

THE MAGAZINE OF TULANE UNIVERSITY SCHOOL OF MEDICINE | WINTER 2017

TULANE | MEDICINE

OUTBREAK: ZIKA RISING

FINDING
POISON ON OUR
PLAYGROUNDS





Since Tulane University School of Medicine was founded in 1834, our physicians and researchers have made extraordinary advancements in medicine. And it's exciting to look to the future to see how much more we can

achieve. However, the only way to prepare for the challenges and opportunities that lie ahead is to bring our great scientific and academic minds together.

At Tulane School of Medicine, the culture of collaboration is integral to everything that we do. Collaboration sparks vital new discoveries, creative approaches to education and better patient care. When you bring a diverse group of thinkers together and pool their knowledge, you can have a better understanding of the world's most troublesome diseases.

In this issue of *Tulane Medicine*, you will see how collaboration is helping us to learn more about diseases, protect our most vulnerable populations and bring better care to our communities.

"At Tulane School of Medicine, the culture of collaboration is integral to everything that we do. Collaboration sparks vital new discoveries, creative approaches to education and better patient care."

What do we know about Zika? How does it affect unborn babies, adults and the central nervous system? Tulane researchers are working in collaboration with other national primate research centers to find those answers and share their research information in real time. This effort is not only helping them learn from each other but helping to accelerate their progress.

Research professor Dr. Howard Mielke is working to protect our most vulnerable population—children—from the dangers of lead contamination. He has teamed up with city officials across the country to help keep children safe.

At Tulane we are working across disciplines to become a model for collaboration. Together we can combine our strengths to improve human health.

L. Lee Hamm III, MD
Senior Vice President of Tulane University
Dean of the School of Medicine

TULANE | MEDICINE

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OPHTHALMOLOGIST CHAMPIONS EYEDROP LAW

Glaucoma patients in Louisiana who depend on prescription eyedrops won't have to worry about their prescriptions running out at the end of the month, thanks to a new state law championed by Tulane ophthalmology professor Dr. Ramesh Ayyala.

The law, which goes into effect in January 2017, allows patients to get their prescriptions refilled under certain conditions 23 days after they were originally filled. Ayyala, director of glaucoma services for Tulane Health System, pushed for the law after seeing many of his patients struggle to make their medication last the month. The most common treatments for glaucoma are eyedrops that must be administered two to six times a day depending on the severity of the disease.

"In the last few years, the insurance industry started dispensing glaucoma drops by counting the number of drops prescribed without accounting for wastage," Ayyala says. "It is hard for anyone to instill the eyedrops into the eye accurately every single time. One has to hold the bottle close to the eye and squeeze it to get the drops in. Drops can miss and run down the check, resulting in wastage. This is a big problem especially in elderly patients."

When patients run out, they face paying a steep price to buy more or stop taking the medicine until the following month. Skipping doses for glaucoma can have serious consequences such as vision loss.



Dr. Ramesh Ayyala, director of the Tulane ophthalmology residency program, organizes an online review course for residents preparing for their certification exams.

"Glaucoma is the second leading cause of permanent blindness worldwide," Ayyala says. "The glaucoma burden in our state is huge as it affects predominantly the African American community and the Cajun community."

Ayyala, who is president of the Louisiana Academy of Eye Physicians and Surgeons, helped lawmakers introduce the legislation earlier this year. The legislature approved it and the governor signed it in August, making Louisiana the sixth state in the nation to have such consumer protections.

"This is a big win for the glaucoma patients in our state and can potentially prevent loss of vision from lack of treatment," Ayyala says.

TULANE CME PROGRAM RECEIVES HIGHEST ACCREDITATION

Tulane University School of Medicine's commitment to providing outstanding lifelong learning opportunities for physicians has been recognized by a leading accreditation organization.

The Accreditation Council for Continuing Medical Education (ACCME) recently reaccredited the school's Continuing Medical Education (CME) program for six years with an "Accreditation with Commendation," which is the council's highest level of provider recognition.

The CME program organizes almost 100 educational seminars and symposia a year for physicians, healthcare professionals and researchers on topics as varied as

advances in robotic surgery, retroviruses, primate models for AIDS and forensic mental health. Melinda Epperson, director of Tulane University's Center for Continuing Education, described the extensive reaccreditation process that took more than a year.

"There are more than 1,900 accredited CME providers and only 25 percent have attained Accreditation with Commendation, so we feel very fortunate," Epperson says. "The achievement was the result of very hard work by dedicated Tulane staff."

ACCME accreditation seeks to assure the medical community and the public that the program provides physicians with relevant, effective, practice-based

continuing medical education that supports U.S. health care quality improvements.

The ACCME employs a rigorous, multilevel process for evaluating institutions' continuing medical education programs according to the high accreditation standards adopted by all seven ACCME member organizations. These organizations of medicine in the U.S. are the American Board of Medical Specialties, the American Hospital Association, the American Medical Association, the Association for Hospital Medical Education, the Association of American Medical Colleges, the Council of Medical Specialty Societies, and the Federation of State Medical Boards of the U.S., Inc.



Tulane researchers Dr. Walter Lee Murfee, left, and Dr. Bruce Bunnell are partners in a \$1.1 million study on aging.

TULANE RECEIVES \$1.1 MILLION TO STUDY HOW AGE AFFECTS BLOOD VESSELS

Tulane University researchers have been awarded a \$1.1 million grant from the National Institutes of Health to study the effects of aging on the growth of new blood vessels in the human body.

Researchers hope learning more about how age affects the growth of new blood vessels, also known as angiogenesis, will guide the future treatment of diseases.

In many age-related diseases—such as cancer, eye diseases and rheumatoid arthritis—blocking the growth of new blood vessels would be beneficial. In others—such as heart disease, stroke and hypertension—promoting the growth of blood vessels would be desirable.

Dr. Walter Lee Murfee, an associate professor of biomedical engineering, and Dr. Bruce Bunnell, director of the Tulane Center for Stem Cell Research and Regenerative Medicine and professor of pharmacology, will conduct the study over the next four years. Murfee and Bunnell

are also members of the Tulane Center for Aging, which was instrumental in providing the initial resources for the start of the work. Murfee has received funding for the past five years from Tulane’s Center of Biomedical Research Excellence in Aging and Regenerative Medicine.

Murfee says a major issue with aging is that the growth of new blood vessels is impaired. Most treatments for age-related diseases, however, are developed using young adult animal models. This approach is problematic and does not account for the inherent changes to blood vessel growth resulting from age, he says.

Murfee and Bunnell hope to identify novel molecular and cellular causes of the impaired angiogenesis, while developing a new way of evaluating angiogenic therapies in aged tissues.

Compared to existing approaches, the model offers a real-time view of whole microvascular networks.

“The problem in treating many diseases is that we really do not understand why aged blood vessels do not grow as well.”

—DR. WALTER LEE MURFEE

“The problem in treating many diseases is that we really do not understand why aged blood vessels do not grow as well,” Murfee says.

Bunnell agrees. “The studies are significant because they will permit us to investigate the impact of biologic aging as a factor on both stem cells and the environment of the tissues in a system that matches the function inside the body, which is challenging to accomplish.”

DR. MARY T. KILLACKEY MAKES HISTORY

Appointed by senior vice president and dean Dr. L. Lee Hamm III in May 2016, Dr. Mary T. Killackey, associate professor of clinical surgery, is making history at the Tulane University School of Medicine as the first woman to be chair of the Department of Surgery.

"I'm about 10 to 15 years younger than the average chair," says Killackey.

After graduating from the College of Physicians and Surgeons at Columbia University and completing her general surgery residency at Strong Memorial Hospital at the University of Rochester, Killackey finished the Abdominal Organ Transplant Fellowship at Mount Sinai Medical Center in New York in 2005.

During the fellowship, she met Dr. Sander S. Florman, a previous graduate of Mount Sinai's program, who eventually approached her with the idea of moving to New Orleans in order to be a part of the city's post-Katrina recovery.

"He called me up after Katrina and said, 'Tulane is reopening; do you want to come down?'" Killackey says. "It was a point in my life where I just thought, 'If I do this, I'll never regret it; it's going to be a life-defining change.'"

Killackey has worked as a transplant surgeon for the past 10 years.



Dr. Mary T. Killackey is the newly appointed chair of the Department of Surgery.

"I very much like technical surgery, and vascular surgery and transplant allows for that," she says.

In her new role as chair, Killackey plans to implement leadership development opportunities and explore collaborations between different disciplines and schools while upholding the department's central objectives of education, research and clinical work.

"I see so much possibility, and I'm very excited. My initial goal is to set the expectation of professionalism and respect in our workplace, but we want it to be joyful. I want people to want to come to work here," Killackey says.

TULANE RESEARCHERS FIND OTHER LAYERS OF IMMUNITY IN TB/HIV CO-INFECTIONS

Some monkeys whose immune systems are depleted by the simian strain of HIV have a second line of defense against tuberculosis (TB), Tulane University researchers have found. The discovery could have significant impacts on future vaccines for TB. The research, led by Dr. Deepak Kaushal, professor of microbiology and immunology at the Tulane National Primate Research Center, has been published in the *Proceedings of the National Academy of Sciences*.

People co-infected with *Mycobacterium tuberculosis* (Mtb) and HIV are up to 20 times more likely than people without HIV to develop active, clinical TB over their lifetimes. HIV targets CD4 T cells, and researchers believe depletion of those cells, the first layer of immune response, speeds the progression of TB. Currently, most vaccines being developed for TB



only target the CD4 arm of immunity.

Kaushal's research team exposed macaques to Mtb and simian immunodeficiency virus (SIV) to replicate human co-infection. They discovered one-third of the animals maintained latent TB despite complete loss of lung CD4 T cells. A study of the lung tissue revealed CD8 cells and B cells both worked to provide immunity against active TB. Kaushal says

future vaccines for tuberculosis should try to elicit immune responses from not only CD4 cells but also CD8 and B cells.

"This monkey model is the closest we can get to the human environment of these two diseases," Kaushal says. "This discovery is important because it lays out the whole gamut of the different immune functions that are required for an optimum response."

The research revealed a subpopulation of macaques better able to fight TB and HIV co-infection, and Kaushal says it can be presumed this subpopulation of humans also exists. He believes the difference is genetic.

Kaushal hopes to continue the research and move on to the next step of developing a vaccine. "Our job now is to find out the mechanism of why these differences occurred," Kaushal says.

SAFER VASCULAR SCANS WITH CO₂



Dr. Owen Mogabgab,
Tulane cardiologist

Carbon dioxide (CO₂) is the gas that makes sodas fizzy and plants thrive, but could it also make it safer for doctors to scan blood vessels for signs of heart disease?

Tulane cardiologists and radiologists are pioneers in using CO₂ in place of traditional iodinated contrast dye for vascular imaging to greatly reduce the impact of angiograms on patients' kidneys. Roughly 27 million people in

North America and Europe suffer from atherosclerotic peripheral arterial disease and a third of these also suffer from diabetes, chronic kidney and heart disease. These patients are at greater risk for kidney damage when traditional angiography and vascular intervention are necessary, says Dr. Jim Caridi, Tulane interventional radiologist and one of the pioneers of the carbon dioxide angiography procedure.

"But those patients also need more frequent angiograms to treat and monitor their condition," Caridi says. "It's a catch-22—they need more imaging studies, but often, those scans can

adversely affect their kidneys and make their problems worse. So we've worked to find a better way."

In the CO₂ procedure, a small amount of carbon dioxide is injected in the bloodstream instead of contrast dye to highlight the blood vessels and any blockages. The carbon dioxide is dissolved in the blood and then eliminated through the patient's lungs.

With the largest group of CO₂-trained physicians in the state, Tulane vascular doctors are often successful in preventing amputations and other complications associated with chronic vascular disease, diabetes and kidney issues.

In a collaborative effort, these Tulane physicians recently formed the CO₂ Angiographic Society and launched a website (co2angio.org) to help educate physicians about advances in CO₂ imaging and explain how the technique can save kidneys, ease diagnosis and assist in interventions.

"One of our main goals right now is helping educate physicians and patients that this alternative exists," says Dr. Owen Mogabgab, a Tulane cardiologist. "It's on the cutting edge, so some people just aren't aware there are options in addition to contrast."

NEUROSCIENCE CENTER OPENS AT TULANE

After a disappointing day of football, Who Dats turned their radios to WWL as Deke Bellavia broke down the Saints versus Detroit game. On that day, Oct. 19, 2014, listeners could barely recognize the voice they knew so well. The longtime sports host was having a stroke on air.

"I was just incoherent. I was thinking I'm hearing my words come out correctly, but I was slurring," Bellavia recalls.

Paramedics rushed Bellavia to Tulane Medical Center. Less than 48 hours later, he was headed home, already on the road to recovery.

Bellavia joined Tulane doctors and hospital administrators in August to cut the ribbon on the new Tulane Health System Neuroscience Center, which provides comprehensive care for patients with brain, spine and nervous system conditions.

Dr. Aaron Dumont, director of the Center for Clinical Neurosciences at Tulane University School of Medicine, calls the new center a one-stop shop for treatment of all neurological conditions from back pain to migraines, aneurysms, brain tumors, movement disorders, epilepsy and even carpal tunnel syndrome. Dumont believes the close relationship between the hospital and School of Medicine provides patients with the best care in the region.

"It means that we're able to provide coordinated care for patients in one convenient location," says Dumont. "It will also help us further our teaching and research missions by leveraging these new resources in this new platform."

The center is located on the fifth floor of Tulane Medical Center, which has state-of-the-art neurosurgical equipment, neurointerventional radiology and specialized imaging equipment, as well



(Left to right): Ben Johnson, president and CEO of New Orleans Chamber of Commerce; Deke Bellavia, WWL Radio host; Dr. Lee Hamm, Dean of the Tulane School of Medicine; Dr. Aaron Dumont, director of the Tulane Center for Clinical Neurosciences; and Dr. William Lunn, president and CEO of the Tulane Health System

as a dedicated Neuro Intensive Care Unit.

Bellavia is thankful for the treatment he received at Tulane.

"From the time they got me up the next morning and did the battery of tests, they were true to their word," he says. "They said we'll get you back home as soon as possible and they did. It was a pleasant stay, it really was."



Dr. Anjali Niyogi oversees the FIT Clinic at the Ruth U. Fertel / Tulane Community Health Center. FIT Clinic provides care specifically for people who have been incarcerated because they are at greater risk for some chronic diseases.

FIT CLINIC HELPS FORMER INMATES FIND QUALITY HEALTH CARE

Prisoners, even if previously in good health, tend to leave correctional facilities with chronic diseases like diabetes, heart disease, hepatitis and cancer.

Now, the Formerly Incarcerated Transitions (FIT) Clinic in New Orleans is the only one in the Southeast to provide care and services specifically for former inmates. The clinic opened in June 2015 in the Ruth U. Fertel/Tulane Community Health Clinic, where it gives the formerly incarcerated access to primary care, insurance, medication and government benefits support. The clinic provides all services on the sliding-fee scale of federally qualified health clinics.

Dr. Anjali Niyogi, who is also a hospitalist at University Medical Center (UMC) and an assistant professor in the Tulane University School of Medicine, directs the clinic with help from doctors, residents and medical students who already practice or train there.

Before the FIT Clinic opened, Niyogi worked with inmates through UMC's role as the contract hospital for the Louisiana

Department of Corrections (DOC). When a medical student wondered how the inmates found health care after they were released, Niyogi considered addressing post-incarceration health challenges and other needs specific to former inmates.

"There was no follow-up care [former inmates] were utilizing; they were ending up in the ERs and ICUs," she says. Now, "our DOC partners know where to send them when they're coming back ... once they come here, we try to do the best we can to provide continuity of care."

Only 11 clinics like FIT exist in the United States. The clinic has no budget except for a small grant; medical students handle the case management services. Niyogi hopes to attract more grant funding in the future.

Every month the FIT Clinic sees about 16 to 20 patients released from prisons and jails around the state. Nonetheless, Niyogi says, the patient base has the potential to expand. "It could blossom into an entire clinic in and of itself."

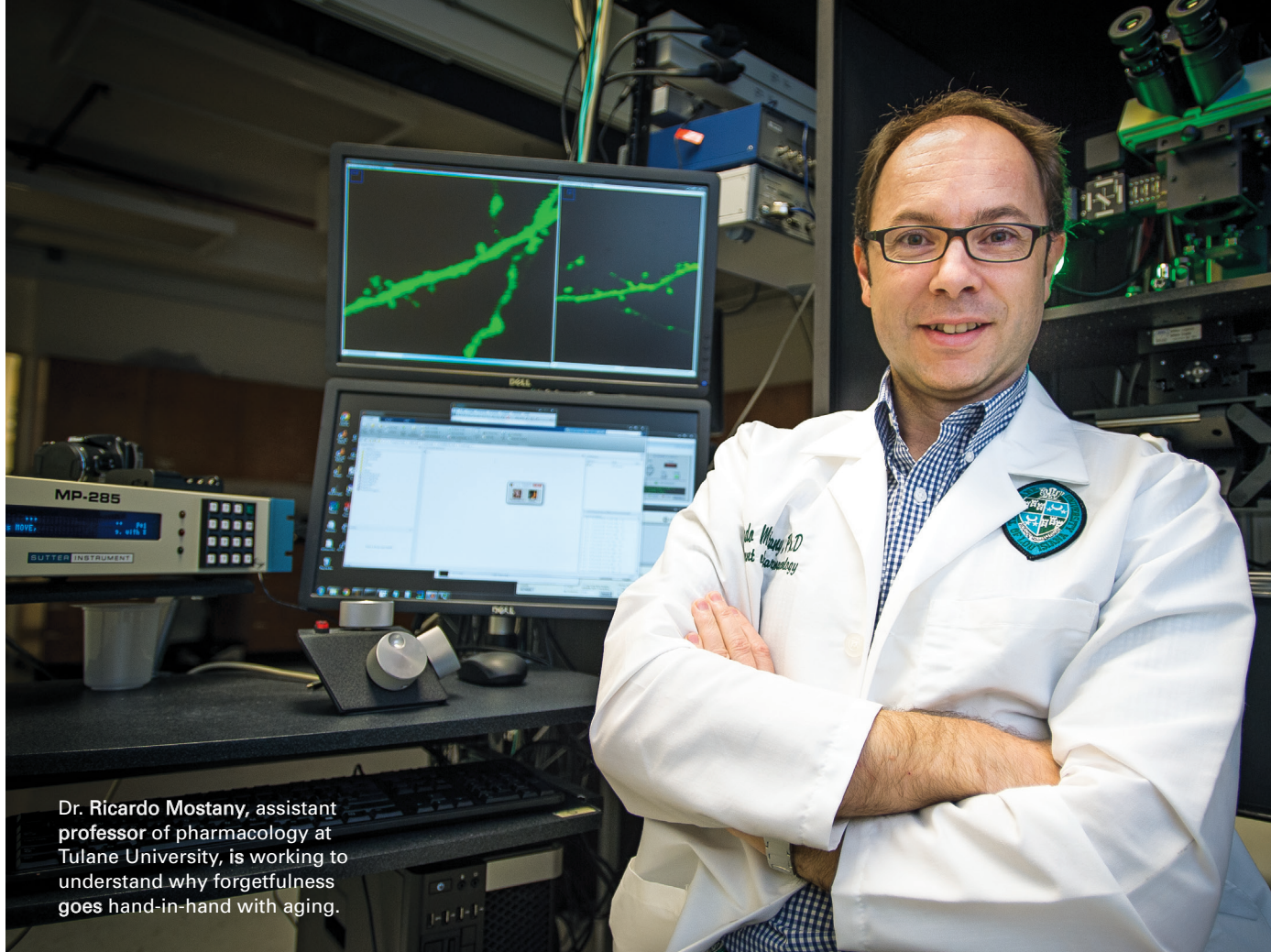
TULANE TEAM HONORED WITH TURNKEY AWARD

Researchers in the Tulane University School of Medicine's Departments of Structural and Cellular Biology and Comparative Medicine took home the 2016 TurnKey Facility Team of the Year award, given by *ALN Magazine*. The prestigious award recognizes an outstanding staff working in laboratory animal research.

Bob Dauchy manages the Laboratory of Chrono-Neuroendocrine Oncology at Tulane and says the TurnKey award highlights the important role of teamwork in the humane care and use of laboratory animals and the impact on biomedical research outcomes. As reported in the Summer 2016 issue of *Tulane Medicine*, Dauchy developed a tissue-isolated human tumor rat model to study the effect of melatonin on tumors and has been instrumental in research done by the Tulane Center for Circadian Biology. He and his team have worked to eliminate sources of nighttime light from animal research labs at the School of Medicine, which disrupt circadian rhythms in both humans and laboratory animals.

"Exposure to environmental light at night, which didn't really exist 40-60 years ago, shuts off the normal nighttime melatonin, wreaking havoc on the body's circadian timing system, in addition to causing tumors to grow more rapidly," Dauchy says. He has traveled the world teaching other researchers about the influence of light in response to trial drugs.

"To be chosen for the prestigious international TurnKey award is a great honor," Dauchy says. "The award highlights what is now happening here at Tulane University and what can be achieved in the field of biomedical research when an outstanding team works so well together."



Dr. Ricardo Mostany, assistant professor of pharmacology at Tulane University, is working to understand why forgetfulness goes hand-in-hand with aging.

HOW TIME STEALS MEMORIES

We've all experienced that moment of trying to remember something and, suddenly, our mind draws a complete blank.

It can happen to the old and young alike, but why is forgetfulness more common with age? Dr. Ricardo Mostany, assistant professor of pharmacology, is working to understand what happens inside the brain that weakens its ability to form new memories.

"We are studying the aged brain before what is called mild cognitive decline," says Mostany. "The brain is different later on in life and we are trying to characterize what is happening normally to see what is the next step leading into dementia. We can use this information for the study of Alzheimer's and other degenerative diseases that appear late in life."

Mostany was named the 2016 Oliver Fund Scholar for his innovative research in brain science. The \$40,000 prize supports outstanding faculty research initiatives and

"The brain is different later on in life and we are trying to characterize what is happening normally to see what is the next step leading into dementia."

—DR. RICARDO MOSTANY

is awarded by a committee of senior Tulane faculty and other experts.

The award will fund his investigation of neural circuits using a living mouse model. Specifically, he's looking at what makes the connections in the cortex less stable. The aged brain is not able to maintain the contacts between brain cells within a neural circuit for as long as a young brain can. This impairs transmission of information between neurons and affects the formation and endurance of memories.

"With this grant we want to try to see if, using state-of-the-art techniques, we can somehow reverse this deficit and bring the balance back to something more normal or close to what a younger brain has," Mostany says. "If we are able to identify the mechanism responsible for this impairment, we would be able to design therapeutic approaches to delay the onset of the decline in brain functionalities associated with healthy aging."



OUTBREAK ZIKA RISING

As the Zika virus continues to spread north, Tulane researchers take the lead in understanding the disease, the first step in stopping it.

BY **KEITH BRANNON**
ILLUSTRATIONS BY **DAVIDE BONAZZI**

EAK.



Expectant mothers always have lots of questions for their doctors. But this past year, typical inquiries about prenatal vitamins and morning sickness are sharing time with more anxious discussions about travel and mosquito repellent.

Women want to know what—if any—precautions they should take against the emerging Zika virus.

“This is a common topic,” says Dr. Gabriella Pridjian, chair of obstetrics and gynecology at Tulane University School of Medicine. “Many women have changed their travel plans to avoid the high-risk areas.”

Zika, which is linked to severe birth defects in children, is primarily spread by mosquito bites, but it can also be sexually transmitted. So far, it is widespread only in part of South America and the Caribbean, but public health officials are working to stop it from taking hold in the United States. By the beginning of December, there had been more than 4,300 travel-related infections and 185 local transmissions in the United States.

What’s unsettling for doctors and patients is that there are so many unknowns about the virus. Researchers suspect that it causes microcephaly, a condition in which a child is born with a small, misshaped head due to abnormal brain development. It may also cause other issues in pregnancy such as stillbirth, miscarriages and fetal growth restriction. In adults, it is also linked with Guillain-Barré, a disease that impairs muscle performance and can lead to paralysis.

Very little is known about Zika because there had been scant research into the virus until recently. Only a few dozen articles about Zika existed in medical journals two years ago; more than 1,000 journal articles published this year reference the virus. Scientists across the world are racing to document how Zika affects adults

and the developing central nervous system. As a leader in infectious disease research, Tulane University School of Medicine investigators are part of this global effort. Tulane virologists, immunologists, pathologists and other scientists are investigating new animal models for the disease while the same team of researchers that developed a rapid test for Ebola is using similar techniques to find a faster, more accurate diagnostic for Zika.

DEVELOPING A MODEL

The Bill & Melinda Gates Foundation awarded Tulane National Primate Research Center and the University of Miami more than \$600,000 earlier this year to develop a nonhuman primate model of Zika in pregnancy.

The goal is to document the pathogenesis of the virus, where it proliferates, how long it stays in the bloodstream and how it potentially affects developing offspring. Scientists have not yet been able to explain why only some Zika infections result in neurological damage. They also do not know whether the timing of infection during pregnancy is a factor.

Researchers are inoculating 12 pregnant rhesus macaques with a Brazilian strain of the virus, studying four animals in each trimester. They will take blood, monitor fetal development through ultrasound and collect amniotic fluid.

“The focus is mostly on neurological issues—to see if there are any problems with the nervous system and the brain,” says Dr. Antonito Panganiban, professor of microbiology. “That is going to be looked at in as much depth as possible.”

Due to the timing of breeding cycles, researchers started with animals in the third trimester. Offspring from that group were born late this summer with other groups expected by the end of the year.

Researchers have found that the virus lingers much longer in the bloodstream of pregnant animals than it does in

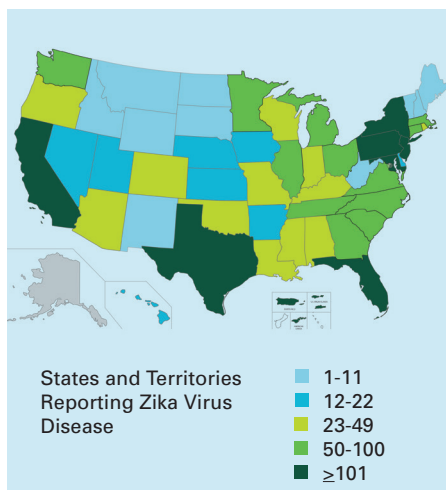




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ZIKA IS SPREADING. Left: travel-associated cases of Zika reported in the United States. Right: travel-associated cases of Zika reported across the globe.

Content source: Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) and Division of Vector-Borne Diseases (DVBD). Data as of December 7, 2016.

Virologist Dr. Cindy Morris

control animals, which are not pregnant.

“What happens with animals, either male or female, that are infected, is the virus spikes in the course of a week and either the innate or adaptive immune system takes care of the virus,” Panganiban says. “But with the pregnant animals, it looks like the virus persists for longer.”

The reasons for that are not clear but there are a few possibilities. One is that the fetus becomes infected and provides a reservoir of virus that comes back across the placenta, so the mother never fully gets rid of the virus. Another possibility is that pregnancy itself causes the immune system to respond differently.

“It’s too early on to speculate,” Panganiban says.

Half of the offspring in the study will be followed for impacts on cognitive development. Animal behavioral experts will look for any signs of impairment.

“There may be a lot of behavioral aspects or cognitive deficiencies that occur due to infection with the virus that aren’t even recognized yet. So we try to gather as much information we can,” says Dr. Rudolf Bohm Jr., Tulane National Primate

Research Center associate director and chief veterinary medical officer.

The seven NIH-funded primate centers across the country are playing an important role in the nation’s public health response to Zika. Wisconsin National Primate Research Center, which is also studying pregnant macaques, made headlines earlier this year by posting its data in real time online. California National Primate Research Center followed suit. The move, which was inspired by scientists who acted similarly in response to the Ebola crisis, is unusual as researchers usually wait to release findings when they publish in a peer-reviewed journal.

“When Wisconsin started releasing information in real time, that was unprecedented,” Bohm says. “It certainly pushed people to get information out there more quickly.”

All of the seven national primate research centers are now sharing Zika research information with each other via a Zika Virus Working Group. Panganiban is a member and says the effort helps each team learn from the others to more efficiently design studies and potentially accelerate progress.

“We are all helping each other, and

Tulane is making a substantial contribution to that cooperative effort,” he says.

TRACING THE PATH OF INFECTION

One of the biggest mysteries of Zika is how it is able to cross the placenta. Virologist Dr. Cindy Morris is working with primate center researchers to study placenta samples to find an infection pathway, particularly in early phases of pregnancy. Additionally, she was awarded funding to launch a pilot study in guinea pigs. The goal is to identify the receptor the virus uses to gain entry in order to find ways to block infection.

“Our end goal is, No. 1, to understand the basic science of how the virus is transmitted,” she says. “We want to know where it is in the placenta. Is it targeting the chorion, is it targeting the extravillous trophoblast? Can it even infect the syncytiotrophoblasts? I don’t think enough studies have been done, to be honest. That’s why it’s exciting to be involved in this.”

While primates are a close model for human pregnancy, Morris says guinea pigs are a better match when it comes to studying the placenta because they share a similar cellular transport structure.

Her study is in initial stages of establishing a guinea pig model for Zika infection during pregnancy. She will also be looking at whether co-infections with cytomegalovirus play a role in Zika progression.

DESIGNING BETTER DIAGNOSTICS

Another vexing problem with Zika is determining infection. Symptoms can be very mild and nonspecific—a fever, rash, muscle and joint pain—and similar to the flu. People may not even be aware they've been bitten by a mosquito so they don't know when they were exposed.

Current DNA tests can detect active infection, but the virus clears the bloodstream and urine after 10 days in most people.

Other tests look for immune responses, which take days or weeks to appear. Tulane researchers who developed rapid tests for Ebola are using similar techniques to develop a rapid test for Zika. They are using blood samples from different strains to seek out better antibody targets.

"We're leveraging the work on Lassa fever and Ebola and what we learned about making the proteins and antibodies and configuring the test," says virologist Dr. Robert Garry. "These are all hard fought lessons. Now we can get right to the better assays."

Garry is looking for immunoglobulin G antibodies, which remain long after infection.

"We've got several strains—African and Brazilian strains are the focus. The Caribbean and Florida isolates are close to the Brazilian ones. We also are looking at the Dominican Republic strains," he says.

Current tests for antibodies, which take days to process, are not always reliable due to false positives detecting similar antibodies to other flaviviruses, especially dengue. Getting a yellow fever vaccination or exposure to dengue can also make the Zika immune response weaker and the antibodies overall look like a secondary response to one of the other viruses.

"Usually we test for antibodies that are specific for each virus; unfortunately some proteins in the different viruses look the same to the immune system, and as a result, the antibody tests may show up positive in tests

The Fight Against Zika: Multiple Fronts

The School of Medicine isn't the only school within Tulane University focused on Zika research. There are projects across campus and in South America.

TASK FORCE

Tulane formed a Zika task force within the School of Public Health and Tropical Medicine.

AN EYE ON NEW ORLEANS

National vector-borne disease expert Dawn Wesson, associate professor of tropical medicine, is measuring Zika transmission risk in New Orleans.

MODELING THE SPREAD

Math professor James "Mac" Hyman is working with a team to create mathematical models for predicting the spread and to see how bacterial control measures could help stop the spread of the virus.

ZIKA & BIRTH DEFECTS

SPHTM dean Dr. Pierre Buekens and colleagues are beginning a study in Honduras to better understand the correlation between Zika infection and pregnancy complications or birth defects.

EFFECTIVE RESPONSES

Carl Kendall, director of the Center for Global Health Equity, is planning to study how women in Fortaleza, Brazil, are responding to risks of Zika by delaying pregnancies or adjusting other behaviors.

for antibodies to Zika, dengue and so on. "This is cross-reactivity," explains virologist Dr. James Robinson. "If a person comes back to the U.S. from a region where both dengue and Zika are common, antibody tests may not be very useful for telling us which virus a person has been infected with; this is especially a problem if infection has occurred a month or more previous to testing. However, there are ways to design these antibody tests to make the target proteins very specific for each viral agent."

Both researchers say the lack of federal funding has been an obstacle to progress in the fight against Zika. Since Congress delayed action on a bill to fund Zika projects until late September, researchers had been using supplemental funding in current NIH projects to begin their work. But that means each study cannot fully progress until funding is in place.

Morris, who begins each morning checking online medical journal database PubNet for new Zika studies, says the current surge in research reminds her of what happened in the early days of HIV. But at the time, funding for HIV studies became a national focus. She is concerned that funding delays could stall research momentum.

"This is what happens when there is an emerging infection out there," she says. "I just worry that, if this really is a big deal, we can't be behind. It's too important for people."

"We're leveraging the work on Lassa fever and Ebola and what we learned about making the proteins and antibodies and configuring the test."

**—DR. ROBERT GARRY,
VIROLOGIST**

A photograph of an older man with grey hair, glasses, and a beard, smiling slightly. He is wearing a dark blue jacket over a red and white checkered shirt. He is standing in front of a playground structure with green and yellow metal bars. The background shows a grassy area and trees under a cloudy sky.

FINDING POISON ON OUR PLAYGROUNDS

Lead pollution is linked to multiple diseases and even rises in crime. One Tulane doctor has devoted his career to fighting for the cities and children poisoned by lead.

BY **CAROLYN SCOFIELD**
PHOTOGRAPHS BY **PAULA BURCH-CELENTANO**

Deep inside Tulane University's J. Bennett Johnston Building, thousands of soil samples sit in carefully labeled bins. The samples date back nearly 30 years and come from all parts of the world, anywhere research professor Howard Mielke has visited. Most of the soil comes from New Orleans and the surrounding metro area, chronicling a health threat with a long history. Every sample has been carefully screened for lead.

"We're dealing with a basic environmental health problem that we have to figure out how to resolve," says Mielke. "I think every major city has the same problem."

LEAD IN THE PAST

Mielke is a research professor in the School of Medicine's Department of Pharmacology. His work brought him to Tulane in 2006 but his research into lead dates back more than 40 years. As an assistant professor at the University of Maryland–Baltimore County, Mielke found high levels of soil lead in inner-city Baltimore. He ruled out lead-based paint as the major source because many of the buildings in the areas of highest contamination were brick. He found similar results in St. Paul and Minneapolis, Minnesota, cities with no heavy industry that could be contributing to high lead levels in the soil.

Mielke connected the contamination with leaded gasoline when his young daughter was found to have a blood lead level of 10 to 15 micrograms per deciliter. He collected soil and paint samples around the daycare she attended, which was located a few hundred yards from a major freeway. A mixture of soil and sand in the sandbox contained more than 500 parts per million of lead. A month after Mielke put a protective barrier of carpet on the soil around the sandbox and replaced the sand inside, his daughter's blood lead levels were cut in half.

In 1984, Mielke helped form the Minnesota Lead Coalition, and worked with the legislature of Minnesota to petition Congress to ban lead in gasoline. The rapid phase-down became law on Jan. 1, 1986.

LEAD IN THE PRESENT

Thirty years after the phase-down, the lead dust from multiple sources remains in urban environments. A 2001 survey of soil across the New Orleans metropolitan area showed heavy concentrations of lead in interior neighborhoods including the Lower Garden District, Central City and the 7th Ward. Mielke and his team collected thousands of soil samples and created a map showing the distribution of lead across New Orleans. Nearly 64 percent of the children living in neighborhoods identified as high-lead areas had blood lead levels equal to or above 5 micrograms per deciliter.

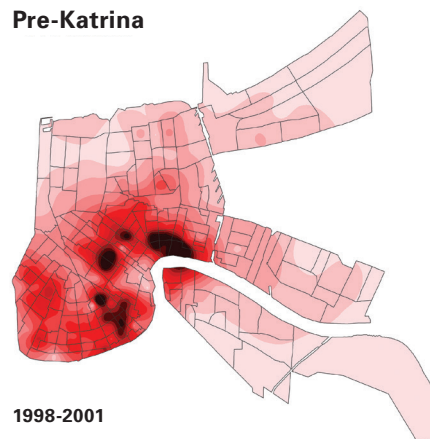
"This is a pediatric problem and a medical problem because of the huge number of health issues that are associated with lead alone," says Mielke. "There are other problems out there, too, but lead is right there at the top of the list. And since we have blood lead tests, we have a way of relating the problem to the exposure."

LEAD IN THE CHILDREN

The Centers for Disease Control and Prevention have not identified a level of lead in children's blood that could be considered safe. Even low levels of lead can affect IQ, behavior and attentiveness. Mielke says cleaning out homes with lead-based paint has not been shown to significantly lower blood lead levels; it's the outdoor environment causing bigger problems. Young children ingest lead from soil from hand-to-mouth action when playing outside. Mielke has spoken to teachers about the effects of lead in children, blaming it for behavioral problems in about 10 percent of students.

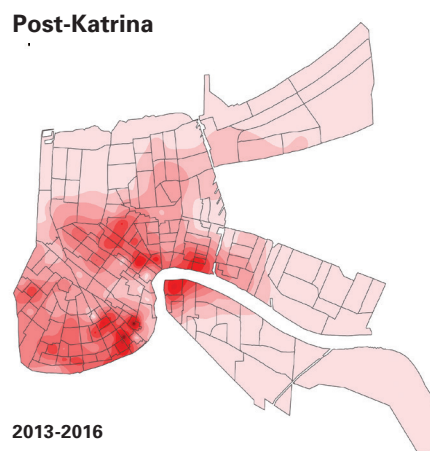
Lead Levels in Soil in Pre- and Post-Katrina New Orleans

Pre-Katrina



1998-2001

Post-Katrina

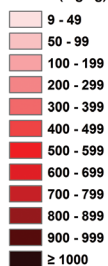


2013-2016

0 2.5 5 10 mi

Census Tracts

Soil Pb (mg/kg)



Mielke's team consists of Chris Gonzales and Eric Powell. A 2001 survey of soil across the New Orleans metropolitan area showed heavy concentrations of lead in interior neighborhoods including the Lower Garden District, Central City and the 7th Ward. Ten years after Katrina, Mielke and his team repeated the collection of thousands of soil samples and created a 2016 map showing the changed distribution of lead across New Orleans.

“The risk of exposure persists because past uses of lead accumulated as dust in urban soils, and thus the accumulated dust remains as a continuing source of exposure.”

—HOWARD MIELKE



He told the educators, “You’re going to spend your day trying to figure out how to control those students and the rest of the class isn’t going to get much from the lessons you’re trying to teach.” The teachers’ reaction: “Everybody looked at me and said, ‘Wow, that’s exactly what we’re seeing.’”

MRIs of adults who were exposed to lead as children show significantly reduced gray matter volume, compared to adults who had not been lead poisoned as children. The loss of gray matter was most visible in the prefrontal cortex and anterior cingulate cortex, regions of the brain that govern mood regulation, impulse control and judgment.

LEAD AND VIOLENCE

Mielke and demographer Sammy Zahran compared lead emissions and aggravated assault records in six major metropolitan areas: Chicago, Indianapolis, Minneapolis, San Diego, Atlanta and New Orleans. Mielke and Zahran looked at the amount of lead released from 1950 to 1985 and compared those numbers to the crime rate 22 years later, after the children exposed to lead became adults.

The researchers found that every 1 percent increase in tonnages of environmental lead released is, lagged for time, correlated with an increase in the aggravated assault rate of 0.46 percent,

controlling for other factors including policing and incarceration rates.

“Children are extremely sensitive to lead dust, and lead exposure has latent neuroanatomical effects that severely impact future societal behavior and welfare,” Mielke wrote in the study. “The risk of exposure persists because past uses of lead accumulated as dust in urban soils, and thus the accumulated dust remains as a continuing source of exposure.”

LEAD AFTER KATRINA

Hurricane Katrina struck the Gulf Coast on Aug. 29, 2005. The resulting storm surge and levee failures flooded

80 percent of New Orleans, leaving behind several feet of sediment in some low-lying parts of the city. The devastating storm had a silver lining: lowering soil lead levels in many neighborhoods and blood lead levels in many children.

Mielke and his team collected thousands of new soil samples 10 years after the storm, using the same census tracts they'd used for previous surveys. The findings were published earlier this year in the journal *Environmental International*.

After Katrina, 19 percent of children had blood lead levels above 5 micrograms per deciliter in the higher lead areas of the city. The median amount of lead in the soil dropped from 280 milligrams per kilogram (i.e. ppm) pre-Katrina to 132 mg/kg after the storm.

Mielke says there were three reasons for the decrease. The flooding washed in low-lead sediment from the coastal environment. The massive cleanup that followed also helped reduce the amount of lead dust in the air and soil, as housing interiors were cleaned out and materials covered in lead-based paint were removed or repainted. Lastly, uncontaminated soil was brought in from outside the city for new construction projects.

"In general, throughout the entire city, about half as much lead is showing up in the urban environment as was showing up before Katrina," says Mielke. "For communities, the differences are even larger depending on how low the community is."

"It's better now but it's still not as good as it should be," says Mielke. "Children are still getting highly exposed to lead in some areas of the city."

LEAD AND CITY LEADERS

Mielke works closely with city of New Orleans officials. After Mayor Mitch Landrieu took office in 2010, the city tested 18 parks and playgrounds for elevated levels of lead using Mielke's maps and research. The tests revealed 15 public areas in need of remediation, and the city took steps including covering the contaminated soil with a geotextile fabric and clean sediment,

Every
1%
increase in lead yields
a .46% increase in
aggravated assaults

280
ppm
↓
132
ppm:
the drop in soil lead
contamination after Katrina

19%
of New Orleans children
may have lead poisoning

15
New Orleans public areas
remediated since 2010
↓
Following the cleanup, all 15
areas were found to be safe.

excavating soil with high amounts of lead and landscaping. Following the cleanup, all 15 areas were found to be safe.

Charles Allen, resilience outreach manager for the city of New Orleans, believes it's important to rebuild and develop based on the lead research done at Tulane University's School of Medicine.

"It is as important as the Corps of Engineers doing their work to provide us flood risk reduction based on data," Allen says. "In anything and everything we do, it's always good to follow sound information so that we're not doing this in some haphazard manner and so that the work has a lasting, proven effect."

The city has planned capital improvements at four other playgrounds and all will be tested for lead.

LEAD IN THE FUTURE

While Mielke's surveys show improvement across the city, he says there is still too much lead in the soil. And, he says, collecting the information about soil and blood lead levels is not enough.

"We have to make a decision of whether we're willing to accept 19 percent of the children being lead poisoned in this city," says Mielke.

He says the easiest fix is to bring in low-lead sediment from nearby areas like the Bonnet Carré Spillway, which during flooding diverts water from the Mississippi River to protect the levees of the city. Thousands of truckloads of sediment from the spillway were brought in to fill the land under and around the new University Medical Center, and Mielke says the lead level in that neighborhood dropped drastically.

"We have a phenomenal capacity to change the quality of the city," he says.

The thousands of soil samples stored in the J. Bennett Johnston Building hold many answers to the city's past and could hold a key to its future.

"We have to figure out how to solve this lead problem for New Orleans," Mielke says. "If we do it for New Orleans, we have a model for the rest of the world." 🍷



Trudy and Dr. Howard Kandell

Alumnus Leaves a Lasting Legacy of Scholarship

When he was a junior at the University of Miami, Dr. Howard Kandell (M '59) decided to follow his senior roommates and apply to medical school. He was impressed by Tulane's affiliation with Charity Hospital, one of the four biggest teaching hospitals in the country at the time. To his surprise, he was accepted by the Tulane University School of Medicine. While he was in medical school, his wife, Trudy, attended Newcomb College. After completing his residency in pediatrics, Kandell served as a captain in the U.S. Air Force Medical Corps. He and Trudy subsequently settled in Phoenix.

Now retired, having raised four children and traveled the globe, he has focused on "giving back" to the institution that opened the door of opportunity for a rewarding professional career. That career has ranged from military service to private practice, teaching and medical administration.

His letter of acceptance from Tulane stated that tuition would be \$400. Considering the current high tuition of medical school, the Kandells decided to establish a scholarship, "The Dr. Howard and Trudy Kandell Endowed Scholarship" for the School of Medicine. Eventually their estate will provide additional funding for their endowment.

The Kandells hope that their generosity will encourage alumni and students to consider support for Tulane in their estate planning.



Dr. Camille George, Megan George and Dr. Mahlon Poche at the 25th reunion of the class '91.

Reunion Co-Chair Provides Gift of New Scholarship to School of Medicine

For Dr. Mahlon Poche (M '91, R '92), his love of medicine has been an evolution. During his time at the Tulane University School of Medicine, Poche enjoyed studying all specialties. It wasn't until he did a clinic on community medicine during his fourth year that he knew he wanted to combine his passions.

"I played free safety and defensive back at Nicholls State, so I've always been interested in sports medicine and orthopaedics," Poche says. "I also enjoyed family medicine. While I was at Tulane, I was also able to see and study a gamut of things that interested me."

Now, as an ER doctor, Poche recalls the time he spent at Tulane and Charity Hospital and just how valuable it was. "One of my most vivid memories was 'bloody October.' Not only were we doing rotations at Charity, we had a test every Monday. We spent our entire weekends studying. It was a challenging, but great, experience for me and my fellow classmates," he says.

As co-chair of his 25th reunion, Poche discovered that the bond between him and his colleagues is still going strong. "It was fun hearing the voices of old, and seeing people that I've spent so much time with," he says.

In addition to serving as co-chair, he also made a generous gift of a new scholarship to the School of Medicine. For Poche, the decision was an easy one. Tulane prepared him for a successful future, and he knew the importance of giving back to an institution that is still so meaningful to him.

"It's obvious that these students are committed—it's very rigorous. Being in medicine is a lifelong learning process. To me, it's important to know I've made a small difference in a future doctor's life—it makes me proud to help them achieve their dreams."

Ultimately, Poche hopes that his gift encourages scholarship recipients to give back to Tulane.

Congratulations

Dr. Howard Sheridan (M '69), whose photograph *Fisherman in the Mist* is shown to the right, is featured in the 2016 Spring/Summer edition of *Nature's Best Photography*, an award-winning magazine that showcases nature as recorded by the world's leading professional photographers, naturalists and adventurers, as well as new, emerging photographers. He currently serves as chairman of the Tulane University School of Medicine Board of Governors.



'56 Dr. George Beddingfield (R '61) is retired from practice and is writing fiction full time.

'61 Dr. Jay Shames (R '67, F '68) retired from Internal Medicine Specialists in 2008 and has since been a Clinical Professor of Pulmonary Disease at Tulane. In 2016 he was named a Judah Touro Society honoree and received the Outstanding Clinician Award from both the Louisiana Thoracic Society and the American Thoracic Society.

'66 Dr. James Jones was the recipient of the Tulane Medical Alumni Association (TMAA) Outstanding Alumnus Award at the Tulane Alumni Association Awards Gala on March 18. This prestigious award is the highest given by the TMAA and recognizes career accomplishments and excellence in the medical profession. Following residency, he was proud to join the faculty at Tulane for seven years before being recruited by the legendary Dr. Michael DeBakey to Baylor during the golden years of cardiovascular surgery. He left Baylor in 1998 to become Distinguished Professor and Hugh Stevenson Chair of Surgery at the University of Missouri. His accolades are numerous with over 12,000 cardiovascular procedures performed, three books and over 400 publications.

Dr. Stephen Katz, director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases at the NIH, presented the keynote speech at the Interdisciplinary Autoimmune Summit in New York City. In his speech he urged rheumatologists, dermatologists, gastroenterologists and other healthcare professionals who treat patients

with autoimmune diseases to work together and discussed the future work of NIH research into autoimmune diseases from a multidisciplinary approach.

Dr. Zane Pollard was co-recipient of the TMAA Lifetime Achievement award for his exemplary work in pediatric ophthalmology. The award recognizes a graduate who has made significant contributions to the field of medicine, offered outstanding leadership in the community, or exhibited lifelong dedication to Tulane. Pollard received the award during the celebration of his medical school class's 50-year reunion. Pollard has authored 90 papers and reviews articles for numerous journals. He has presented 27 papers at national meetings. He has received honor awards from: American Association of Pediatric Ophthalmology and Strabismus and the American Academy of Ophthalmology. From 1982-2014, Dr. Pollard was the director of the James Hall Fellowship in Pediatric Ophthalmology at the Scottish Rite Children's Medical Center in Atlanta. He has trained 35 fellows in pediatric ophthalmology.

Dr. Joseph Sackett was co-recipient with **Dr. Zane Pollard** of the TMAA Lifetime Achievement Award for his contributions to the field of radiology. Along with Pollard, Sackett received the award during the celebration of his medical school class's 50-year reunion. He served as chair of the department of radiology for more than 15 years at the University of Wisconsin School of Medicine and was instrumental in several notable research projects. His participation in the development and application of digital subtraction angiography—a technique used to clearly see blood vessels in bony or dense soft tissue—has now become

the standard for safer and more accurate vascular imaging. He is considered a great clinical neuroradiologist, a leader in academic radiology teaching and the former academic chair of one of the most highly regarded radiology departments in the world. Sackett has published 74 papers in refereed journals, served as visiting professor 32 times and wrote 11 chapters in radiology textbooks.

'67 Dr. Russell Steele received the 2016 award from the Tulane University School of Medicine Owl Club as the most outstanding faculty in pediatrics, his second in the last three years. He has now published over 400 manuscripts in peer-reviewed journals and is a mentor for one of the Tulane TLC (Tulane Learning Community) groups.

'68 Dr. Charles Byrd, general surgeon, has just joined The International Association of HealthCare Professionals. He is featured in the upcoming publication *The Leading Physicians of the World*. He is a highly trained and qualified general surgeon with vast expertise in all facets of his work especially laparoscopic surgery. Byrd is certified by the American Board of Abdominal Surgery, and in addition to his expertise in surgery of the abdomen, he provides a comprehensive range of surgical solutions. Byrd has been practicing for more than 48 years and is currently serving as a general surgeon at Willis-Knighton Laparoscopic Surgical Associates in Shreveport, Louisiana.

'71 Dr. Winston Anderson retired a year and a half ago after a long career in general, vascular, endovascular and bariatric surgery.

The Therapist's Answer Book: Solutions to 101 Tricky Problems in Psychotherapy, the third book by **Dr. Jerome S. Blackman**, has recently been translated into Chinese. Blackman continues practicing and teaching as a professor of clinical psychiatry at Eastern Virginia Medical School, as well as consulting at Naval Medical Center Portsmouth. In May 2016, he gave the faculty presentation at the graduation of fellows of the New York Freudian Society at the Harmonie Club in New York.

Dr. D.H. Clark did his OB/GYN residency at Ochsner Foundation Hospital, followed by three years with the U.S. Air Force and 39 years at The Woman's Clinic of Monroe/West Monroe, Louisiana. He has also been a board certified lipidologist for the past 10 years.

Dr. Michael Finn (R '73) is newly married to a wonderful woman, Kaysey. He returned to work in 2011 as a cardiologist at Louisiana Heart Hospital and put down the stethoscope again in November 2015. They have been traveling since then. He has two children living in Los Angeles and one in New Orleans.

Since retiring from pediatric practice, **Dr. Larry Galinkin** is now on faculty at Hofstra Northwell Medical School as a facilitator for first- and second-year students. He and his wife, Carolyn, will mark 48 years of marriage this June and spend as much time as they can with their children and grandchildren in addition to traveling.

Dr. Charles Haddad (A&S '67) retired in June 2015. Three of his four children are practicing physicians.

After completing double doctorates at Tulane in Medicine and Molecular Biology/Biochemistry, **Dr. Randolph Howes (G '71)** completed residencies in both general surgery and plastic surgery at Johns Hopkins Hospital, with advanced studies in hand surgery and lasers at Harvard Medical School. He invented the triple-lumen venous catheter, which became the No. 1 venous catheter in the world and has been credited with helping save the lives of over 20 million critically ill patients worldwide. He became a national and international lecturer, philanthropist, owner of radio stations, charted No. 1 and No. 2 country songs, received the America's Award for Versatility from the Vincent Peale Foundation, the Harper Award; the first Charles Farr Award for Excellence in Oxidative Medicine from the American College for the Advancement in Medicine; and authored over 500 medical

editorials. He has authored over 35 academic books, nine science fiction novels and a self-motivational book. Currently, his latest book is *Cancer Killing, Suppression & Protection: The Howes Answer to Cancer*. He and his wife, Robin, operate a 1,000-acre cattle ranch in St. Helena Parish, Louisiana. His passionate goal is to have his discoveries at the patient bedside within his lifetime.

Dr. John Johnston married Tracy Richardson from Columbia, South Carolina, in 1973 and has two daughters and four grandsons. He retired in 2014 after practicing family medicine in Walterboro, South Carolina, for 40 years. Since retirement he spent two weeks cruising down the Seine River from Paris with his wife, and another two weeks with his grandson drifting down the Colorado River in the Grand Canyon. He is currently considering doing volunteer work in family medicine.

Dr. James "Butch" Knoepp (I '72, R '80) performed cardiac surgery from 1980–2002 and has been an intensivist for the past 13 years. He is still happily married to **Dr. Ulla Ule (NC '70, M '73, R '76, F '81, B '91)** who continues to practice hematology/oncology. They have two daughters (Leise, a urogynecologist at Ochsner Baptist, and Cait, who designs purses for Nine West/Stuart Weitzman in Manhattan), and two granddogs but no grandkids. Life is good.

Dr. Glenn Lambert is still actively involved in the practice of vascular and endovascular surgery in Louisville, Kentucky. He is married and has one daughter.

Dr. Donald Luebke (R '78) retired from private practice in plastic surgery in December 2014. He has been married to his wife, Teresa, for 30 years and has four sons and three grandsons.

Dr. Arthur Matthews (I '72, R '73, R '77) practices general urology in Gulfport, Mississippi, and staffs the Tulane Urology clinic at University Medical Center in New Orleans every Thursday. He and his wife, Wanda keep up with eight grandchildren.

Dr. Rise Delmar Ochsner (R '73) moved back to New Orleans two years ago.

Dr. R. L. Parker is practicing pulmonary medicine in south Miami. He and his wife, Linda, have a daughter, Latanae, two granddaughters, Rose and Hope, two golden retrievers and a cat.

Dr. Randolph Seybold (R '74) retired in 2011 after practicing emergency medicine in California and Austin. He has three children.

Dr. Timothy Triche (G '71) is still working full time on faculty at USC Keck School of Medicine, having stepped down as chair of pathology in 2010. He headed the Center for Personalized Medicine at CHLA until last year and continues to serve as co-director. He and his wife, Margaret, are doing well. Two of their three children are living in Los Angeles, their oldest son is a computational biologist at USC and their daughter is an orthopaedic surgeon in Santa Monica. Their youngest son lives in Japan.

'74 Dr. Michael McFadden (R '79), professor of cardiothoracic surgery and surgical co-director of Lung Transplantation at the University of Southern California in Los Angeles, is the 2016 recipient of the Excellence in Mentorship Award given by the Cardiothoracic Fellows/Residents of USC and LAC-USC Medical Centers. McFadden has also been the recipient of numerous previous teaching awards at USC, including the C.J. Berne Award for Teaching Excellence in Surgery (2014), the Faculty Teaching Award in Cardiothoracic Surgery (2010), and the Richard J. Hurvitz, MD Excellence in Teaching Award (2010) all at USC-Keck and LAC-USC Medical Centers.

'75 Dr. Steven Paul (A&S '72, G '75) returned to Tulane in April at the invitation of Newcomb-Tulane College for the John J. Witmeyer III Dean's Colloquium Series to discuss his career with students. Paul is an expert in neuroscience with an extensive record in central nervous system drug discovery and development.

Dr. Allen Saxon is writing a novel about Big Charity New Orleans. He would love to hear from alumni regarding their stories and experiences at Big Charity. You can reach him at drasaxon@gmail.com or 847-381-7133.

'76 Dr. Sheila Brown (NC '73, R '78) is semi-retired after working for 25 years in Washington state with Group Health Cooperative. She and her husband relocated to southwest Utah for the sunshine and dry climate and they love it! She still works part time as a locum tenens and works primarily on the Navajo Reservation in northern Arizona, as well as some inpatient coverage for small hospitals in Wyoming.

Dr. Thrassos Calligas is still working in hospital child psychiatry at McLean and private practice in Concord, Massachusetts. His two sons, ages 24 and 19, are in various stages of young adulthood.

Dr. Minas Joannides lives and works in Westchester County, New York, after working on Madison Avenue for 17 years.

Dr. Roger Kelley is a neurologist at Tulane and married with three children. His daughter has an MBA and is married with two children, his eldest son is an Iraq war veteran practicing law in Washington, D.C., and his youngest son is a second-year Tulane medical student.

Dr. Robert Kitchen has been with MidAtlantic Permanente Medical Group for 22 years. He lives in Fairfax Station, Virginia, outside of Washington, D.C. and has three grandchildren, ages 7, 5, and 2, that live in the area.

Dr. Gerlie Papillion retired in 2015 after more than 31 years of solo rheumatology practice and now enjoys more time with her husband, Nathan Anderson-Papillion.

Dr. Ted Saer is doing orthopaedic spine surgery in Little Rock, Arkansas. He and his wife have six children who are all grown, with the youngest just finishing graduate school last year.

Dr. Dennis Shoff is happily retired.

Dr. John Stallworth has been married to his wife, Pamela, for 38 years and has three children. He has been in Denver since 1983 and retired from OB/GYN practice in April 2016.

Dr. Andrew Sumner is still practicing emergency medicine at the VA in West Virginia. He also practices part-time cruise ship medicine for Holland America Line and lives outside of Washington, D.C.

77 Dr. Joseph Mayo Jr. recently joined Cape Thoracic & Cardiovascular Surgery in Cape Girardeau, Missouri, as a medical partner. After graduating from medical school, Mayo completed his surgical internship and residency at Naval Hospital Oakland (Oak Knoll Naval Hospital) in Oakland, California, and completed his vascular fellowship at Cleveland Clinic in Ohio. Mayo has significant experience in

private practice, as well as years served as a physician in the Navy. His clinical interests include stroke prevention, the treatment of cerebrovascular disease and complex, lower extremity revascularization.

'81 Dr. Beryl Bachus-Keith (NC '77, R '84) is a practicing pediatrician in Manning, South Carolina. She has served as the chief medical officer for Black River Healthcare for 20 years and is the current medical director for HopeHealth, which serves the healthcare needs of the Pee Dee region, Williamsburg County and Clarendon County. She was appointed by Gov. Nikki Haley to serve on the Clarendon Memorial Hospital board of directors in 2011 and is currently serving as the board's Vice Chair. She also serves on the executive committee of the South Carolina Office of Rural Health board of directors as well as on the board of directors for the National Bank of South Carolina and the Cypress Foundation.

Dr. Joseph Berger (R '83) practices full-time otolaryngology head and neck surgery in Thomasville, Moultrie and Cairo, Georgia. He is married with two grown-up and married daughters and one grandchild. He and his wife live on a hunting plantation with 44 bird dogs, 16 horses and two mules.

Dr. Gail Brady (R '87) is still practicing psychiatry full time and lives with her 18-year-old daughter in Los Angeles.

Dr. Melody Carter (NC '11) is a pediatric allergist/immunologist at the National Institutes of Health.

Dr. Domenick Cover (E '77) is a nephrologist in Sarasota, Florida.

Dr. Fred Dale (R '84) has been practicing emergency medicine on the Mississippi Gulf Coast for his entire career. He has three wonderful adult children.

Dr. Michele Johnson Frye (NC '77, I '82, R '84) has returned to New Orleans, having retired from practices in pediatrics and addiction psychiatry. Her father continues as professor emeritus in microbiology and her son is in the Tulane Pediatrics Residency program. Frye now enjoys art classes and membership to the Mindfulness Community of Greater New Orleans.

Dr. Elma LeDoux (R '84, F '87) is a professor of medicine at Tulane. She was widowed in 2007 and has three daughters and a grandson. She feels blessed to have all of her family now living in New Orleans.

Dr. Noel Lozes and her husband, Steve, have two children: Colin, an attorney, and Gretchen, a CPA. She is currently working part time.

Dr. Sissy Sartor (NC '77, I '82) has spent 18 years at the Fertility Institute of New Orleans and is still going. She has two children, both in medicine.

Dr. Jeannine Scheinhorn is still a practicing ophthalmologist in Southern California. She has two children, a son who is a video game artist and a daughter who is an attorney, and is very grateful to Tulane Medical School for her most rewarding career.

Dr. Kent Small, an ophthalmologist who practices in Glendale, California, and Los Angeles, has made an exciting discovery on a gene that directly affects the vision loss for individuals with an eye disease called North Carolina Macular Dystrophy (also known as MCDR1). These findings are so significant that Small was invited to speak at the Global Ophthalmology and the American Academy of Ophthalmology meetings.

Dr. Peggy Toliver-Dingle is 60 years old and has been in her current practice for 19 years. Her son will graduate from law school this May and her daughter is in graduate school. Her husband is a dentist in Columbia, South Carolina, where they live.

Dr. Leonard Verges (A&S '77) was awarded the revered Platinum Scalpel Award at the Duke Urology graduation ceremony in June 2016. Verges teaches Duke residents rotating through the VA Hospital in Asheville, North Carolina. His wife, **Lisa (M '81)**, is a geriatric psychiatrist at MemoryCare, a nonprofit dementia clinic. They have two children (one is a new urologist) and a beloved new grandson.

Dr. Bruce Wall (E '77) practices at Dallas Nephrology Associates. He and his wife, Carol, have a son, Alex, 23, and a daughter, Katie, 16.

Dr. Inia Yevich-Tunstall has a solo dermatology practice in Springfield, Virginia.

'82 Dr. Clifford Martin (PHTM '10) has joined OSF Saint Anthony's Physician Group in Alton, Illinois. Martin specializes in women's health, caring for women's gynecological needs.

'86 Dr. Patricia Bailey-Sarnelli is on the faculty of Baystate Medical Center in Springfield, Massachusetts, as the director of pediatric and adolescent gynecology services. While the long-term goal of most OB/GYNs is to not do obstetrics, she still practices and teaches obstetrics and finds it rewarding (though she admits that the 24-hour in-house call is not as festive as it once was). She has two sons, ages 24 and 11. Her eldest son is a graduate of NYU and is working in Manhattan, while her younger son is finishing fifth grade and is a Roblox enthusiast. Her husband of 12 years is a magistrate in the District Court who loves Cape Cod and is a terrific cook.

Dr. Don Benefield (R '90) is practicing eye surgery in Gulfport, Mississippi. He and his wife, Patricia, have three daughters, one son-in-law and a new grandson.

Dr. Joseph Breault (PHTM '86, PHTM '02) practices adult family medicine two days a week (mostly geriatrics) and serves as IRB chair at Ochsner three days a week.

Dr. Christopher Bunce is an infectious disease specialist and public health officer in Indianapolis. He is married to Dr. Dolores Olivarez and has three "kids" in college.

Dr. Mary Laville is an OB/GYN. She is married with three daughters.

Dr. Sharon Meyer (R '91) still enjoys working in private practice. She took on an associate this year and is trying to play more tennis. Her eldest child is recently engaged.

Dr. Scott Norton (A&S '78, PHTM '86) retired from the U.S. Army in 2008 and now works as a pediatric dermatologist at the major children's hospital in Washington, D.C., affiliated with Georgetown, George Washington and Howard universities, as well as NIH and Walter Reed. He has been married for 28 years and has two sons, ages 24 and 22.

Dr. Cesar Roca (G '82, R '87, R '91) has been married to his wife, Theresa, for 27 years and has four awesome daughters. He has a private orthopaedic practice and enjoys sailing and shooting. Living the dream!

Dr. Robin Sloane has been practicing for over 23 years in suburban Seattle and is part of a large GI group. He is married to Cameron Cassidy, and they will celebrate 28 years this August! Their children, Ashlyn, 20, and Austin, 22, are currently in college.

Dr. Adrienne Stewart (NC '81, I '87, R '90) still loves practicing dermatology. Her three kids are all attending Tulane for their undergraduate degrees. They love Tulane and New Orleans!

Dr. Mark Tucker has been practicing ophthalmology for the past 24 years in Alexander City, Alabama. He has been married to his wife, Martha, whom he met as a pharmacist at Ochsner, for 26 years. They have two children, Mary, 20, and Neal, 18.

Dr. Maureen Pauly Utz has a wonderful career in medical dermatology (with some surgery and cosmetics) after graduating from Tulane and completing an IM internship and residency at the Mayo Clinic. In fall 2015, after 24 years in private practice, she joined a 75-year-old regional healthcare center, Ridgeview Medical. Dermatology still shows her many surprising conditions and she marvels at the tenacity of her patients. Her husband, **Dr. Bill Utz (M '85)**, is the president of a private practice urology group and focuses on robotic prostate cancer and other GU cancers. They have two daughters that have joined them in pursuing medical caregiving. Their oldest, Laura, is an RN working in the Neurology Intensive Care Unit in St. Paul, Minnesota, while their youngest, Sarah, is a third-year medical student at Mount Sinai in New York City, who is making a run at dermatology.

Dr. Myra Clavier Wise (R '88) is practicing in Lake Charles, Louisiana. She is married with five children, three have left the nest, and two, twins, are still at home.

Dr. Brooks Whitney practices vascular surgery in Atlanta, Georgia, where he lives with his wife, Sheri, and three children. Hunter, 19, is a freshman at Vanderbilt and twins Mia and AJ, 17, are juniors in high school.

'89 Dr. David S. Kushner (A&S '86) had the chapter "Ancient Trepanation From the Perspective of Modern Neurosurgery" published in the book *Holes in the Head: The Art and Archaeology of Trepanation in Ancient Peru*. Kushner was invited to write the chapter by the book's editor, John W. Verano.

'91 Dr. Narmatha Arichandran (PHTM '91) lives in Fairfax, Virginia, with her husband and 12-year-old daughter. She works for Capital Area Pediatrics in Herndon, Virginia.

Dr. Marilyn Bean and her husband, Robin, are private practice anesthesiologists in Chattanooga with three kids in college.

After graduating from medical school, **Dr. Asha Devereaux (PHTM '91)** trained and served in the U.S. Navy for 11 years. The Navy "issued" her a wonderful husband, Chris, a gastroenterologist and two terrific kids. Sabrina is a college sophomore in Boston, and Alex is a graduating high school senior, bound for university in Los Angeles this fall. Currently, Devereaux owns her own pulmonary medicine practice in Coronado, California. She remains active as the past president of the California Thoracic Society and has served on numerous boards and committees with the ALA, ACCP and ATS.

Dr. Vivian Kim (PHTM '91) has an ophthalmology/solo retina practice called Advanced Retina Care in Fresno, California.

Dr. Brad Lister is currently practicing orthopaedic surgery in Denison, Iowa. He has been married to his wife, Deb, for 31 years and has a son, Zach, who is graduating from Boston University in May.

Dr. Casey Locarnini is board certified in emergency medicine but opened his own clinic, Dunwoody Urgent Care, over 10 years ago and it's his full-time practice. Over 32,000 patients and still going strong! He has been married to his lovely wife, Roxanne, for almost 23 years and they have three children: Talia, 19, a student at the University of Georgia, Anna, 17, and Aiden, 13.

Dr. Johnny Won retired from the U.S. Navy in 2012 and is in private practice in Johns Creek, Georgia.

'92 Dr. J. Albert Diaz completed his orthopaedic residency training at the Hospital for Special Surgery in New York City, and his sports medicine fellowship at the Minneapolis Sports Medicine Center, where he served as assistant team physician to the Minnesota Vikings and Timberwolves. He specializes in minimally invasive arthroscopic shoulder and knee surgery and recently joined the sports medicine team at Danbury Orthopedics in Danbury, Connecticut.

Dr. David Gaus (PHTM '92) lived in Ecuador for 15 years and in 1996 founded the private nonprofit Andean Health & Development project to improve rural health care in Ecuador by providing high-quality medical care and training. Though he currently lives and practices in Madison, Wisconsin, Gaus has spent much of his time back in Ecuador to coordinate medical supplies and treat victims of the recent earthquake.

'96 Dr. Arthur Apolinario (PHTM '96) has been a practicing family physician at Clinton Medical Clinic in Clinton, North Carolina, for the past 17 years. He started a corporation for hypnosis services called Positive Energy Lifestyles, and was elected to the North Carolina Medical Society Board of Governors representing Region 3 in the southern portion of the state. He has two children, Ashton and Amaya.

Dr. Charles Bouch practices vascular surgery at Kaiser in Walnut Creek, California. His wife, Dr. Caroline Sherbourne, is a radiologist at Kaiser as well. They have three boys and a chocolate lab.

Dr. Gary Dupuy has been married to his wife, Jennifer, for 17 years. They have two amazing children, Gavin, 12, and Anna, 6. After graduating from medical school, he joined the Army and did his residency at Tripler AMC before being stationed at Ft. Hood. He is currently practicing at Cary Pediatrics.

Dr. Kimberly Gordon (R '11) is a board certified adult, child and adolescent psychiatrist and an assistant professor at Tulane School of Medicine. She is married to Dr. Uchenna Achebe, a forensic psychiatry fellow. She moved to Baltimore, Maryland, this summer to begin work as medical director of Sheppard Pratt while her husband completes his forensic fellowship in Baltimore.

Dr. Jason Jones (R '97) is an attending physician at McLean Hospital in Belmont, Massachusetts, and is also in private practice.

Dr. Cami Jordan (NC '89) has her own pediatrics practice, Partners in Pediatric Care, which keeps her busy. She is married to **Dr. Louis Jordan (M '96)**, who is busy with his orthopaedics practice, the Jordan Young Institute. Their son Andrew, 17, is looking at colleges now and they can't wait to show him Tulane. He keeps busy playing varsity golf. Their younger son, Cole, is 15 and keeps busy playing varsity tennis.

Dr. Page Griffin Jossi (PHTM '96) is still working at the same community health center that she started in 17 years ago, enjoying full-scope family practice. She lives in Oregon with four generations of her family nearby.

Dr. Mary Hurley has five kids, ages 6–12, and is the president and owner of a seven-physician group practice, North Dallas Dermatology Associates.

Dr. Dayle Imperato (R '90) recently completed a fellowship through the American Academy of Anti-Aging Medicine and is currently practicing metabolic and nutritional medicine in the Sacramento area.

Dr. Donald Lauer (PHTM '96) works in several Arizona emergency departments. He is married to a pediatrician and has three children.

Dr. Carl Palumno is practicing in Houston, Texas, at the Orthopedic Sports Clinic. He has been married to his wife, Kim, for 20 years and has three sons, Chandler, 17, Bryce, 14, and Sutton, 10.

In Memoriam

'45 Dr. Arthur D. Hertzberg
Dr. John Jofko
Dr. Beverly Blood King

'48 Dr. Jack L. Turner

'49 Dr. Ivan S. Altman
Dr. Arthur M. Blood
Dr. Robert M. Boughton
Dr. William E. Faris

'50 Dr. Marilyn W. Middleton

'52 Dr. Leon Lenoir Jr.
Dr. Glenn B. Ruffin

'53 Dr. Ernest E. Deshautreaux
Dr. Jack M. Ginsburg

'54 Dr. Gene T. Blakely
Dr. Norman Crooks Nelson
Dr. Herbert B. Wren III

'55 Dr. James M. Brakefield
Dr. Edward J. Hinman
Dr. W. McGinty McBride Jr.
Dr. Thomas P. Wood

'56 Dr. Marshall I. Alperin
Dr. James W. Bledsoe
Dr. Gerald L. Ehringer
Dr. Charles M. Moore
Dr. Manuel N. Paez

'57 Dr. Andrew Rinker

'58 Dr. Carl E. Sills

'59 Dr. Arthur J. Axelrod
Dr. Alfred R. French II
Dr. Zenji Tanaka

'60 Dr. James R. Bruner
Dr. John A. Coleman Jr.
Dr. Michael Ellis
Dr. William C. Stone
Dr. Robert E. Westfall

'61 Dr. Samuel J. Crawford Sr.

'62 Dr. Louis T. Maumus
Dr. James W. Welch Jr.

'64 Dr. H. W. Bond
Dr. James S. Gay
Dr. Carlos L. Krumdieck
Dr. Joseph G. Spracher

'69 Dr. Mickey Wayne Via

'72 Dr. Craig A. Winkler

'74 Dr. John P. Hess III
Dr. Mitchel S. Thabit

'75 Dr. Miriam H. Labbok

'77 Dr. George D. England

'83 Dr. Markus S. Kryger

'90 Dr. Larry V. Caldwell

School of Medicine faculty,
Dr. Roberta M. O'Dell Smith

Dr. Joseph Raziano is married to Dr. Donna Raziano and has three children, Lauren, 14, Joseph, 13, and Mary, 3.

Dr. Troy Richards (E '92) is a radiation oncologist in Oklahoma City and Shreveport, Louisiana. He and his wife, Heidi, have two children.

Dr. Stephen Ryan is working as an internal medicine hospitalist in Asheville, North Carolina, with his colleague/wife, Lisa, and has three children.

Dr. Kenneth Sands, orthopaedic surgeon with First Choice Medical Group, is now first in the state of Florida trained and certified to perform ACL-Sparing total knee replacement.

Dr. Cheryl Stanski (R '01) is practicing general surgery in Kingsport, Tennessee. She and her husband, Tom, have three children, ages 15, 13, and 11.

'01 Dr. Gerald Caigan practices neurology in Baton Rouge specializing in movement disorders, including DBS. He and his wife, Becky, have two girls, Katie, 12, and Lauren, 9.

Dr. Robert Corley is the chair of emergency medicine at St. Joseph Health Center in St. Charles, Missouri.

Dr. Rade Pejic (TC '97, PHTM '09) is an associate professor of family medicine at Tulane. He and his wife, April, have two kids, William and O'Hara, and he still plays bass guitar.

Dr. Benjamin Springgate (PHTM '01, R '05) is living in New Orleans with his wife, Ashley, and their two children.

'02 Dr. Lance Stuke (A&S '93, PHTM '96) has been named program director of the General Surgery Residency at the LSU Department of Surgery in New Orleans. He practices general surgery and trauma at University Medical Center in New Orleans.

'06 Dr. Karim Awad (R '07) is married with two small children, ages 4 and 2. He practices mostly sleep medicine and some neurology and is the director of sleep medicine and associate chief of neurology at his organization.

Dr. Jennifer Swanson Cameron (PHTM '06) has been married for four years and has two children, Louis and Tilly. She became board certified in general surgery in 2013 and will finish her plastic surgery fellowship in June of this year. She signed with a healthcare system in Wausau, Wisconsin, and started in August.

Dr. Darcie Everett completed a medical residency and a preventative medicine residency. She now works at the FDA doing regulatory work in vaccines. She and her husband, Mike, got married in 2008 and live in Baltimore with their two adorable children, ages 2 and 8 months.

Dr. Chris Hasney (TC '02, R '11) is a head and neck cancer surgeon practicing at Ochsner Medical Center in New Orleans. His wife, Aimee, is a dermatologist at Ochsner. They have two children, Juliette, 2, and Benjamin, 9 months.

Dr. Kimone James is a nephrologist practicing in the Atlanta area. She is married with a 16-year-old son and a 6-year-old daughter.

Dr. Liet Le (TC '02, B '07, R '11) and his wife, Gina, live in Houston, Texas, where he practices dermatology.

Dr. Ine Leus (PHTM '06) has been living in Bogota, Colombia, since 2011 with her husband and two boys, 2 and almost 5 years old. They are relocating back to Brooklyn this summer.

Dr. Martin Moehlen (PHTM '02, R '09, F '11) is an assistant professor of clinical medicine in the section of gastroenterology and hepatology at Tulane.

Dr. John Peterson, a gastroenterologist, has joined Mercy Clinic Four Rivers in Missouri. Peterson is a U.S. Air Force retired major, serving from 2006–13. In 2010, he was deployed to Gonaives, Haiti, where he helped establish a medical clinic and treated 10,000 patients post-earthquake.

Dr. Torfay Roman is married with a son and works as a transplant hepatologist in Orlando, Florida.

Dr. Melissa Swenson practices emergency medicine in Seattle. She is married with four children, ages 7, 4, 11 months, and 1 month.

Dr. Torang Sepah completed her internship in family practice at Kaiser and her residency in psychiatry at LA County and USC. She has worked primarily in corrections, first at Twin Towers in LA County, then a Federal ICE facility and now a state run women's facility. She is married to **Dr. Ron Shatzmiller (M '05, R '06)** and they have two sons, the oldest born in Houston a few months after their evacuation. They live in Pasadena, California.

Dr. Brooke Davidson Vergales is currently living in Charlottesville, Virginia, with her husband and two children, Alexis, 5, and Ethan, 3. She practices neonatology at the University of Virginia.

'08 Dr. Alfred Vichot (PHTM '04, R '11) of West Hartford, Connecticut, is engaged to be married to Andrea Moffitt. After completing his medical degree and residency at Tulane University School of Medicine, he moved to New Haven, Connecticut, for his fellowship at Yale University. Vichot is employed by Starling Physicians where he practices nephrology and internal medicine.

'09 Dr. Kevin Park recently joined Ortho Atlanta's practice. He is fascinated by the human spine. A fellowship-trained spine surgeon, Park, while at Tulane University School of Medicine, was a member of the Alpha Omega Alpha Honor Medical Society. He specializes in adult degenerative cervical, thoracic and lumbar spinal pathology and traumatic spinal injuries. Special interests include motion preservation technology and minimally invasive spinal surgery.

'11 Dr. Dustin Abadco (TC '04) works as a hospitalist at Ochsner Medical Center in Kenner, Louisiana. He married Kellie Sterling Abadco one week after graduation and they now have a 3-year-old son, Douglas.

SEND NEWS

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