who recognize the importance of faith, and kudos to UCLA for incorporating it into its physician training via the Doctoring 1 class!

Susan Honnold
Brentwood, California

Thank you for the article about deep-brain-stimulation surgery and Dr. Nader Pouratian (“Live from L.A.,” page 18). I have Parkinson’s and may need his help someday. I’ve met him already because he performed carpal-tunnel surgery on my wrist. He did a great job. On top of everything else, he’s a very, very nice man. I thought it was interesting that you had a feature article about someone with a similar name, Nader Pourat, PhD, both in the same issue (“Conversation,” page 10). Funny coincidence!

Carol Hicks
Los Angeles, California

IN BOX
letters to the editor

Share Your Thoughts with Us

Like us or not, we want to hear from you. Your input is important, so please give us your comments and feedback. Include your name, e-mail address, city and state of residence and, if you are a UCLA medical alum (MD, PhD, Resident and/or Fellow), your degree(s) and graduation year(s). Letters may be edited for length. Don’t be a stranger. Write to us.

Submit letters to:
editormedicine@mednet.ucla.edu
FOR THOSE WHO GIVE ALL, WE GIVE WHATEVER IS NEEDED

UCLA is deeply committed to working with our military partners to heal the body, mind and spirit of America’s wounded warriors. The new Ronald A. Katz Center for Collaborative Military Medicine at UCLA serves as a hub for the programs and initiatives across campus that support our veterans and current military service members and their families. By accessing the brain trust of knowledge, experience, innovation and entrepreneurial spirit at UCLA, the Center will address and advance the unique clinical challenges posed by battlefield trauma—and proudly serve those who serve.
Todd Dunlap, 62, arrived at the emergency room of Ronald Reagan UCLA Medical Center in August 2013, suffering from shortness of breath, fatigue and extreme cold. When a CT scan revealed a 24-inch clot that stretched from his legs into his heart, doctors feared the mass could break loose and lodge in his lungs, blocking oxygen and killing him instantly.

John Moriarty, MD (FEL ‘10, ’11), gave his patient a choice. Dunlap could have open-heart surgery or undergo a new minimally invasive procedure using a device called AngioVac to vacuum the massive clot out of his heart. The procedure, however, had never been successfully done in California.

A new grandfather, Dunlap didn’t hesitate to choose; he underwent the AngioVac procedure a few days later. A week after that, he was back home, full of energy and eager to play on the floor with his 9-month-old grandson.

To perform the procedure, a team of UCLA interventional radiologists and cardiovascular surgeons slid a tiny camera down Dunlap’s esophagus to visually monitor his heart. Next, they guided a coiled hose through his neck artery and plugged one end into his heart, against the clot. They threaded the other end through a vein at the groin and hooked the hose up to a powerful heart-bypass device in the operating room to create suction.

“Once in place, the AngioVac quickly sucked the deadly clot out of Mr. Dunlap’s heart and filtered out the solid tissue,” says Dr. Moriarty, an interventional radiologist with expertise in clot removal and cardiovascular imaging. “The system then restored the cleansed blood through a blood vessel near the groin, eliminating the need for a blood transfusion.”

“Retrieving a clot from within the heart used to require open-heart surgery, resulting in longer hospitalization, recovery and rehabilitation times compared to the minimally invasive approach provided by the AngioVac system,” says Murray Kwon, MD (FEL ’08), a cardiothoracic surgeon who collaborated on Dunlap’s procedure.

Similarly, a clot-busting drug known as a tPA typically takes three to four days to work. In Dunlap’s case, his physicians tried tPA first, but it failed due to the clot’s large size and density.

“The AngioVac was a last resort for Mr. Dunlap,” says Dr. Moriarty. “The clot clogged his heart chamber like a wad of gum in a pipe. Every moment that passed increased the risk that the clot would migrate to his lungs and kill him. We couldn’t have asked for a better outcome.”

Like Dunlap, roughly one in 500 Americans suffers from blood clots in the leg veins, a condition called deep-vein thrombosis. Estimates double in people older than 80. Nearly 100,000 Americans die each year when a clot breaks away from the blood-vessel wall and lodges in the lungs or heart. In one of every four cases, sudden death is the only clue an individual is suffering from the condition.

“When you hear about new cutting-edge options, it gives you hope,” says Dunlop’s wife Cheryl. “Without it, you run into a brick wall. If we’d consulted only with our community hospital and not a teaching facility like UCLA, we wouldn’t have learned about all the treatment choices available to us.”

To view a video about Todd Dunlap and AngioVac, go to: uclahealth.org/angiovac
“We’ve had great scientific advances, and we can give great targeted therapy, and all of this is extremely costly,” says Dr. Patricia A. Ganz. “And if we don’t get it right, we’re going to just break the bank.”

Be Happy: Your Genes May Thank You for It

Happiness affects your genes, scientists say, and in the first study of its kind, researchers from UCLA’s Norman Cousins Center for Psychoneuroimmunology and the University of North Carolina examined how positive psychology affects human-gene expression. What they found is that different types of happiness have different effects on the human genome.

People who have high levels of what is known as eudaimonic well-being — the kind of happiness that comes from having a deep sense of purpose and meaning in life — showed very favorable gene-expression profiles in their immune cells. They had low levels of inflammatory gene expression and strong expression of antiviral and antibody genes.

However, people who had relatively high levels of hedonic well-being — the type of happiness that comes from consummatory self-gratification — showed just the opposite. They had an adverse expression profile involving high inflammation and low antiviral and antibody gene expression.

The researchers, led by Professor of Medicine Steven Cole, PhD, drew blood samples from 80 healthy adults who were assessed for hedonic and eudaimonic well-being, as well as potentially confounding negative psychological and behavioral factors. Using a gene-expression profile known as conserved transcriptional response to adversity (CTRA), which measures a systematic shift in baseline gene-expression profiles of circulating immune cells during extended period of stress, threat or uncertainty, they mapped the potentially distinct biological effects of hedonic and eudaimonic well-being.

And while those with eudaimonic well-being showed favorable gene-expression profiles in their immune cells and those with hedonic well-being showed an adverse gene-expression profile, “people with high levels of hedonic well-being didn’t feel any worse than those with high levels of eudaimonic well-being,” Dr. Cole says. “Both seemed to have the same high levels of positive emotion; however, their genomes were responding very differently even though their emotional states were similarly positive.

“What this study tells us is that doing good and feeling good have very different effects on the human genome, even though they generate similar levels of positive emotion,” he says. “Apparently, the human genome is much more sensitive to different ways of achieving happiness than are conscious minds.”

Cancer Care in America Needs an Overhaul

Cancer care in the United States is a system in crisis, according to a new report from the Institute of Medicine that says urgent changes are needed to boost the quality of care and improve outcomes for people diagnosed with the disease. The report, prepared by an IOM committee chaired by Patricia A. Ganz, MD ’73 (RES ’76, FEL ’78), director of cancer prevention and control research at UCLA’s Jonsson Comprehensive Cancer Center, attributes the crisis to the growing demand for cancer care among the aging Baby Boom generation, rapidly rising costs, a shrinking pool of cancer-care professionals and dramatic changes in cancer therapies over the last decade that sometimes make it difficult to determine which patients should receive what treatment.

“We have a lot of waste in the system, where people are given treatments that are unnecessary and costly,” says Dr. Ganz. “We’re not just talking about underuse, we’re talking about overuse as well. So the lack of coordination, the lack of the ability to evaluate the quality of care that you might receive, is what’s missing in the healthcare-delivery system today.”

Dr. Ganz says changes across the board are needed and that all stakeholders in the cancer-care community — from patients and researchers to care providers, payers and federal agencies — must work together to reevaluate their current roles and responsibilities in order to improve care and quality of life and outcomes.

In particular, the committee’s report recommends working toward a system in which patients are engaged and informed, care is accessible and affordable, and the cancer-care workforce is adequately staffed, trained and coordinated and provides evidence-based care. In addition, a firm focus must be placed on pursuing quality measurement and performance improvement, improving healthcare information technology and translating research into clinical practice.

To download a copy of the full report and to view a video, click on the link to this article at: magazine.uclahealth.org

Iron May Be at Core of Alzheimer’s Disease

Most researchers believe Alzheimer’s disease is caused by one of two proteins, one called tau, the other beta-amyloid. As we age, most scientists say, these proteins either disrupt signaling between neurons or simply kill them. A new UCLA study suggests a third possible cause: iron accumulation.

George Bartzokis, MD (RES ’87, FEL ’90), professor of psychiatry at the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA, and his colleagues looked at two areas of the brain in patients with Alzheimer’s. They compared the hippocampus, which is known to be damaged early in the disease, and the thalamus, an area that is generally not affected until the late stages. Using sophisticated brain-imaging techniques, they found that iron is increased in the hippocampus and is associated with tissue damage in that area. But increased iron was not found in the thalamus.

While most Alzheimer’s researchers focus on the buildup of tau or beta-amyloid that results in the signature plaques associated with the disease, Dr. Bartzokis has long argued that the breakdown begins much further “upstream.” The destruction of myelin, the fatty tissue that coats nerve fibers in the brain, he says, disrupts communication between neurons and promotes the buildup of the plaques. These amyloid plaques in turn destroy more and more myelin, disrupting brain signaling and leading to cell death and the classic clinical signs of Alzheimer’s. Myelin is produced by cells called oligodendrocytes. These cells, along with myelin, have the highest levels of iron of any cells in the brain, Dr. Bartzokis says, and circumstantial evidence has long supported the possibility that brain-iron levels might be a risk factor for age-related diseases like Alzheimer’s. Although iron is essential for cell function, too much of it can promote oxidative damage, to which the brain is especially vulnerable.

Dr. Bartzokis and his colleagues tested their hypothesis that elevated tissue iron caused the tissue breakdown associated with Alzheimer’s disease by targeting the vulnerable hippocampus, a key area of the brain involved in the formation of memories, and comparing it to the thalamus, which is relatively spared by Alzheimer’s until the very late stages of disease.

The researchers used an MRI technique that can measure the amount of brain iron in ferritin, a protein that stores iron, in 31 patients with Alzheimer’s and 68 healthy control subjects. In the presence of diseases like Alzheimer’s, as the structure of cells breaks down, the amount of water increases in the brain, which can mask the detection of iron, according to Dr. Bartzokis.

“Nanodiamonds Deliver Chemotherapy Drugs Directly to Brain Tumors”

Researchers at UCLA’s Jonsson Comprehensive Cancer Center have developed an innovative drug-delivery system in which tiny particles called nanodiamonds are used to carry chemotherapy drugs directly into brain tumors. The new method was found to result in greater cancer-killing efficiency and fewer harmful side effects than existing treatments.

The research was a collaboration between Dean Ho, PhD, of the UCLA School of Dentistry, and colleagues from the Lurie Children’s Hospital of Chicago and Northwestern University’s Feinberg School of Medicine. Glioblastoma is the most common and lethal type of brain tumor, with median survival time less than one-and-a-half years. The tumors are notoriously difficult to treat; chemotherapy drugs injected alone often are unable to penetrate the system of protective blood vessels that surround the brain, known as the blood-brain barrier, and those drugs that do cross the barrier do not stay concentrated in the tumor tissue long enough to be effective.

Illustration: Courtesy of Dr. Dean Ho

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Illustration: Courtesy of Dr. Dean Ho
Doxorubicin, a common chemotherapy agent, has served as a model drug for the treatment of brain tumors when injected directly into the tumor. Dr. Ho’s team originally developed a strategy for strongly attaching doxorubicin molecules to nanodiamond surfaces, creating a combined substance called ND-DOX.

Nanodiamonds are multi-faceted carbon-based particles roughly four-to-five nanometers in diameter that can carry a broad range of drug compounds. And while tumor-cell proteins are able to eject most anticancer drugs that are injected into the cell before those drugs have time to work, they can’t get rid of the nanodiamonds. Thus, drug-nanodiamond combinations remain in the cells much longer without affecting the tissue surrounding the tumor.

The researchers found that ND-DOX levels in glioblastoma tumors were retained far longer than doxorubicin alone. In addition, ND-DOX was also found to increase apoptosis — programmed cancer-cell death — and to decrease cell viability in brain-cancer cell lines. The results also demonstrated for the first time that the ND-DOX delivery limited the amount of doxorubicin that was distributed outside the tumor. This reduced toxic side effects and kept more of the drug in the tumor longer, increasing the drug’s tumor-killing efficiency without affecting the surrounding tissue. Survival time increased significantly in rats treated with ND-DOX, compared with those given only unmodified doxorubicin.

“Nanomaterials are promising vehicles for treating different types of cancer,” Dr. Ho says. “We’re looking for the drugs and situations where nanotechnology actually helps chemotherapy function better, making it easier on the patient and harder on the cancer.”

Substituting Lower-cost Drugs Could Mean Big Savings

Medications are expensive, and even with insurance coverage, patients’ out-of-pocket costs can be hefty. This holds true, as well, for individuals with Medicare Part D, the prescription benefit that subsidizes the cost of medications for about 28-million Medicare beneficiaries. About one-fifth of Part D beneficiaries have out-of-pocket costs that top $100 a month, and some 10 percent are forced to use less medication than prescribed due to financial hardship.

Given that both the government and Medicare beneficiaries must deal with the high cost of medication, there is a need for strategies to reduce those costs. A UCLA-led study points to a simple solution that could result in hundreds of dollars in savings per patient: Instead of brand-name drugs, substitute less-expensive counterparts that have a similar therapeutic effect — a practice known as therapeutic interchange or therapeutic substitution. While about 90 percent of hospitals do it all the time, it is not common practice in outpatient settings in the United States.

“The increase in prescription-drug costs is not sustainable over time, and we need to consider alternative approaches that are more cost-conscious,” says O. Kenrik Duru, MD (FEL ’03), associate professor of internal medicine. “Many patients are not aware that there is often a less-expensive alternative to many popular medications that may work slightly differently but have a very similar therapeutic effect.”

Using 2007 data to identify 50 common medications prescribed in a large Medicare Part D health plan, the researchers compared the cost of the original medications to substitutes and calculated the potential savings. This review included savings for the patient, the health plan and, in some cases, for the government when it was subsidizing the cost. They found that 39 percent of Medicare patients receiving a low-income subsidy and 51 percent of patients not receiving a subsidy were eligible for a generic or therapeutic substitution. For each generic substitution among subsidized patients, the government would save an average of $156 per year. Therapeutic substitutions among subsidized patients would result in greater savings: The government would, on average, save $126 per year, and the health plan would save $305 per year. Patients not receiving a low-income subsidy would save $138 per year for each generic substitution and an average of $113 per year for each therapeutic substitution, and the health plan would save $276 per year.

The researchers note that not every substitution is appropriate for every patient, and they acknowledged that in some clinical scenarios, potential substitutions have already been tried unsuccessfully or may not be appropriate at all.
Researchers Assess Cost of ‘Futile’ Critical-care Treatments

In one of the first-of-its-kind studies, researchers from UCLA and the RAND Corp. found that a significant percentage of intensive-care patients receive therapies that physicians perceive as “futile”: interventions that sustain life without achieving an outcome that a patient can meaningfully appreciate.

Advances in medicine have enabled critical-care specialists to save lives under extraordinary circumstances. Still, researchers say, admission to the ICU should be considered a “therapeutic trial,” and when aggressive critical care fails to achieve an acceptable state of health for the patient, the patient should be transitioned to palliative care.

While previous studies of ICU physicians in the U.S., Canada and Europe have shown that such futile care occurs, the UCLA-RAND team wanted to better quantify the frequency and expense of physician-perceived futile treatment in adult critical care. “Recognizing and quantifying the prevalence and cost of futile treatment are the first steps toward refocusing medical treatments to those that are more likely to benefit patients,” says pulmonologist and critical-care specialist Thanh Huynh, MD ’05 (RES ’08, FEL ’11).

“Futile treatment occurs in hospitals across the country. We have fantastic technology available in ICUs that saves lives, but we also need to address how to use it appropriately when the patient may not benefit from such high-intensity measures,” says Neil Wenger, MD ’84 (RES ’87, ’90, FEL ’89), director of the UCLA Healthcare Ethics Center and a consulting researcher with RAND.

The researchers analyzed 6,897 daily assessments of 1,125 patients over a three-month period. The team found that 904 patients (80 percent) did not receive futile treatment, 98 patients (9 percent) received probably futile treatment and 123 patients (11 percent) received futile treatment. The most common reason treatment was deemed futile was because the burdens of aggressive therapy grossly outweighed its potential benefit. Other reasons included: the treatment could never achieve the patient’s goals, death was imminent, the patient would never be able to survive outside of an ICU and the patient was permanently unconscious. For most patients, there was more than one reason his or her treatment was considered futile, the researchers said.

Of the 123 patients who received futile treatment, 85 percent died within six months, most of them during their hospitalization; the surviving patients were left in severely compromised health states and were often dependent on life-sustaining modalities. The average cost for a day of futile treatment in the ICU was about $4,000, the researchers found. For the 123 patients perceived as receiving futile ICU care, total costs during the three months of the study amounted to $2.6 million.

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“The Frequency and Cost of Treatment Perceived to Be Futile in Critical Care,” JAMA Internal Medicine, September 9, 2013

Music Cuts through the Fog of Alzheimer’s

Listening to music that evokes happy memories can change the tenor of lives debilitated by dementia. And with no new medical treatments since the approval of memantine in 2004, helping some of the 5-million Americans with Alzheimer’s disease feel better with music therapy sounds good to Joshua Grill, PhD, director of UCLA’s Katherine & Benjamin Kagan Alzheimer’s Disease Treatment Development Program.

While no studies have been published, “anecdotal reports of what happens with patients who get [iPod and MP3] music therapy are pretty staggering,” Dr. Grill says. Nursing homes report that patients receiving music therapy are happier and more sociable. “Patients who haven’t slept through the night in a long time may now sleep through the night,” he notes.

While Alzheimer’s patients “may not be able to remember a list of words you gave them five or 10 minutes ago, they often can give you spectacular details of memories from their youth or young adulthood,” Dr. Grill notes. “Music may tap into old memories — positive experiences from your youth associated with particular music — even better than just trying to remember things.”

Research on stroke patients with damage to parts of the brain that control the production of language has found, oddly enough, that although they can’t speak, they can sing. “There’s an innate quality in music that activates the brain differently for Alzheimer’s patients — who are dealing with the significant challenge of a biological disease attacking the brain — and may enable the activation of networks that haven’t been activated in a long time,” Dr. Grill says.
A team of researchers that includes scientists from UCLA has uncovered evidence that a specific genetic alteration appears to contribute to disorders of brain development, including schizophrenia. They also found that schizophrenia shares a common biological pathway with Fragile X mental-retardation syndrome, a disorder associated with both intellectual impairment and autism.

A disruption of the gene known as TOP3β was associated with an increased risk of schizophrenia as well as impairment in intellectual function, the researchers said, and TOP3β’s interaction with a protein called FMRP was found to be responsible for Fragile X syndrome. The findings suggest a previously unsuspected link between the two disorders.

Although the past two decades have revealed a wealth of information about the genetics of disease, little is known about the biology behind schizophrenia, says Nelson Freimer, MD, professor of psychiatry and biobehavioral sciences and a senior author of the research. “This collaborative effort has uncovered a promising biological pathway that appears to underlie schizophrenia and may contribute to the cognitive impairment that is an important component of the disorder,” he says.

For the study, the researchers drew from a database that facilitates research on the genetically unique population of northeast Finland, where people have lived in relative isolation for several centuries. This population has three times the frequency of schizophrenia as the rest of Finland and a higher rate of intellectual impairment. The team used the database to sift through genomic data for genetic deletions or mutations that are relatively common in this region but are rare elsewhere in the world.

They discovered a rare genetic deletion affecting TOP3β that increases a person’s susceptibility to schizophrenia. They also found that this deletion was associated with an increased frequency of other disorders of brain development, including intellectual impairment. Having identified a link between TOP3β and schizophrenia, the researchers sought to understand why disrupting this gene might increase susceptibility to disease. For this research, they investigated the function of the protein that TOP3β encodes. They found that the protein encoded by TOP3β interacts with another protein known as FMRP. The deactivation or disruption of FMRP is responsible for Fragile X syndrome, which is associated with autism and learning difficulties, primarily in men.

Within the northern Finnish population, the team identified four people who did not have a functioning copy of the TOP3β gene. All four were diagnosed as having cognitive impairments and/or schizophrenia, solidifying the evidence that this gene is important in these brain disorders and that they are biologically linked. “Although schizophrenia and Fragile X may seem drastically different, cognitive impairment is frequently associated with both conditions,” says Dr. Freimer, who directs the UCLA Center for Neurobehavioral Genetics in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA. “So it is not unexpected that they could share some of the same biological processes.”

“Deletion of TOP3β, a component of FMRP-containing mRNPs, contributes to neurodevelopmental disorders,” Nature Neuroscience, August 2013
Once again, UCLA Medical Center is the top-ranked hospital in the West and No. 5 in the nation in U.S. News & World Report’s 2013-14 “Best Hospitals” study. And while we’re honored by that recognition, our extraordinary team of doctors, nurses, staff and volunteers understands that our true focus remains, as always, on our patients. From the routine to the most complex, bringing you world-class medical care is our greatest honor. To find a UCLA doctor near you, call us at 1-800-UCLA-MD1 or visit uclahealth.org.
More than 76-million Americans were born in the post-World War II boom, from 1946 to 1964. These Baby Boomers are now between 50 and 68 years of age — with an estimated 8,000 turning 65 each day. Geriatric physicians and gerontologists are hoping this so-called silver tsunami will help effect change in the way that medicine is studied, practiced and delivered to an aging national population, so that more Americans can live longer and healthier lives. Three UCLA geriatrics and gerontology faculty members — Cathy A. Alessi, MD, Rita B. Effros, PhD, and Janet C. Frank, DrPH — are among those at the forefront of this effort as the recently elected presidents of the leading national organizations promoting geriatric medicine, gerontological research and education. That three UCLA faculty members are now at the head of these organizations — the American Geriatrics Society, the Gerontology Association of America and the Association of Gerontology in Higher Education — is a testament that “UCLA celebrates leadership by encouraging it, supporting it and promoting it,” says Dr. Frank. They spoke with U Magazine contributing writer Marina Dundjerski about the challenges of a changing national landscape facing aging Americans.

What is the most critical issue facing geriatrics on the national level?

Dr. Cathy A. Alessi: The most significant issue facing geriatric medicine right now is that we have an inadequate supply of clinicians who are trained to meet the demands of the aging Baby Boomers. We don’t train nearly enough geriatricians to care for this growing aging population.

Dr. Janet C. Frank: We definitely have the workforce gap, and it is in all areas of healthcare as far as the numbers of people who are entering the field. For example, only 5 percent of all social workers have taken classes in aging. And if you look at the programs that are out in the community operating under the Older Americans Act funding, delivering services through senior centers and such, 60 percent don’t have even one staff member who has taken a single course on an aging topic. When the Older Americans Act began during the Great Society era of 1965, there weren’t programs on gerontology. The first program started in the early 1970s. So people who began early on learned on the job and through in-service training. But today, we have excellent academic programs. This issue is very important for the Association of Gerontology in Higher Education; as these older practitioners are retiring, we want to make sure that we can replace them with people who have appropriate training and backgrounds through these education programs.

Dr. Rita B. Effros: Medical students still, to this day, don’t have much education on aging. They may have some clinical exposure, but in terms of didactic training, there’s really not much. And even among geriatricians, only a minority are interested in doing basic research on aging.
Dr. Frank: While they may touch on geriatric medicine in Doctoring 101, most medical schools do not have a separate required course. And from a clinical standpoint, students can be graduated as doctors having had just one month of geriatrics rotation. That’s why at UCLA we have such vigorous board review and continuing medical education programs. Once they leave school, these new physicians realize that they don’t have the skills they need to provide the kind of care that is required for older people. Dr. Alessi directs the premier geriatric-medicine board-review course here at UCLA, and we routinely have 300-to-400 people who attend from all across the country and around the world. That opportunity is an important part of what UCLA does in its educational geriatrics mission.

What are additional ways to address the need for more geriatrics training?

Dr. Alessi: One way to address this important issue of there not being enough clinicians who are training in geriatrics would be to incorporate principles of aging and geriatric care into the training for individuals who are entering other fields: surgeons, psychiatrists, social workers. So UCLA and our respective national organizations play an important role in making sure that gerontology and aging principles and concepts of geriatric medicine are incorporated into a variety of healthcare professions.

Dr. Effros: Another avenue is through undergraduate education. I teach an interdisciplinary freshman cluster course at UCLA called The Longevity Revolution: Biomedical, Psychosocial and Policy Perspectives. I’m very much involved in trying to get young people interested in the field of aging because the Baby Boomers make it a genuine growth industry. The professional opportunities aren’t simply restricted to biology or medicine. For example, there’s elder law, architectural design of senior-living facilities, geriatric social work and management of senior rehab centers, just to cite a few areas. Our teaching team continually emphasizes that there are multiple areas of gerontology that can fit almost any major that you think about.

Dr. Frank: The community-college link also is really important. We’ve led some programs here that helped community colleges to develop training programs and establish gerontology departments. A lot of students get their start at community colleges. For example, most nurses are trained at community colleges, and they have exactly the same licensing requirements as those trained at four-year colleges. So we have to address all levels on the education spectrum. And that’s been a positive thing here at UCLA — being able to use our expertise and bring it to other college systems like the community-college system and the Cal State system.

Given all this outreach, why aren’t more medical students going into the field?

Dr. Alessi: Pay. That is the reality. Geriatric medicine is, I believe, the only field in medicine where one can finish an additional year of training (in geriatrics) at the end of which you make less money than if you hadn’t done that additional year.
Reimbursement for geriatric care hasn’t increased appropriately. Many medical students graduate with significant debt, and when they are making their decisions about residency training, they want to have a reasonable expectation that they’ll be able to pay off their debt and still have a comfortable lifestyle.

**But if society is aware of this large aging population, why is the field not changing along with the demographics?**

**Dr. Alessi:** That is the big question. I think such a shift will require that the public not only understands what is happening, but also demands that there be individuals — not just physicians, but within other areas of the healthcare professions — with geriatric expertise to help them. Real change will require that the public demands it.

**Dr. Effros:** There’s also an issue of ageism. We all have innate prejudices, and we are surrounded by negative stereotypes of the elderly in the media. Many people think of old people as being crippled in nursing homes. A lot of physicians, who don’t know that much about aging, assume every complaint from an older person is simply because they are getting older. We need to educate physicians, including internists who are not specializing in geriatrics, about what is really just age related and what’s a disease, what’s correctable and what’s preventable.

**Dr. Frank:** We also haven’t had opportunities to bring in people and entice them with financial incentives. There’s not much training support for the field. Out of 80 students with master’s degrees in social welfare, for example, 75 of them will select child welfare because that’s where there are training grants. In public health, no required courses around gerontology and aging exist. There are forces that could be put in play to incentivize going into the field.

**Dr. Alessi:** This problem is fixable. But we are at a critical point. A strong evidence base exists, and we know a lot about how to help older people age well, have a good quality of life and maximize their independence. But we need to do more to make sure the information gets out there.

**What is currently the most significant challenge facing gerontological research?**

**Dr. Effros:** It is getting to be more and more difficult to obtain research funding. In addition, for a long time, aging research wasn’t considered ‘sexy’. Then the Gerontological Society of America, along with several other organizations, pushed for the creation of a dedicated institute within the National Institutes of Health (NIH), and in 1974 the National Institute on Aging was established. There are some sources of private funding for aging research, but most researchers studying aging rely on funding from the NIH, and research funding, for all fields, is becoming

“A lot of physicians, who don’t know that much about aging, assume every complaint from an older person is simply because they are getting older.”
increasingly difficult to obtain. One of my leadership roles within the Gerontological Society of America is to help disseminate information about new advances in aging to the general public and to funding agencies.

How will the Affordable Care Act affect the field?

**Dr. Frank:** I’m very excited about the Affordable Care Act, and I wish it wasn’t synonymous in most people’s minds with the health-insurance issue. There are tremendous opportunities for better preventive care, better geriatric care and better care for the disabled. And it includes training dollars and many other types of funding. Implementing a piece of legislation is always more complex than it looks to be on paper. But the Affordable Care Act has many fabulous opportunities for turning our system around to be a well-care system, as opposed to an illness-care system.

What are the issues facing healthcare providers as a growing number of retired Americans go on Medicare, which has been decreasing reimbursements over the years?

**Dr. Frank:** There are a lot of physicians who don’t take Medicare patients for exactly that reason. But there is hope that it may not be such a big hit because the focus has started to shift to quality of care. For example, the Centers for Medicaid and Medicare Services (CMS) has said that if a patient who has been treated and released from the hospital comes back within 30 days with the same problem, that the hospital and physicians won’t be paid a second time because it is assumed they already were paid to fix the problem. So those types of changes in the reimbursement policy will require people to have better skills, and all of this is going to play into the need for having a better-prepared workforce.

**Dr. Alessi:** At the American Geriatrics Society, two important key issues have emerged with regard to Medicare and Medicaid reimbursements. The first has to do with the transition of care: making sure that clinicians are adequately reimbursed and can focus their energies on caring for older people when they move between institutions. For example, when a patient comes out of the hospital and goes into a nursing home, that transition needs to be managed properly. If poor communication exists between the two locations, mistakes can occur in follow-up care such as medication management.

**Dr. Frank:** There’s a lot of policy pressure. CMS has involved some pretty smart people in helping them think through how to do things better, and a lot of these opportunities are in place because of the Affordable Care Act. They have vehicles for people to get paid better for this kind of care.

Why should Americans pay increased attention now to issues on aging?

**Dr. Effros:** In 30 or 40 years, the whole country is going to look like Florida. That’s not necessarily a bad thing; it is just a reality. We’ll be ready for this transition. But we need many changes in the medical culture and in the attitudes toward aging. Everything about society is going to be changed as people live longer and you look at the population distribution of our country. It’s going to be more older people than younger people.

**Dr. Alessi:** We all will be facing a long period of our lives during which we will be older, so it’s in all of our interests that we do this right and we do this well.

“We all will be facing a long period of our lives during which we will be older, so it’s in all of our interests that we do this right and we do this well.”
A PROMISE

By Dan Gordon • Photography by Ann Johansson
When scientists published the genetic blueprint of a human being 10 years ago, it heralded the launch of a new era of personalized medicine. Today, through the revolutionary technology of massively parallel DNA sequencing, that brave new world has been realized.
The Gevorkyan family’s nightmarish six-year odyssey began with a shiver.

Vianna Gevorkyan was 6 months old in the spring of 2007, when her mother noticed the recurring ever-slight shaking that turned out to be infantile spasms. Soon, the seizures became more intense, and no medication could control them. Eventually, Audrey Gevorkyan and her husband, Hakop, were told their daughter had intractable epilepsy.

The initial diagnosis was followed by a seemingly endless series of tests to determine the underlying cause of Vianna’s disorder. There was a slew of MRIs and CT scans, all negative. There were spinal taps and muscle biopsies. Genetic testing available at the time provided no clarity. Every new doctor the Gevorkyans saw had a new suspicion, and a new procedure. The years brought cross-country travel, misdiagnoses and substantial costs. Vianna was left with scars from the multiple muscle biopsies, and still there were no answers.

“She was having developmental delays because she was seizing so much,” Audrey Gevorkyan says. “Vianna couldn’t walk, sit, reach or use her eyes. And yet, none of the tests found anything wrong.”

In March 2013, three months after she turned 6 years old, Vianna and her parents came to UCLA for a new kind of diagnostic test that they hoped would finally unravel the mystery. Whereas previous genetic tests were limited to a single gene, this one sampled 20,000 genes, covering the entire protein-coding region known as the exome. It is within the exome that most of the disease-causing mutations in the human genome can be found. “We were told not to have high expectations, because we had already done a million dollars of genetic testing, and everything was coming back negative,” recalls Audrey Gevorkyan. “But this was different.”

The test’s results made it clear why the conventional method of zeroing in on a suspected cause was never going to succeed. Vianna’s epilepsy was the result of a mutation in the SCN2A gene, previously reported in only one other child. Now, as new therapies become available, the Gevorkyans and their doctors will know which ones are likely to help their child. As more children with the same mutation are identified through the whole-exome test, their symptoms and responses to interventions can be correlated with those of Vianna. And perhaps best of all for the Gevorkyans, the uncertainty and endless testing are behind them.

BARELY MORE THAN A DECADE AGO, one of the most-ambitious scientific projects ever undertaken culminated with the publication in 2003 of the “reference human genome” — the genetic blueprint of a human being. Over a period of 13 years, and at a cost of $3 billion, an international consortium of scientists sequenced all of the genome’s 3.3-billion base pairs. Armed with the prototype code, researchers had a foundation to identify genetic variants associated with human diseases. Subsequent advances in technology set the stage for another milestone in 2007: publication of the first individual genome sequence. Still, the time and money spent on the endeavor — six months, $4 million — confined it to research settings.

But around that time, fundamentally new DNA-sequencing technology was introduced, and suddenly scientists could run the tests at a wildly accelerated clip. Because the first-generation technique — known as the Sanger method after its inventor, Nobel Prize-winner Frederick Sanger — was painstaking and plodding, researchers would typically sequence just 100-to-200 nucleotides, or a small fragment of a single gene. With so-called next-generation (also called massively parallel) DNA-sequencing technology, they could sequence 6-billion nucleotides in one run — the entire genome. And as with all new technologies, the cost started high but dropped precipitously, to the point where, for a patient like Vianna Gevorkyan, the entire protein-coding portion of the gene, and that of both parents, could be sequenced in a few weeks at a cost of about $4,500.

In 2011, the UCLA Clinical Genomics Center was established ... to put DNA sequencing to clinical use. For patients suspected of having a rare genetic disease that has eluded diagnosis through conventional means, a single test surveys the protein-coding regions of the genome, where the vast majority of disease-causing variants are believed to lie.
“To be looking at all genes and all diseases at once is a quantum leap that I never expected to see,” adds Wayne Grody, MD (RES ’87, FEL ’86), PhD, director of the UCLA Clinical Genomics Center. “I thought it would be 50 years before we could do this at any reasonable cost, but the next-generation sequencing has come around so fast, and the price has dropped so rapidly, that it’s now practical.”

MORE THAN 3,000 MENDELIAN DISORDERS, diseases caused by a mutation in a single gene, have been cataloged. Some are well-recognized and understood: sickle-cell anemia, Huntington’s disease, cystic fibrosis. But many are extremely rare, to the point of occurring in one family, and “certainly, there are thousands left to be discovered,” says Dr. Grody. When a child presents with severe developmental or other issues that defy diagnosis, at some point a specialist will suspect it is one of these rare syndromes. But determining which one and identifying the genetic cause can be a daunting challenge.

It’s commonly referred to as the diagnostic odyssey — the long, emotionally and physically trying journey that pediatric patients and their parents go through in search of an answer for symptoms that persist. Like the Gevorkyans, many families travel extensively for consultations with top experts, enduring a battery of tests and unsuccessful therapies as they run up substantial costs. “The amount of testing can be staggeringly large,” says Stanley F. Nelson, MD, co-director of the UCLA Clinical Genomics Center. “Patients go from specialist to specialist, with each throwing...
a new idea into the mix — more imaging, maybe a biopsy, sequencing this or that gene, doing a biochemical assessment.”

Families ride a rollercoaster of emotions, as hopes are raised and then dashed with each new test. “The uncertainty is really difficult,” says Eric Vilain, MD (RES ’98, FEL ’99), PhD, chief of pediatric genetics and co-director of the UCLA Genomics Center. “You don’t understand what’s happening with your child, what additional symptoms to look for, or what the future holds — is it going to be a deadly disease, is it going to progress, is it going to get better? With each new specialist, you think you are finally going to get an answer, only to be disappointed.”

In such cases, physicians have had to make an educated guess at the genetic disorder, then request testing of a single gene or small group of genes suspected of being associated with the disease, with limited success rates. In many cases, this is due to conditions never previously described in the medical literature. The UCLA center breaks that barrier by sequencing about 95 percent of the 20,000 protein-coding genes with a single test. Known as clinical exome sequencing, the test looks for the disease-causing variant within the exome.

Applying state-of-the-art next-generation sequencing technology, the UCLA team generates more than 10-billion bases of raw sequence data per patient (ideally, also the patient’s mother and father), so that, on average, every protein-coding DNA base is sampled more than 100 times. Using the center’s informatics pipeline, variants from the reference human genome are identified. A typical individual’s exome contains more than 20,000 of them, almost all of which are benign. To identify the potential disease-causing variants, the Clinical Genomics Center team applies a series of filters to these data, based on the patient’s family history and other relevant components of his or her condition. A search is then conducted for all genes reported in the medical literature and mutations known to cause any of the patient’s characteristics. The results are presented to UCLA’s Genomics Data Board — a multidisciplinary group of experts consisting of pathologists, molecular geneticists, molecular cytogeneticists, clinical geneticists, genetic counselors and informatics specialists — for analysis.

The yield — percentage of times the center can identify the mutation and make a definitive diagnosis — ranges from one-third to one-half, despite these patients being the most complex referred to UCLA after they have stumped multiple specialists. Often, the diagnosis comes years earlier than it would have been made otherwise, saving untold financial and emotional stress while potentially paving the way to more-appropriate care. (If a causal mutation can’t be conclusively identified, the sequencing data are stored for future reanalysis as new findings are published.)

“Exome sequencing has changed the face of clinical genetics,” says Dr. Vilain. “When I started 20 years ago, if we could diagnose 5 percent of our patients, we were happy. Now, we’re closing in on 50 percent with the most-difficult cases. Our turnaround time is much faster. And we can give families a much-clearer picture of what’s going on.”

UNFORTUNATELY, DIAGNOSIS OFTEN CARRIES WITH IT BLEAK NEWS. “Sometimes, we are giving people answers that are crystal clear and devastating,” says Dr. Nelson. “The information may predict an extremely harsh course for the child. But for such cases, most parents would rather know than have to watch this unravel in front of them.”

“It provides a degree of closure,” says Julian Martinez-Agosto, MD (RES ’03, FEL ’05), PhD, a pediatric geneticist who conducts research on rare diseases and sees patients at the medical-genetics clinic. “The family can move forward, know what to expect and make plans.” Dr. Martinez-Agosto notes that the center’s involvement with the family doesn’t end with the diagnosis. “We participate with our colleagues who are specialists in other areas of medicine, coordinating multidisciplinary care that will address the complications associated with the genetic changes,” he says.

Beyond any catharsis, there are several important practical benefits to the diagnosis. For one, it can alert physicians to the possible presence of other conditions known to accompany the underlying mutation, some of which may be treatable. As targeted therapies emerge, the medical team can be on the lookout for those that address the patient’s disease. For some genetic diseases, there are existing treatments, and understanding how people with the same condition fared can
provide guidance to the best approach or point them toward the ideal clinical trial. An example is muscular dystrophy, one of Dr. Nelson’s areas of expertise, for which a variety of molecular mechanisms have been described.

An early and accurate diagnosis can also provide critical information for family planning — informing couples about the risk of the same mutation appearing in any of their future children and enabling them to choose prenatal testing to avoid a recurrence. For years, the Gevorkyans delayed a decision on having more children out of a concern that the genetic cause responsible for Vianna’s condition would be repeated. Now they no longer need to wait: They know the risk is small and that they can test for the mutation before going forward with a pregnancy.

**IT’S NO ACCIDENT THAT UCLA IS AT THE VANGUARD of bringing DNA sequencing to clinical fruition.** “It takes a combination of skills to make this work, to be able to sift through this mountain of information and find the gold amid tons of rubble and rock,” says Dr. Lange. Few academic centers can boast both the breadth of expertise and the collaborative environment that exists on the UCLA campus. The Department of Human Genetics houses leaders in both clinical and laboratory genetics who have worked closely to apply the next-generation sequencing technology in new ways. The ambitious endeavor calls on the resources and expertise of the Department of Pathology and Laboratory Medicine, under which all clinical testing occurs at UCLA, as well as from fields ranging from pediatrics to bioinformatics.

That expertise — medical geneticists, molecular pathologists, genetic counselors and experts in next-generation sequencing and bioinformatics — is gathered in one room for weekly meetings of the Genomics Data Board, where the group reviews and interprets the individual genome sequences that emerge from the bioinformatics pipeline. The diversity of strengths is embodied in the leadership of the board and the center. Dr. Nelson and his lab have pioneered both sequencing capabilities and the bioinformatics needed to sort through the results. Dr. Grody is at the forefront of finding the clinical relevance in the complicated information coming out of the laboratory. And Dr. Vilain, as a medical geneticist who sees patients, brings the clinical expertise and the ability to straddle the laboratory and patient-care realms.

The remarkable nature of the technology and its implications are reflected in the wonderment with which Dr. Nelson — no stranger to dramatic

“Every week we review a series of cases of kids with very-difficult-to-diagnose genetic diseases, and in many of these cases, we uncover the exact mutation underlying an incredibly rare variant.”
advances in genetics and genomics over the course of his career — views the meetings of the Genomics Data Board. “Every week we review a series of cases of kids with very-difficult-to-diagnose genetic diseases, and in many of these cases, we uncover the exact mutation underlying an incredibly rare variant,” he says. “Each of these kids teaches us something profoundly important about how humans develop. That’s a contribution we ought to take seriously and use for the next generations.”

Dr. Nelson explains that the molecular diagnosis will often affect the description of the rare disease, given that the patient may share only some components of the trait that was diagnosed or might have different symptoms from those previously associated with it. And in about 7 percent of the cases, the group diagnoses a gene mutation never previously associated with a human genetic disease. “Then we can do the laboratory work to confirm that, when mutated, the gene indeed causes the disorder,” Dr. Nelson says. “It’s a spectacular source of gene variants that can contribute to major differences in human development.”

The ability of UCLA’s exome-sequencing test to pick out a single base-pair change from the 3-billion base pairs in the genome has also forced the board to wrestle with a difficult ethical question: when and how to report incidental findings, those that have nothing to do with the diagnosis but could weigh on the future health of the patient, or that of his or her family members. In some cases, these are “actionable” — knowing of the mutation could spur treatment — but often the knowledge doesn’t change anything from a medical standpoint, other than alerting the patient to the potential for peril. Dr. Grody, who was president of the American College of Medical Genetics when the new technology took off, calls it “the toughest medical ethics issue I’ve dealt with in my career, and I’ve dealt with a lot of them.”

As an example, he offers the hypothetical case of a 3-year-old girl with hearing loss. In searching for a mutation in one of the deafness genes, the UCLA team finds a mutation in a familial cancer gene, such as BRCA-1 or -2. “That’s a test we would never normally do on a child, because it’s an adult-onset disease with no childhood intervention, yet now we’re stuck having seen this result,” Dr. Grody says. “You can argue that the family came in only for the hearing-loss issue — don’t burden them with this risk of breast cancer that’s not going to occur for 40 years, if ever. Others say, what if the child got the mutation from her mother, and her mother is at risk right now; don’t you have a duty to warn?”

The issue continues to be the subject of active debate. “This is a recurrent question that all of the patients ask me — ‘Are you going to tell me other things?’ — and our thinking is changing on this issue, as families have pushed for us to let them decide for themselves,” says Dr. Vilain. The American College of Medical Genetics has published a list of mutations associated with specific diseases — in most cases, familial cancers — that, because they are actionable, should be reported when found.

The Clinical Genomics Center provides extensive pre- and post-test genetic counseling, advising families of both the power and limitations of clinical exome sequencing — and of the possibility that while the process may yield answers, the news may not be hopeful.
“A lot of families are information-seekers and want this state-of-the-art test and to know the diagnosis no matter what,” says genetic counselor Michelle Fox, MS, LCGC. “Others decide they aren’t ready for it right now, preferring to come back only later when, for example, there is considerable developmental delay. The important thing is not to miss anything that can point to an effective treatment.”

Families are also advised about the potential for incidental findings and their implications — both medical and psychological — to ensure that they fully understand and are providing informed consent to receive the information. Some are interested only in the result related to the diagnosis, but others want to know more. For those families, genetic counselors explain that only certain types of incidental findings are reported — specifically, those that can be acted on through treatment or increased surveillance. The list remains in flux, and how to interpret and report incidental findings are questions tackled by the Genomics Data Board on a case-by-case basis.

“This is still a work in progress,” says Naghmeh Dorrani, MS, LCGC, genetic counselor for the UCLA Clinical Genomics Center. “But it is also a very exciting time. We are making diagnoses for some families we have been seeing for 10-to-15 years, and often they are for disorders so rare that we would never think to test patients for them.”

**THE ETHICAL, SCIENTIFIC AND CLINICAL CHALLENGES** — as well as the benefits — will surely grow exponentially in the near future, because such testing is likely to become more routine.

Not long after the reference human genome was sequenced in 2003, a grand challenge was issued within the field to push technology development to the point where an individual’s entire genome could be decoded for less than $1,000. What seemed unthinkable at the time is within sight.

“We’re not there yet, but we keep moving in that direction, and some of the technology that makes it possible has already been described in the literature,” says Dr. Nelson.

“This kind of testing is going to be faster and cheaper, making it more accessible and broadening its applications beyond rare disorders,” adds Dr. Vilain. “Instead of doing the whole exome, we will be doing the whole genome. That will give us even more complicated information to interpret, but as we do the test on a large number of patients, we will learn more about what’s important in genomic regions that we currently know little about.”

By the time the Gevorkyans’ diagnostic odyssey reached UCLA’s Clinical Genomics Center, the FDA had finally approved a drug, rufinamide, that could better control Vianna’s seizures. Her strength and energy level increased. The diagnosis confirmed why the drug was effective. And it enabled the family to move beyond the nightmare of uncertainty.

“Now we can focus on improving Vianna’s health,” says Audrey Gevorkyan. “You get so tired of hearing, ‘There’s another test, let’s try that.’ We can finally look at our child and understand that there’s an answer.”

Dan Gordon is a regular contributor to U Magazine.
What began in 2007 as a limited program to provide reconstructive surgical care to some of the most severely injured combat veterans of Iraq and Afghanistan has evolved into a much deeper relationship with the Pentagon.

BY LYNDON STAMBLER • PAPER SCULPTURE BY SALLY VITSKY
RONALD A. KATZ AND HIS WIFE MADDIE were at home watching CNN one evening in 2006, when they heard Lou Dobbs speaking with a young U.S. Marine, who was maimed nearly two years earlier by a roadside bomb in Iraq. The explosion flipped the 26-ton amphibious-assault vehicle in which Cpl. Aaron Mankin was riding 10 feet into the air, killing four Marines and injuring 11 others. Mankin was on fire. He dove out of the wreckage, rolling in the dirt to try to put out the flames. His nose, ears and lips were burned away and the skin over much of his upper body was seared. His airway and lungs also were badly damaged by the heat and smoke, and he lost the thumb and index finger of his right hand. After Mankin was airlifted back to the states within 48 hours, surgeons at Brooke Army Medical Center in San Antonio, Texas, performed 40 lifesaving operations. But Mankin’s face remained grossly disfigured.

“I have to fix the beautiful part,” Mankin said in a scarred, raspy voice to Dobbs.

The Katzes were riveted as they watched the interview. “We have to do something about this,” said Maddie, who died in 2009, to her husband. Katz, an inventor and founder of a technology-licensing company, was in a position to do just that. As a member of the executive board of Ronald Reagan UCLA Medical Center, he had a pipeline to some of the best reconstructive plastic surgeons in the country.

“It is our responsibility to take care of them,” he said.
Then he took his case to the U.S. military and started speaking with doctors at Brooke to convince them to let UCLA extend its expertise to the treatment of the nation’s wounded warriors. In September 2007, after months of meetings and negotiations, UCLA surgeons performed the first of 29 operations on Mankin to restore his features. Thus began Operation Mend, a unique partnership between UCLA and the military that has strengthened and grown into something much larger than when it began.

That military engagement now is part of a broader campuswide effort, the UCLA Veterans Initiative, launched last year. “We can never repay our veterans for the sacrifices they have made for our country, but we can come together as a community to better understand both the challenges and the great opportunities encountered by the growing population of veterans across the nation,” Chancellor Gene D. Block said when he announced the initiative.

**KATZ LOOKED PLEASED DURING THE FIRST MEETING** of the Ronald A. Katz Center for Military Collaborative Medicine in June 2013 at Ronald Reagan UCLA Medical Center. The gathering brought together UCLA doctors, administrators and a retired U.S. Army four-star general, Peter W. Chiarelli, who is the new center’s executive advisor.

By day’s end, the group had heard research proposals regarding scar reduction, neurobiotic devices, bioengineering and entrepreneurship.

But Katz’s priority this day concerned continuous electroencephalogram (cEEG) monitoring equipment. UCLA neurologist Paul M. Vespa, MD (FEL ’96), director of the Brain Injury Program and Neurocritical Care Unit at Ronald Reagan UCLA Medical Center, has been collaborating with military doctors and commanders to install such equipment within military critical-care units that treat wounded fighting men and women. With so many of America’s combat veterans suffering from traumatic brain injuries (TBIs), the equipment would allow UCLA doctors to continuously monitor brain activity of patients from afar and advise their military counterparts when to administer anti-seizure medicine.

At the meeting, Gen. Chiarelli, who served for nearly four years as vice chief of staff of the U.S. Army, offered to help to get the cEEG installed quickly. “Send me exactly what you need. I’ll contact my medical colleagues in the Army and see what needs to be done,” he said.

Now, UCLA’s expanding relationship with the military, as exemplified by the new center, has brought Dr. Vespa’s dream to fruition. The machinery was installed this fall at Landstuhl Regional Medical Center in Germany, the largest U.S. military medical facility outside of the United States, where severely wounded service members are airlifted for treatment.

Said Katz, “This is a good project to identify with the center.”

The Katz Center is a hub at UCLA to convert the difficult lessons of war into medical advances. Kodi Azari, MD (FEL ’04), co-medical director of Operation Mend and chief of reconstructive transplantation, sees the center as a clearinghouse for military and UCLA investigators conducting research on such issues as composite-tissue transplantation and stem cells to deal with soft tissue and bony injuries, genital reconstruction, the mechanism of brain injury and building resilience within war-weary families. In addition, the center will help spread the word about clinical offerings for combat veterans, enhance the use of telemedicine to maintain contact with patients and providers, help the military with skills like hospital administration and even export the collaboration model to other settings.

**THE WARS IN IRAQ AND AFGHANISTAN** have created unique medical challenges. Improvised explosive devices, like the one that blew up Mankin’s vehicle, have injured and mutilated thousands. Meanwhile, the survival rate has soared, thanks to advances in battlefield lifesaving techniques that include use of tourniquets, anti-coagulants and lightning-quick evacuations.

“The military has made tremendous strides, but the problems are so great we can’t handle them alone,” Gen. Chiarelli says. “Traumatic brain injury and post-traumatic stress (PTS) are the most prolific wounds coming out of these wars. They have overwhelmed the military and the Veterans Administration.”

Add to that a historically high suicide rate among service members, caused, in part, by stress from multiple deployments. “We all agree getting people the help they need lowers the risk of suicide,” Gen. Chiarelli says. “By filling in these gaps, we’ll make a dent in this problem. It’s not just to help the military, but to help society.”

UCLA already has helped to fill some of those gaps. “This is one of the most important public-health issues of our generation,” says Nathanson Family Professor of Psychiatry Patricia Lester, MD (FEL ’00). “Research addressing suicide, PTS and TBI and focused
on prevention of psychological-health problems will have enormous benefits for the military and civilian populations as well.”

Many families are under stress from the long wars, fought by less than 1 percent of the population. Statistics about the consequences of combat tend to vary, depending on which sources are consulted; however, one report, released in May 2013, aggregated data from a variety of government and private sources to perhaps draw a more complete picture. According to the report, Serving Those Who Served: A Wise Giver’s Guide to Assisting Veterans and Military Families, published by The Philanthropy Roundtable, nearly 51,000 soldiers had been wounded in action in Iraq and Afghanistan through early 2013. In addition, more than 420,000 service members and veterans have been diagnosed with PTS or depression, and more than 220,000 experienced a TBI during deployment. “This is something we all should care very much about. As a national community, we all have an obligation to support these men and women and their families,” says Dr. Lester, who also is co-director of the Welcome Back Veterans Family Resilience Center, a network of six medical centers funded by Major League Baseball and the McCormick Foundation to enhance the care of returning service members.

**GEN. CHIARELLI WAS INSTRUMENTAL** in helping to sustain Operation Mend. He had just been appointed vice chief of staff of the Army, in 2008, when another military leader, Gen. James F. Amos, the then-vice commandant of the Marine Corps, and now commandant, walked into his office at the Pentagon. Gen. Amos, who had met with Katz during discussions to initiate the first phase of Operation Mend, told Gen. Chiarelli that there were some obstacles to referring cases to UCLA.

“I dug into it and found out, yes, there was an issue,” Gen. Chiarelli recalls. “As much as our doctors said they were willing to refer patients, it was clear that wasn’t always the case. All doctors are proud, and it is not always easy for military doctors, or their civilian counterparts, to recommend that patients go elsewhere for care.”

It took several months, but Gen. Chiarelli was able to work out a formal understanding between Brooke and UCLA that allowed the program to move forward. “I appealed to the fact that many of them were parents,” Gen. Chiarelli says. “Shouldn’t we give these kids the opportunity to choose where they want to go to get this reconstructive surgery?’ I would ask them. That resonated with them.”

Another extremely critical element that helped to allay the military’s concerns was the Buddy Family Program, created by Katz’s daughter-in-law, Dana Katz. The program continues today to provide a support network for Operation Mend patients. Buddy Family volunteers meet the patients when they arrive at UCLA, help them and their families to settle into the Tiverton House on campus, take them on outings and generally try to make the experience of being in a strange place more comfortable and positive. Strong bonds have been built through the Buddy Family Program.

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**OPERATION MEND**

<table>
<thead>
<tr>
<th>Patients (as of December 2013)</th>
<th>97</th>
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</thead>
<tbody>
<tr>
<td>Army</td>
<td>56</td>
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<tr>
<td>Marines</td>
<td>33</td>
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<tr>
<td>Navy</td>
<td>4</td>
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<tr>
<td>Air Force</td>
<td>3</td>
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<tr>
<td>Army National Guard</td>
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<tr>
<td>Surgeries (as of December 2013)</td>
<td>314</td>
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<tr>
<td>Buddy Families</td>
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</tr>
<tr>
<td>Volunteers</td>
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“The military has made tremendous strides, but the problems are so great we can’t handle them alone. Traumatic brain injury and post-traumatic stress are the most prolific wounds coming out of these wars.”
Similarly, UCLA’s bonds with the military also gradually strengthened. “Everyone learned to play nicely together,” says Melanie Gideon, program manager for Operation Mend. “If you strip away the politics and the bureaucracy, you recognize that these men and women are injured human beings, who have put their lives on the line for this country. We should do whatever we can to help them.”

Plastic surgeon and Operation Mend executive co-medical director Christopher Crisera, MD (RES ’04, FEL ’05), realized how far along things had evolved when, in June, Rear Adm. C. Forrest Faison III, commander of Naval Medical Center San Diego, invited a team of UCLA doctors to identify areas of potential collaboration. “Now they’re looking to work with us,” Dr. Crisera says. “That was an exciting development.”

What began as a program to provide reconstructive plastic surgery now has branched out to include hand surgeries, orthopaedics and TBI assessments. It continues to expand to include other specialties like ophthalmology, head and neck surgery and psychological care to address these complex physical and emotional wounds. Other departments also pitched in; David Hovda, PhD (FEL ’87), professor of neurosurgery, engaged a team to pursue TBI assessments. “There’s been a convergence of teams working together in an interdisciplinary way,” Dr. Lester says.

THE RELATIONSHIP BETWEEN UCLA AND THE MILITARY actually began prior to Operation Mend. In 2004, military officials realized the wars would be longer than they expected. Families were ill-prepared to deal with the stress. The following year, Dr. Lester and a colleague, William Saltzman, PhD, associate director of UCLA’s Nathanson Family Resilience Center, began traveling to Camp Pendleton, near Oceanside, California, weekly to help Marines and their families cope. Then, in 2008, the Navy Bureau of Medicine and Surgery contracted with UCLA to implement Families OverComing Under Stress (FOCUS) at seven Marine and Navy Seal sites. The program now operates at 22 sites, from Okinawa to North Carolina, and includes the Army and Air Force as well as the Navy and Marines.

“We had a lot of challenges,” Dr. Lester recalls, including the need to build trust among military families skeptical of civilian outsiders. To date, the FOCUS project has delivered services to more than 400,000 people. Dr. Lester, whose team has collected data and anecdotes on thousands of interactions with families, spoke of an Okinawa-based family whose daughter’s bedtime ritual was disrupted when her father first deployed. Before his next deployment, he and his wife planned together how to support their daughter’s routines in his absence. “He could leave with a greater sense of confidence that his family was going to be able to cope with the challenges ahead,” Dr. Lester says.

Several years ago, when Operation Mend realized it needed to broaden its psychological-health services, Dr. Lester’s team worked with Operation Mend to create the Operation Mend FOCUS Family Resilience Program. Led by psychologist Jo Sornborger, PsyD, this program involves family centered resilience services to both patients and family members.

New media also is being pressed into service. FOCUS World (focusworld.org), for example, is a virtual world for children and families. Participants get an avatar and arrive at a virtual home via spaceship, where they learn stress-reduction techniques. Operation Mend FOCUS also developed an app, FOCUS on the Go!, to help families build resiliency.

ON ANOTHER FRONT, DR. HOVDA, director of UCLA’s Brain Injury Research Center, has led the way in shaping how the military views brain injuries. In March 2009, Dr. Hovda traveled to Washington, DC, to brief Gen. Chiarelli and Gen. Amos on TBI. He explained to the military leaders why soldiers...
Angeles Healthcare System. The program, in its second year, is hosting 16 third-year students, including two veterans, through rotations in inpatient and ambulatory medicine, psychiatry and neurology. “It’s actually the only site that has preceptors from psychiatry as well as internal medicine,” says Gregory A. Brent, MD (RES ’85), chair of medicine at the VA Greater Los Angeles Healthcare System and a professor of medicine and physiology at UCLA. “That fact reflects the value that we place on integrating those aspects of care for the veteran patients.”

Such training will be as important in peacetime as in war. The problem is even more profound in the general population. Each year, 3.4-million Americans suffer from TBI.

It is a fact that circles back to that first meeting of the Ronald A. Katz Center for Military Collaborative Medicine this past June. Neil A. Martin, MD, chair of neurosurgery at UCLA, cited a study by Professor of Psychiatry and Biobehavioral Sciences Gary Small, MD (FEL ’83), of five NFL players showing that concussions can alter the brain tau protein, indicating when players should be pulled out of action to rest. “We’d like to bring as much of this work (on civilian populations) as possible to the Operation Mend population,” Dr. Martin said.

Katz and Gen. Chiarelli both agreed. The spirit of cooperation, they say, is a sign that America has learned important lessons in the post-Vietnam era. Dr. Azari, for his part, will never forget walking on a street in New York City with Mankin. Passersby stopped the young Marine, who was wearing his Dress Blue uniform, and asked to take his picture. “This is a real American hero,” they said to their children.

For Gen. Chiarelli, who has been a champion of those suffering the “invisible wounds of war,” it is crucial to treat these veterans of Iraq and Afghanistan better than the country did those from the nation’s most-recent past conflict, Vietnam. “These are lifetime problems that they come home with, lifetime issues,” the general says. “And I promise you, whether there are wars going on or not, we’ve got a backlog that’s big enough to keep everyone busy for the foreseeable future.”

Lyndon Stambler is a freelance writer and teaches journalism at Santa Monica College.

For more information about veterans’ services at UCLA, go to: www.veterans.ucla.edu

To learn more about Operation Mend and to read about more of the program’s wounded warriors, go to: operationmend.ucla.edu

**BY THE NUMBERS**

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
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<tr>
<td>Iraq-Afghanistan service members undergoing major amputations (end of 2001–early 2013)</td>
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<td>Severe burns (2003–2013)</td>
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<td>Service members diagnosed with traumatic stress (2002–2012)</td>
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<td>Cumulative suicides by service members, while in the U.S. or deployed (end of 2001–early 2013)</td>
<td>2,744</td>
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Source: Servicemembers’ Guide to Assisting Veterans and Military Families, The Philanthropy Roundtable, based on Department of Defense, congressional, VA and other sources
Marjorie Crear is like many people who are termed heavy users of healthcare. The 66-year-old Los Angeles woman has diabetes and hypertension. She recently suffered a stroke and needed rehabilitative care. She’s had a heart attack, too. Crear lives alone on a fixed income and doesn’t drive. She’s had to dial 911 for an ambulance more times than she can count.

But with the new medical-home program launched at UCLA to assist individuals with serious chronic-health issues and limited resources, Crear’s circumstances are improving. She was assigned to a comprehensive-care coordinator, a trained individual who works alongside Crear’s primary-care doctor. Crear’s care coordinator makes sure she schedules her doctors’ appointments, monitors her blood sugar and knows who and when to call if she’s not feeling well. Her care coordinator is even helping her find housing that’s more suitable for someone with physical limitations.

“She calls to see if I’m taking my medications and if the home-health nurse has come out,” Crear explains, adding that she was stunned when her primary-care doctor told her about the care-coordinators program. “I was so surprised that somebody else was going to help me.”

The care-coordinators program at UCLA is part of a transformation designed to address several of the thorniest issues in contemporary healthcare, such as the over-utilization of emergency-room services and fragmentation between primary-care doctors and specialists that allows patients to fall through the cracks.

A U.S. population that is aging and rife with chronic
conditions means that everyone has to think about new ways to ease the strain on the healthcare system while improving outcomes. The goal is to try harder to keep healthy individuals well — such as by making sure people obtain recommended screening tests and immunizations — as well as stabilizing the health of chronically ill people who tend to lurch from one medical crisis to the next.

Care coordinators may be among the solutions. “The imperative right now in healthcare is that we have to do better,” says Tom Rosenthal, MD, chief medical officer for UCLA hospitals. “We have to deal with people with chronic disease better, and we have to use resources more efficiently. We don’t know how to do that precisely. There isn’t a road map on how to do that. Consequently, we have to be innovative.”

Healthcare is shifting from focusing only on individual patients to a perspective that also considers the well-being of entire populations, Dr. Rosenthal explains. It looks beyond the most pressing situations — patients who need acute care in hospitals — to engage communities. Technological developments, such as electronic medical records, have turned the concept of population-health management into a real possibility.

In primary-care doctors’ offices, that means reaching out to people who aren’t coming in for regular healthcare, says Michael Ong, MD, PhD, associate professor of medicine and an expert on healthcare economics. “In primary care, it’s very easy to focus on the patients just in front of you,” he says. “But there are also the patients who don’t come in whom we should be thinking about. When they’re not in front of us, we’re going to forget about them.”

Forgotten patients may include those who are too frail to go to the doctor on a regular basis, who lack transportation or financial resources or who distrust the healthcare system. “They are patients with one or more chronic diseases who are on multiple medications, in and out of skilled-nursing facilities, in transition to hospice care, have socioeconomic barriers that make it difficult to navigate the healthcare system on their own or patients who have complicated care plans,” says Jordan M. Hall, director of population-health management and comprehensive-care coordination for UCLA.

“She calls to see if I’m taking my medications and if the home-health nurse has come out,” says Marjorie Crear (top) of her care coordinator, Tiffany J. Phan (bottom). “I was so surprised [to learn] that somebody else was going to help me.”

Care coordinators make sure the doctors’ care plans are being implemented and contact patients who have missed an appointment to find out why.
KEEPING THOSE PEOPLE LINKED TO REGULAR HEALTHCARE is the goal of the care-coordinators program. While care coordinators working in UCLA’s hospitals are RNs, those in outpatient settings may be RNs or come from other backgrounds such as social work or veterans who have served as medics. They are trained to work in a doctor’s office to troubleshoot patient-care issues under the supervision of the medical team, Hall explains. Care coordinators make sure the doctors’ care plans are being implemented and contact patients who have missed an appointment to find out why. They arrange patient transportation to the office if needed or work with the patient’s insurer to facilitate coverage of care. They track down records needed for an upcoming visit. They answer patients’ phone calls and either resolve their issues or arrange for the doctor to speak with the patient. Patients receive prompt, efficient help, and doctors and nurses are freed up to focus on medical issues.

“Our goal is to provide patients with better healthcare and a better patient experience when they come to UCLA,” Hall says. “We want to reach out to these populations to make sure they get timely exams, follow-up care and preventive care for healthy people. We want to do it in the appropriate setting.”

A major concern in healthcare in recent years is the high number of people who seek treatment in hospital emergency rooms because they don’t know where else to go or don’t have a relationship with a primary-care doctor. “That is where patients get lost in the system,” Hall says. “They don’t feel well and go to the emergency room. But there is an office that can really improve outcomes in a more timely matter. Our care coordinators and clinical advisors provide patients with resources and are able to help them connect the dots.”

The model aims to create a one-stop experience for patients, too. For example, in the UCLA medical-home model, pharmacists are on site one day each week to help patients with medication issues. Called MyMeds, the program includes helping patients learn if less-costly medications are available and ways to simplify medication schedules to improve adherence.

“We try to bring components to the practice that traditionally haven’t been there before,” Hall says. “What we’re doing is providing all services in one place, the patient’s primary-care office. And we’re trying to understand the patient from head to toe. Sometimes the barrier to care might not be the patient but a family member or someone who doesn’t fully understand the situation.”

In the past, primary-care doctors have referred patients for behavioral-health treatment but couldn’t be assured that the patient received services, says Samuel A. Skootsky, MD (RES ’82, FEL ’83), chief medical officer of the UCLA Faculty Practice Group and Medical Group. “That is a general problem in primary care. Doctors would refer patients, but they wouldn’t even know if the patients got seen,” he says. To address this problem, UCLA has hired behavioral-health specialists to work with the primary-care offices. “Hiring our own internal behavioral-health team is a significant innovation,” he says. Future plans include a program to link primary-care doctors with other types of specialists to ensure that patient care is coordinated.

THE HOSPITAL CARE-COORDINATORS PROGRAM ALSO BRIDGES THE GAPS that sometimes occur between inpatient and outpatient care. Hospitalized patients who may have trouble transitioning to home care, rehabilitation facilities,
hospices or nursing homes can be referred to a care coordinator for assistance. By smoothing the move from the hospital, experts hope to bring down the high rate of patient readmissions — returning to hospital care within 30 days of the previous discharge — a vexing problem for hospitals nationwide. “Anyone can refer a patient to our services,” says Marcia Colone, PhD, system director for care coordination and clinical social work at UCLA. “Anyone can say he thinks a patient will need help at discharge or need help with a payer. We arrange an array of post-discharge services.”

The hospital program offers temporary assistance to homeless patients who have nowhere to go when they leave the hospital and endeavors to keep them connected to healthcare. But even patients with insurance, homes and families can find a hospital stay disorienting or can be confused by their discharge instructions and the next steps they need to take in their recovery.

Hospital care coordinators step in. “Healthcare is complicated,” says Dr. Colone. “Patients come in and are very overwhelmed, and so are their families. We need a system that is responsive to helping patients and families sort out their next steps. We want them to make the best decisions.”

A future care-coordinators project will address readmission prevention for home-care patients. “That’s big because there are more patients going to home care after discharge than going to a facility,” Dr. Colone says.

Preliminary studies show that the hospital care-coordinators program is having a positive impact. Working with care coordinators, patients who are transferred to skilled-nursing facilities have a hospital readmission rate under 5 percent, Dr. Colone says. A pilot study of the program in primary-care offices also showed impressive results. Patients served by care coordinators had a 29-percent decline in emergency-room use and a 19-percent drop in hospital admission.

“We’re trying to do this in such a way as to measure what we’re doing,” Dr. Rosenthal says. “We have to be able to demonstrate that patients actually end up with better care and at lower costs.”

Meanwhile, primary-care doctors and patients are already praising the UCLA medical-home program’s impact. Fifteen care coordinators are assigned to primary-care offices, with plans to expand soon to another 14 locations.

“There is an astonishing unanimous reaction that care coordinators add benefit,” Hall says of the physicians’ response. “And not only with patient care. Another aim of ours is to improve physician and staff satisfaction. For a physician with a busy schedule to know she has additional resources to help connect with patients is a huge bonus.”

Patients, too, feel like someone is watching their backs. “One of the goals of the program is to improve the patients’ experience of care,” Dr. Skootsky says. “One of the reasons people like it is they know if they call the office, they can talk to their care coordinator.”

Over time, patients begin to understand the role of the care coordinators and trust them to handle their questions and problems, says Tiffany J. Phan, the care coordinator who worked with Marjorie Crear. “They see the different ways we can assist them, arranging any type of healthcare or social need. I hear more and more from my patients all the time.”

Crear especially enjoys the ease of access, being able to pick up the phone and get Phan on the line. “I used to have to call the doctor’s office when I had a problem, and I had to wait until the doctor had a chance to call me back,” Crear says. “Now I call Tiffany and tell her what’s going on, and she will coordinate between my doctor and me. My health is improving. There’s someone to help rather than me just being out there by myself.”

Shari Roan covered medicine and healthcare for the Los Angeles Times.
Melody Maker

By Kim Kowsky

Like many surgeons, F. Charles Brunicardi, MD, finds that music in the operating room helps him to concentrate and focus while he works. His preference leans toward the soft rock of James Taylor and Cat Stevens, but if he wanted to, he could throw a little Chuck B. into the mix.

If he did, that would bring his twin passions — medicine and music — full circle. In addition to keeping a busy schedule as chief of general surgery at UCLA Medical Center, Santa Monica, and vice chair of the Department of Surgery at the David Geffen School of Medicine at UCLA, Dr. Brunicardi recently completed an album of his own original folk/country music, Where Sunset Meets the Beach.

“Music and medicine are both creative processes,” says Dr. Brunicardi, who, when he isn’t penning songs, is editor-in-chief of the world’s leading general-surgery text, Schwartz’s Principles of Surgery. “In medicine, especially if you are doing research, you are discovering new knowledge and putting together a story, just like you would when writing a song.”

Music has always been a presence in Dr. Brunicardi’s life. The home in which he grew up in New Jersey had three record players, and his father, an electrician by day, played jazz guitar with a band called The Townsmen. As a child, Dr. Brunicardi sang in the all-county choir and played guitar for an all-state jazz band that performed in Atlantic City. When he was 7 years old, he performed the Jerome Kern-Oscar Hammerstein collaboration “All the Things You Are” for an audience of 1,000.

While Dr. Brunicardi was pre-med at The Johns Hopkins University, he and a friend formed a band called Rodeo Rick that played in frat houses, coffee shops and pubs around Baltimore. As a student at the University of Medicine and Dentistry of New Jersey (what is now Rutgers University New Jersey School of Medicine), Dr. Brunicardi was signed to two record labels, Charisma and RSO. In between his studies and medical rotations, he managed to write and record some 25 songs, and in the summers of 1978 and ’79, he played at England’s Cambridge Folk Festival, on the bill with such performers as Don McLean and Richie Havens.

Like some of his musical heroes, Dr. Brunicardi’s singing voice has a tonal purity that is almost childlike in its clarity. He frequently bursts into unexpected laughter, and his blue eyes light up when he talks about music. “I still think pop music is the greatest art form,” says Dr. Brunicardi, who today owns 11 guitars, including one that belonged to Eric Clapton and another signed by the Rolling Stones. “Pop songs have a magical quality of taking you right back to wherever you were when you first heard them.”

However, an event while he was in his final year of medical school changed the course of his life: His musical hero, John Lennon, was killed. “I realized I was done with entertainment and decided to concentrate on surgery,” he says. “I didn’t stop playing or listening to music, but it became just a passion hobby.”

Dr. Brunicardi first joined UCLA’s surgical faculty in 1989; in 1995, he went to the Baylor College of Medicine in Houston, where he became the DeBakey/
Bard Professor and Chair of the Michael E. DeBakey Department of Surgery. While in Texas, as a dedicated researcher, Dr. Brunicardi discovered a “master switch” for pancreatic cancer, an insulin-regulating transcription factor called PDX1 that, when silenced with RNA interference or knockdown therapy, eliminates pancreatic-cancer cells in mice. He has introduced him to her husband, Mark Dearnley, a musician and sound engineer for the likes of Paul McCartney, AC/DC and Jewel. Dearnley was impressed, and he introduced Dr. Brunicardi to Nashville with some top studio musicians recording Pop songs have a magical quality of taking you right back to wherever you were when you first heard them.”

“Awards/Honors

Dr. Marvin Ament, professor emeritus of pediatrics, received the lifetime achievement Harold S. Diehl Award from the University of Minnesota Medical School, where he earned his medical degree in 1963.

Dr. Clarence H. Braddock III, formerly of Stanford University, has been appointed to the new position of vice dean for education in the David Geffen School of Medicine at UCLA, overseeing all aspects of medical education, including undergraduate, graduate and postgraduate medical programs.

Dr. Ellen Carpenter, professor of psychiatry and biobehavioral sciences, was appointed director of the Neurosciences Undergraduate Interdepartmental Program in the Life Sciences Division of the College of Letters and Science.

Dr. Karim Chamie (FEL ‘12), assistant professor of urology, received the Stop Cancer Research Career Development Award from the Stop Cancer Foundation. Dr. Robin Clarke (RES ’10, FEL ’12), clinical faculty member, was named medical director for quality for the UCLA Faculty Practice Group, responsible for supporting measurement and improvement programs with a special focus in quality and patient experience.

Dr. Sheirin U. Devastkar, physician-in-chief of Mattel Children’s Hospital UCLA, was named a member of the Institute of Medicine, one of the highest honors in the fields of health and medicine.

Dr. Alison Grimes, director of the UCLA Audiology Clinic and assistant clinical professor in head and neck surgery, was re-appointed by California Gov. Edmund Brown to the state’s Speech-Language Pathology and Audiology and Hearing Aid Dispensers Board.

Dr. Baljit Khakh, executive vice chair of physiology and professor of physiology and neurobiology, received the National Institutes of Health’s Pioneer Award.

Dr. Gary Lask, clinical professor of medicine in the Division of Dermatology and director of dermatologic surgery at the Dermatologic Surgery and Laser Center at UCLA, received the American Society for Dermatologic Surgery’s Excellence in Education Award.

Dr. Edythe London, Thomas P. and Katherine K. Pike Chair of Addiction Studies and professor in the departments of Psychiatry and Biobehavioral Sciences and Molecular and Medical Pharmacology, testified before the U.S. House of Representatives Subcommittee on Research and Technology on the subject of methamphetamine addiction and the importance of basic research on drug addiction.

Dr. Hanna Mikkola, associate professor of molecular, cell and developmental biology and a member of the UCLA Eli and Edythe Broad Center for Regenerative Medicine & Stem Cell Research at UCLA and UCLA’s Jonsson Comprehensive Center, received the 2013 McCulloch and Till Award by the Society for Hematology and Stem Cells.

Dr. Arash Naeim (MD ’95, RES ’97, FEL ’98, ’02), associate professor of medicine, assistant vice chancellor for research and associate director of the UCLA Clinical and Translational Science Institute, was appointed UCLA chief medical officer for clinical research.

Dr. Margaret Stuber (RES ’82, FEL ’84), Jane and Marc Nathanson Professor in psychiatry and biobehavioral sciences, was appointed assistant dean of student affairs for career development and well-being in the David Geffen School of Medicine at UCLA.

Dr. Marc Suchard (MD ’04, PhD ’02), professor of human genetics, biomathematics and biostatistics, received the 2013 Committee of Presidents of Statistical Societies Award.

Dr. A. Eugene Washington, vice chancellor of health sciences and dean of the David Geffen School of Medicine at UCLA, was honored by the Patient Centered Outcomes Research Institute with an award created in his name, the Eugene Washington PCORI Engagement Awards. Dr. Washington served as the first chair of the institute, which was created by the Affordable Care Act.

“I still think pop music is the greatest art form. Pop songs have a magical quality of taking you right back to wherever you were when you first heard them.”

To hear samples of Dr. Brunicardi’s music, click on the link to this article at: magazine.uclahealth.org
UCLA Medical Alumni Bring the Miracle of Sight to People in the Developing World

Vision is one of life’s miracles, the ability to see those we love, beautiful scenery and a starry night sky. And there are the everyday things for which we depend on our eyesight: driving, going to the movies, reading or watching children play. People in the developed world with vision problems have many resources and new technologies to ensure that their quality of life is fulfilling, but in the developing world, blindness can mean the difference between life and death.

To address this challenge, more than 30 UCLA medical alumni are using their ophthalmological skills to bring sight to thousands of individuals worldwide. They travel on behalf of Surgical Eye Expeditions (SEE) International, a Santa Barbara, California-based nonprofit humanitarian organization, to restore sight to the blind in underdeveloped countries.

SEE was founded in 1974 by Harry S. Brown, MD (RES ’70). During his training at UCLA’s Jules Stein Eye Institute (JSEI), Dr. Brown became interested in international ophthalmology and working with doctors with limited resources. After completing his training, he embarked upon an international expedition to experience firsthand the challenges faced by ophthalmologists in the developing world. He was accompanied by his wife, four children and his mother.

“I spent six months in the Department of Ophthalmology at the University of the Witwatersrand in Johannesburg, South Africa, where I was assigned to the 100-bed St. John’s Eye Hospital,” Dr. Brown says. “I spent a month in the remote village of Kadi, India, working with the local eye surgeon. In 22 working days, we saw more than 1,000 patients, all of whom had devastating eye disease, and performed 76 surgeries during that time.”

Dr. Brown spent a month in Kabul, Afghanistan, as a volunteer specialist for Care Medico. Afterward, he traveled to nearly 10 countries, visiting with local ophthalmologists and touring schools for the blind and university medical centers.

While at JSEI, Dr. Brown met attending surgeon George Primbs, MD ‘55 (RES ’61), clinical professor of ophthalmology, and they remained in contact.

In 1971, Dr. Brown began his private practice in Santa Barbara, and soon after started SEE. Almost 40 years later, the organization has more than 650 volunteer ophthalmic surgeons, from 75 different countries, who travel internationally to perform sight-restoration procedures. Supplies are donated by the ophthalmic industry. Since SEE’s inception, the organization has performed more than 400,000 sight-restoration procedures in more than 35 countries. In 2012, SEE International supported 10,208 sight-restoring surgeries around the world.

In 1993, SEE International recognized a need for a community program and created the Santa Barbara Vision Care Program (SBVCP). Led by Dr. Primbs, it provides comprehensive eye exams, glaucoma screenings, eyeglasses, medications and eye surgery at no cost to the patient. In 2012, it completed 22 sight-restoring procedures and provided eye care to 1,242 individuals in Santa Barbara County. SBVCP has been providing diabetic retinopathy screenings for its patients since 2005.

“I have dedicated my life to vision care,” Dr. Primbs says. “Restoring someone’s sight is a life-changing event. It is very gratifying to treat patients at SBVCP. Many of them have increased risk of suffering eye impairment, including blindness, and none of them have the resources to access private medical care. SBVCP is noble and necessary.”

Dorothy Khong, MD ’02 (RES ’06), who has a private practice in Oakland, California, participated on a 2010 SEE expedition to
In His Own Words: Joseph Copeland, MD ’98

Joseph Copeland, MD ’98, is an urban emergency doctor in Vancouver, Canada, and a clinical assistant professor of emergency medicine at the University of British Columbia. For the past decade, he has spent part of each year treating a diverse population, including the Inuit people in the remote Canadian Arctic. Five years ago, he partnered with UCLA to establish a scholarship in international health to support current medical students with global aspirations. With that support, the UCLA Global Health Education Program has been able to send students all over the world to work on a variety of child-health projects, TB and HIV programs and surgical missions.

I came to what was then the UCLA School of Medicine with a background in public health and a degree in international relations, focusing on HIV and the developing world. Establishing the International Health Interest Group during medical school was a natural step for me. There were so many of us who wanted to gain experience overseas and build that into our careers.

During medical school, I took a year off to work with the Centers for Disease Control in Botswana. It helped clarify what I wanted to do in the future and cemented my passion. The financial support and mentoring I received from UCLA made this opportunity possible.

After earning my medical degree, I moved to Toronto, Canada’s largest and most multicultural city, for family and emergency-medicine training. To treat immigrants from all over the world, I drew on my firsthand knowledge and sensitivity to patients’ culture, language and customs. The severe acute respiratory syndrome crisis that paralyzed the city in 2003 also served as a stark reminder that diseases from around the world are only a plane ride away. Global health is really everyone’s business.

Vietnam after learning about the organization from a colleague. “The patients are so very grateful to be able to see again, and many of them have waited a long time for this,” Dr. Khong says. “SEE is a great organization for physicians to volunteer their time. You provide a service to people who need it the most, and, in return, you will have an unforgettable experience and meet wonderful people.”

Richard Yook, MD ’72 (RES ’77), is another Bruin SEE volunteer ophthalmologist. He practices at Northridge Ophthalmology Associates in Northridge, California. During the last decade, he has been on several international expeditions with the organization. SEE also offers surgical-technique training for manual cataract surgical removal at its headquarters in Santa Barbara,” he notes. “The skills learned in this course are utilized by surgeons, like me, while on expeditions. Cataract surgery can be a life-changing experience. People struggle to make a living when they can’t see. Restored vision makes a tremendous, positive impact on the quality of life for that individual, the family and the community,” Dr. Yook says.

“Life expectancy for the blind in most developing countries is usually less than half that of someone with eyesight,” notes Randal Avolio, president and CEO of SEE International. “These difficulties are compounded by the fact that a blind person is unable to contribute to his or her family income.”

UCLA’s medical school still attracts the best and the brightest. They are as enthusiastic and idealistic as ever. With tuition now four times what it was when I was in school, it is difficult for current students to afford international experiences. The interest is great; the resources are not. Recently, I invited my classmates to contribute to the Class of ’98 Medical Student Scholarship Fund in International Health. The goal is $100,000 and the creation of an endowed fund. If you have an interest in global-medicine education, this initiative should resonate with you. Whether you are an actual or honorary member of the Class of ’98, your donations are tax-deductible, and I will match the first $5,000 in contributions.

To make a gift to the Class of ’98 Medical Student Scholarship Fund in International Health, go to: tinyurl.com/1998Fund

To learn more about the UCLA Global Health Education Program, go to: globalhealth.med.ucla.edu

For information on SEE International, go to: seeintl.org
A Visionary Evening

The 2013 Visionary Ball, benefiting the UCLA Department of Neurosurgery, was held October 24, 2013, at the Beverly Wilshire Hotel. More than $2 million was raised from the annual event, which will help to dramatically increase the pace of discovery for new therapies for brain tumors, stroke, epilepsy, brain and spine trauma and myriad complex neurological disorders.

The 2013 award recipients were:

- **Steve Tisch - Visionary Award:** The only person with an Academy Award (as a producer for Best Picture-winner *Forrest Gump*), Golden Globe (*Forrest Gump*) and two Super Bowl rings (as chairman and executive vice president of the New York Giants), Tisch contributes to many worthy organizations, including The Simon Wiesenthal Center and UCLA Neurosurgery. He also is a member of the Board of Advisors at New York University’s Tisch School of the Arts and The Preston Robert Tisch Brain Cancer Center. Tisch’s award was presented by long-time friend Peter Morton.

- **Dr. Richard Merkin - Medical Visionary Award:** Dr. Merkin is founder and CEO of Heritage Provider Network, named one of the world’s “10 Most Innovative Companies” in healthcare in 2012 by *Fast Company* magazine. He is deeply committed to the neurosciences, establishing, among others, the Richard Merkin Foundation for Neural Regeneration at UCLA, and also serves on the board of the California NanoSystems Institute at UCLA. Dr. Merkin’s award was presented by UCLA Health System President Dr. David T. Feinberg.

- **William Friedkin - Visionary Icon Award:** An Academy Award-winning director, Friedkin, along with his wife, UC Regent Sherry Lansing, established the Surgical Infections Quality Improvement Project at UCLA. He is the director of such classic films as *The Exorcist* and *To Live and Die in L.A.* and was honored at the 2013 Venice International Film Festival with the Golden Lion for Lifetime Achievement award. Friedkin’s award was presented by Vice Chancellor of UCLA Health Sciences Dr. A. Eugene Washington.

- **Rabbi David Wolpe - Courage Award:** Recently named the most-influential rabbi in America by *Newsweek*, Rabbi Wolpe was diagnosed with a benign brain tumor and underwent successful surgery, performed by Dr. Neil Martin, chair of the UCLA Department of Neurosurgery. Rabbi Wolpe’s award was presented by Sinai Temple congregant and legendary television director James Burrows.

- **Chuck Lorre - Rodney Respect Award:** Accomplished television-comedy writer and producer of several popular shows, including *The Big Bang Theory* and *Two and a Half Men*, Lorre was honored for carrying on Rodney Dangerfield’s legacy of laughter. Lorre’s award was presented by Rodney’s widow, Joan Dangerfield, and comedic icon Bob Newhart.

The evening was highlighted with performances by acclaimed singer-songwriter Randy Newman and Brad Carter, the 500th deep-brain-stimulation surgery patient at UCLA.

To view more Visionary Ball event photos, videos and the tribute journal, go to: [visionaryball.org](http://visionaryball.org)
**Events**

Mattel Children’s Hospital UCLA celebrated its 14th Annual Mattel Party on the Pier on October 6, 2013, with 1,400 guests, including pediatric patients and their families, filling Pacific Park on the Santa Monica Pier. Highlights included unlimited amusement-park rides, on-site and online silent auctions, arts and crafts and great food. Several young celebrities from popular children’s television shows attended the event, signing autographs and volunteering in the game booths, which were stocked with prizes donated by title sponsor Mattel. The event raised more than $800,000 to support high-priority initiatives at Mattel Children’s Hospital UCLA, with recent funds directed to, among others, the osteosarcoma and congenital heart programs.

One year to the day after receiving his liver transplant at UCLA, 14-year-old Nick Wallace returned to Mattel Children’s Hospital UCLA on September 28, 2013, to celebrate his “liver birthday” and the first anniversary of his nonprofit, Nick’s Picks. The San Diego teen was frequently hospitalized throughout his childhood for care and treatment of biliary atresia. Wanting to give support and encouragement to other hospitalized kids, he started his charity to provide backpacks filled with Nick-approved toys. Senior UCLA Health leaders joined Nick’s liver-transplant surgeon, Ronald W. Busuttil, MD (RES ’77), PhD., and his pediatric GI specialist Robert Venick, MD (RES ’03, FEL ’06), in surprising Nick with a birthday-party blow-out complete with presents and a gluten-free birthday cake.

The UCLA People-Animal Connection (PAC) Program was recognized on the field during UCLA’s home opening football game vs. Cal on October 14, 2013. PAC is one of the most comprehensive animal-assisted therapy and activity programs in the nation. Each month, PAC volunteer teams — a canine and a human partner — offer companionship and warmth to more than 900 critically ill children and adults.

**Chairs of Distinction**

The Resnick Family Foundation has pledged $2 million to establish the Muriel Harris Chair in Geriatric Psychiatry in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA. This generous gift was made by Stewart and Lynda Resnick in memory of Mrs. Resnick’s mother, Muriel Harris, and in appreciation for the care she received at the Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA. The purpose of the chair is to yield investigative advances that will translate into optimum care for patients. The chair will be awarded to a Semel Institute senior clinician, who also holds an academic appointment in the Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA. This candidate will have demonstrated clinical expertise, research activities and a superior teaching ability in geriatric psychiatry.
In Memoriam

Mary Ellen O’Connor Davis, the first female editor-in-chief of UCLA’s The Daily Bruin newspaper and a founding member of The UCLA Foundation, passed away June 23, 2013. She was 90 years old. Known as “M.E.,” Mrs. Davis spent her early childhood in Indianapolis, Indiana, before moving to Glendale, California, in 1936 to live with her aunt. When Mrs. Davis applied to UCLA, she tested with the highest verbal score and second-highest math score among applicants. She graduated from UCLA in 1954 with a degree in political science and then attended the UCLA School of Law. Ultimately, she opted to pursue journalism, becoming the first female editor of the Tacoma Star in Tacoma, Washington. Mrs. Davis was a steadfast, generous supporter of UCLA, particularly the Division of Digestive Diseases and the Department of Neurology. She also was a dedicated donor to the Fulfillment Fund, an organization founded by Dr. Gary Gitnick, cochief of the Division of Digestive Diseases. Through the Edwin W. and Catherine M. Davis Foundation, named after the parents of her husband, Fred, Mrs. Davis devoted herself to providing financial support and opportunity to talented but financially disadvantaged children. In addition to her husband, she adored her seven children, 12 grandchildren and five great grandchildren.

Samuel Rexford Kennamer, MD, widely known as a physician to the stars, including Frank Sinatra, Elizabeth Taylor and Rock Hudson, passed away September 28, 2013, in Alabama. He was 93 years old. Dr. Kennamer had lived with his nephew in Montgomery, Alabama, for the last five years after suffering a stroke. The Alabama native received degrees from the University of Alabama and Jefferson Medical College in Philadelphia, where he was a member of Alpha Omega Alpha, an honorary medical society. Following successful completions of his internship, residency and fellowship, Dr. Kennamer was certified in internal medicine and entered private practice in Beverly Hills, California, where he worked from 1954 to 2008. He was the personal physician for many of the most-successful people in entertainment, business and government. In 1982, in recognition of Dr. Kennamer as a role model for young physicians, Albert B. Parvin, through the Albert B. Parvin Foundation, established the Kennamer Fellowship Program in General Internal Medicine at the then-UCLA School of Medicine. The program provides a valuable opportunity for advanced training in internal medicine for those already board-certified or board-eligible in that specialty. Dr. Kennamer is survived by five nieces and five nephews.

The Chase Foundation continues to provide for the social, emotional and mental needs of hospitalized children, their siblings and other family members. It recently made a $120,000 pledge, payable over three years, to enhance play services in the Chase Child Life Program at Mattel Children’s Hospital UCLA. The gift will be used to expand accessible playroom hours for patients and their families and better address the therapeutic-play needs of children in isolation, restoring a sense of normalcy to the hospital environment and encouraging family bonding.

The David Geffen School of Medicine at UCLA has received a distribution of $200,000 from the Estate of Roman Colbert, a three-time Bruin (BA ’66, MA ’67 and PhD ’70). One-hundred-thousand dollars will be directed to medical-student scholarships, and $100,000 will support research on cardiovascular disease.

Howard Levine (Anderson ’67) and Irene Levine made a three-year commitment from the Howard and Irene Levine Family Foundation to support the research work of Dr. Jeff Bronstein, a professor of neurology and director of the Movement Disorders Program at UCLA, which assists primary-care physicians and neurologists in maximizing the quality of life of their patients and patients’ families. Dr. Bronstein is conducting groundbreaking research in the treatment and cure of Parkinson’s disease.

Thanks to a $4-million gift from Lockheed Martin, UCLA Health’s Operation Mend now has a state-of-the-art telehealth suite and a unit of renovated post-op recovery suites for the wounded warriors who undergo surgery at the Westwood facility. The Lockheed Martin UCLA TeleHealth Suite will enable improved communication between the program’s personnel, patients and partners from multiple national and global locations. The upgraded surgical recovery area will enhance the patient experience during multiple surgeries and help the program better accommodate patients’ family members. Operation Mend provides reconstructive surgeries and other healthcare services to U.S. military personnel severely wounded and disfigured in Iraq and Afghanistan.

The Petit Foundation has pledged $2 million to establish the C. G. Jung Professorial Endowment in Analytical Psychology in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA. The purpose is to celebrate, perpetuate and advance the work of C. G. Jung, the Swiss psychiatrist and psychotherapist who founded analytical psychology. This investment in scholarship, education and research provides a significant and meaningful way to embrace and expand Jung’s writings and teaching at the interface of neuroscience, mind, body and society.

The John Templeton Foundation has awarded $600,278 over three years to support the Big C Project, led by Dr. Robert Bilder in the Tennenbaum Center for the Biology of Creativity at the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA. The Big C Project will examine whether exceptional Creativity (Big C) shows extensive overlap with everyday creativity (little c), or if Big-C individuals are “outliers” marked by unique features of brain and behavior that are rare within the little-c population.

A donation of $1 million was received by the Division of Cardiology to benefit innovative research and patient care in interventional cardiology. The gift supports the work of Dr. Jon Tobis, director of both the Cardiac Catheterization Laboratory at UCLA and the Interventional Cardiology Fellowship Program. His research is at the forefront of novel therapies in interventional cardiology that lead the trend in clinical practice toward increasingly less-invasive and lower-cost cardiovascular procedures, with increasingly optimal outcomes.
A Thanksgiving to Remember

By Jeremy M. Blumberg, MD (FEL ’13)

It was the morning of a Thanksgiving past. I woke to the high-pitched beeps of my pager, and my boss, Jeffrey Veale, MD (FEL ’06), asked if I could go on an organ recovery. Recovery is what we call it now, though it has been termed “harvest” and “procurement” in the past. But there is no one word that can distill the meaning of removing organs from someone who has died.

What I remember about Thanksgivings as a child was awakening to the smells of food and my mom asking, “What are you thankful for?” My brother and sister seemed to come up with heartfelt answers, but I just gave the impression of being annoyed.

On this Thanksgiving Day, I threw on some scrubs, kissed my wife and promised to be at my in-laws’ in time for dinner. Jeff picked me up, and we headed south. “Where are we going?” He uttered the name of the hospital.

“You know how to get there?” Jeff asked.

“I didn’t answer.

“You been there?” he said, louder this time.

“I was born there.”

From the time I was 5 years old, I followed my dad, a pediatrician, into this hospital while he examined newborns in the nursery. But I suddenly felt light-years removed from the person I had been during the 33 years leading to this day.

We found the surgeons’ lounge and waited as the organ-procurement coordinator recited the details on our patient: 10-month-old girl, bathtub drowning, unsuccessful resuscitation. I couldn’t listen; her words vanished into the background of the Macy’s Day Parade on TV.

It was time, and so we made our way to the operating-room doors. My resolve came from the individual whose life had been ruined by kidney failure and dialysis and who would now become the guardian of these tiny, perfect organs. And so I cut.

On our way back to Jeff’s car, we saw a beaming young couple in the hospital lobby, a tiny newborn in his mother’s arms. I prayed for her never to let go of that child. The last time I had walked out of this building, as a boy, I was probably holding my father’s hand. Now, I held a box labeled LEFT KIDNEY.

We headed back to UCLA, our precious cargo secure in the trunk. By now families had gathered for their holiday celebrations, and as we passed homes en route to the hospital. I imagined that classic Norman Rockwell scene inside: parents, children, relatives, a picture-perfect turkey on the table.

At UCLA, I stepped into the second cold, shiny operating room of the day — this time to give, not to take — and drew a sharp blade across the skin of a patient desperately in need of this baby’s kidney. Once it was in place, our vascular clamps were released and a young man’s blood surged through a baby girl’s kidney, turning it a vivid, unmistakably alive, rosy pink.

I made it to my in-laws’ home as everyone finished dessert. I was uncharacteristically quiet, my wife pointed out, as my family rambled on in idle conversation. As they talked, I thought about two parents who would wake up the next morning to the blackest of Black Fridays and about a patient who would arise with a brand new kidney, elated, his nightmare over. I was thankful, perhaps more than ever, for the health and good fortune of those who surrounded me.

We got home late. I almost called Mom to answer her perennial Thanksgiving question, but I was exhausted. Just as I drifted off to sleep, my pager went off again.

Dr. Jeremy M. Blumberg is assistant professor of urology in the David Geffen School of Medicine at UCLA and surgical director of renal transplantation at Harbor-UCLA Medical Center. Photo: Dr. Andrew Behesnilian

Illustration: Anthony Freda
The military engagement that began with Operation Mend in 2007 now has become a campuswide effort, the UCLA Veterans Initiative, launched last year by Chancellor Gene D. Block.