

TulaneMed



TULANE UNIVERSITY SCHOOL OF MEDICINE MAGAZINE | Winter 2019

14

Research
breakthroughs

18

New paths
to medicine

Team Spirit

Collaboration and coordination
provide holistic healing



On the Cover

PHYSICIANS AND COLLEAGUES OF THE TULANE TRANSPLANT INSTITUTE

Left to right: (Back row) Rubin Zhang, MD, medical director, kidney/pancreas transplant; Hoonbae Jeon, MD, director, Abdominal Transplant Institute; Josephine D'Amico, transplant quality manager; Helen Spicer, vice president of the Transplant Institute; Talal Nakkar, MD, nephrology transplant fellow; (Front row) Anil Paramesh, MD, surgical director, kidney/pancreas living donor transplant; India Scales, transplant clinical pharmacist; Anastasia Lopiccolo, hepatology and transplant nurse practitioner.



First-year medical student Jean Lafontant (center) gets a helping hand from Mike Woodson (left), assistant director of admissions at the School of Medicine, at the White Coat Ceremony.

PHOTOGRAPH BY **BACH IMAGERY**

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Tulane's collaborative and coordinated care.

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TulaneMed

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Advances: Innovation and outreach

New \$8.5 million contract

Tulane to develop next-generation whooping cough vaccine

BY KEITH BRANNON

The National Institutes of Health awarded Tulane University School of Medicine a contract for up to \$8.5 million over five years to develop a more effective and longer-lasting vaccine against pertussis, more commonly known as “whooping cough.”

Microbiologist Lisa Morici, PhD, (see related story, page 14) and immunologist James McLachlan, PhD, will lead the project to use outer membrane vesicles (OMVs), which are nanoparticles shed by bacteria as they grow, to stimulate a more potent immune response than current vaccines against the disease.

The researchers will add OMVs to DTaP, an existing vaccine against three deadly diseases caused by bacteria: diphtheria, tetanus and pertussis.

Worldwide, there are an estimated 24.1 million cases of pertussis and about 160,700 deaths per year, according to the Centers for Disease Control. Despite widespread vaccination, pertussis cases have spiked in the United States in the last decade and a half with almost 18,000 reported in 2016. Part of the increase is blamed on limitations of the current vaccine, which doesn't provide lasting immunity.

U.S. News & World Report named Tulane Medical Center a “High-Performing Hospital” for treating COPD. It also ranked in the top 18% in heart failure, another one of New Orleans’ most serious concerns.



RYAN RIVET

Keith C. Ferdinand, MD

ENDOWED CHAIR

Keith C. Ferdinand, MD, a distinguished cardiologist at Tulane University School of Medicine, has been appointed to the Gerald S. Berenson Endowed Chair in Preventive Cardiology.

The chair is named for the late Dr. Gerald S. Berenson, internationally recognized for his clinical research on the early natural history of arteriosclerosis.

Ferdinand has been heavily involved in many national organizations concerned with public health, including the Association of Black Cardiologists, of which he was the former chair and chief science officer; the American Society of Hypertension, of which he was a board member; and the Healthy Heart Community Prevention Program, a cardiovascular risk program targeting African-American and other high-risk populations.

14%
OF HOSPITALS
NATIONWIDE IN COPD



In 2019 Tulane pediatric faculty, residents and medical students will begin seeing pediatric inpatients at Children's Hospital's Uptown campus and its network of satellite specialty clinics across the region. (Rendering of Children's Hospital Uptown expansion)

Children's Hospital to partner with Tulane University School of Medicine

BY KEITH BRANNON

Children's Hospital and Tulane University School of Medicine have signed an affiliation agreement to work together on clinical, academic and research activities in pediatrics.

"As part of a research-intensive medical school, Tulane doctors are dedicated to delivering the highest-quality patient care and translating the latest medical advances into clinical practice to help patients," said Lee Hamm, MD, senior vice president and dean of Tulane University School of Medicine. "We are excited to join Children's Hospital in delivering comprehensive, cutting-edge pediatric care and are looking forward to working together to train the next generation of doctors in the region."

"This partnership with the Tulane University School of Medicine affirms that Children's Hospital is the premier pediatric healthcare destination in our region," said John R. Nickens IV, president and CEO of Children's Hospital. "We are thrilled to welcome the well-known pediatric academic program at Tulane to an already vibrant academic community at Children's."

Early in 2019 Tulane pediatric faculty, residents and medical students will begin seeing pediatric inpatients at Children's Hospital's Uptown campus and its network of satellite specialty clinics across the region.

World Recognition

THOMAS NAMED A TOP SURGEON

Tulane surgeon Raju Thomas, MD, has been inducted into the prestigious Fellowship of the Royal College of Surgeons (FRCS) in Scotland, a distinction that recognizes some of the world's top surgeons.

Thomas, who is also professor and chair of urology, is the fourth Tulane School of Medicine faculty member to be named a FRCS fellow. He shares the distinction with Rudolph Matas (1927), Alton Ochsner (1962) and Michael DeBakey (1974).

Overheard

"We at Tulane are pleased to participate in this newly formed Delta consortium. We look forward to engaging new and long-standing collaborators, now partner institutions, in Tennessee and Mississippi to explore the potential of that collaboration."

—Laura S. Levy, PhD, vice president for research. Tulane University, University of Mississippi Medical Center and University of Tennessee Health Science Center have formed a new research consortium to fight health disparities in the Mississippi Delta.

Groundbreaking spinal procedures

Region's first surgery using new robotic technology



Evelie Rome and Christopher Maulucci, MD

After falling at church, Evelie Rome knew something was wrong. As the pain got worse over the next days and weeks, she also knew something had to be done.

"Everything in my body hurt," said the 81-year-old Vacherie, Louisiana, resident. "It burned like fire."

Rome needed a thoracic fusion to help manage a fracture in her back, a complicated procedure in which several rods and screws are inserted into the spine to help stabilize it and reduce the chronic pain. She was referred to

Christopher Maulucci, MD, with the Tulane Center for Clinical Neurosciences, who had good news for her — not only would the procedure help ease her pain, it would also be the first in the region to use a revolutionary new robotic navigation system that provides minimally invasive surgical options for several complex spinal, orthopedic and neurological conditions.

Tulane Health System is the first hospital in the New Orleans area to offer the ExcelsiusGPS™ system, which provides surgeons with enhanced, real-time visualizations of a patient's anatomy to help improve the accuracy of procedures. Rome was the first patient to receive the benefit of the technology, with a successful surgery late in 2018.

"It helped a lot," she said. "In just four days, the burning stopped. I wouldn't have been able to walk without that procedure."

The robotic system's improved optics allow for minimally invasive procedures, which often result in less blood loss, less muscle damage and a potentially faster recovery when compared to traditional surgeries.

"Prior to this technology, we depended on X-rays, which don't provide us the same degree of accuracy we have now," said Maulucci, vice chair of clinical neurological surgery at the School of Medicine. "With the robot, we see exactly where the screws are going as we insert them, so we can make minor adjustments to match each patient's unique anatomy."

"Prior to this technology, we depended on X-rays, which don't provide us the same degree of accuracy we have now."

— Christopher Maulucci, MD, vice chair of clinical neurological surgery

Microbiology and immunology



PAULA BURCH-CELENTANO

Professor Chad Steele, PhD

NEW CHAIR JOINS TULANE

Professor Chad Steele, PhD, joined the School of Medicine as the new chair of the Department of Microbiology and Immunology in spring 2018. Prior to Tulane, Steele served as an endowed professor in the Department of Medicine, a fellow in the Office of the Provost and the assistant dean of research administration in the School of Medicine at the University of Alabama–Birmingham.

Steele said that one of his goals at Tulane is to raise the profile and reputation of the Department of Microbiology and Immunology and of the School of Medicine.

"There are roughly 95 microbiology programs around the country, and, from a National Institutes of Health (NIH) funding standpoint, we are currently ranked 39th. We're doing quite well, but I think we can do better," he said.

Currently funded by three NIH R01s and the Cystic Fibrosis Foundation, Steele will also dedicate time to studying protective immune responses during invasive fungal infections and immunopathogenic immune responses during fungal-associated asthma.

VIEWPOINT:

Tracing the link between trauma and health

BY FAITH DAWSON

Q. How does continuous violence affect a child biologically?

Exposures to [continuous violence] are leading to changes in how the internal stress response systems respond to future stressors. If I tell you to stand up and give a speech, your heart rate's going to go up, your cortisol will go up and with your cortisol, you'll get some testosterone surges. Once you have done that, all of those stress systems go back down to normal.

What we think happens is that the pattern of being able to respond and recover alters when you are exposed to continuous trauma. Your ability to fluctuate both across the day and in response to stressors is not typical. If I can't generate an appropriate cortisol pattern, then when I'm in a classroom setting, I don't have that same focus and that same attention, and I can't learn as well.

Q. But the biological changes affect kids outside the classroom, right?

If I have never learned to regulate my emotions, and I'm an 8-year-old, I have trouble with peers. I get into trouble in school. And so then I can't develop these other things that are important for succeeding in our world: friends. Social interactions are an incredible part of learning.

Q. How does your lab translate these changes to health issues?

We are spending a lot of time on understanding these effects at the biologic level ... how they also influence obesity, diabetes, hypertension, cardiovascular disease, because these same stress response systems underlie these health outcomes as well.

Q. Does exposure to violence prompt changes on the chromosome level?

An epigenetic marker that we look at is telomere length. A telomere is kind of a plastic cap but made out of DNA, RNA and proteins, that is at the end of every chromosome. In human systems, we think of it as somewhat of a marker of aging and an epigenetic

regulator. Metaanalytic studies have linked early life adversity and childhood trauma exposure to shorter telomeres in adulthood, suggesting that this marker of cellular aging is capturing all of these different exposures and is predicting later health outcomes like cardiovascular disease and obesity.

Q. How can this research improve the way we treat children who witness violence?

The super important piece is designing interventions that can use [biological changes] as an indicator of risk at the level of the community [to] stop that accelerated cellular aging, with the idea that we can prevent illness onset even in our highest-risk populations.

STACY DRURY, MD, who holds the Remigio Gonzalez, MD, Endowed Professorship of Child Psychiatry, studies the intersection of genetic and epigenetic markers with early childhood experiences — particularly traumatic experiences — to determine how they affect long-term outcomes. She was presented the 2018 Norbert and Charlotte Rieger Award for Outstanding Scientific Achievement by the American Academy of Child and Adolescent Psychiatry.



Stacy Drury, MD, studies how childhood trauma is shaping long-term health outcomes.

JENNIFER ZDON

Research: Tumor talk, dementia

1 Clamping down on tumors talking

BY MELANIE CROSS

Cancer cells metastasize through chemical messages delivered in exosomes, the molecules that carry information from cell to cell.

Asim Abdel-Mageed, DVM, PhD, Zimmerman Professor of Cancer Research at Tulane University School of Medicine, published in *Scientific Reports* research that examined whether drugs approved to treat other diseases or conditions could be effective in blocking the activity of exosomes.

In partnership with investigators at the National Center for Advancing Translational Science, Abdel-Mageed and his team investigated 4,580 known pharmacologically active compounds and FDA-approved drugs. Twenty-two were effective in preventing advanced prostate tumor cells from releasing exosomes or in blocking their production.

Abdel-Mageed worked with Debasis Mondal, PhD, and Raju Thomas, MD.



Diabetes and dementia

BY ROGER DUNAWAY

Andrea Zsombok, PhD, an associate professor of physiology and a member of the Tulane Brain Institute Executive Committee, recently received a \$334,000 supplement to her current National Institutes of Health (NIH) grant that supports research into the brain's role in diabetes. Diabetes is associated with an increased risk for all dementias, including Alzheimer's disease.

Zsombok initially received a \$1.6 million grant from the NIH in 2014. The goal of her team's studies is identifying the activity of liver-specific neurons in a model of Alzheimer's disease.


Zsombok studies the autonomic nervous system, which regulates bodily function, including systemic sugar levels.

"Our publication shows that in a diabetic condition the neurons, which are part of the brain-liver pathway, are more active than in a normal condition. So, likely there are differences in the brain of a person with diabetes compared to a healthy person in a context of the brain-liver pathway," Zsombok said.

Under stress, the body activates the sympathetic nervous system (SNS), which leads to a cascade of responses, including the release of glucose.

Individuals with diabetes or hypertension may already experience increased activity of the SNS, which contributes to higher sugar levels.





Tulane's collaborative
and coordinated
care provides
holistic healing.

BY FAITH DAWSON
PHOTOGRAPHY BY CRAIG MULCAHY

SHERRI WILLIAMS, LPN,
assists patients and
prepares them
for lifestyle changes.

KERIN TOOTHAKER,
is one of the first faces bariatric
candidates see in the clinic.
Their care may start with her:
She schedules appointments
and takes vital signs.

ROHAN SAMSON, MD,
cardiologist and assistant
professor of medicine,
addresses the cardiovascular
risks of obese and
bariatric patients.

TEAM

SPIRIT

| BARIATRIC TEAM |



SHAUNA LEVY, MD,
assistant professor of surgery, says her team truly believes in the power of comprehensive care.



CHRISTOPHER DUCOIN, MD,
has helped build the bariatric surgery center at Tulane. He also serves as surgery fellowship director and surgery clerkship director.



EMMA POLING,
registered dietitian, educates members of the community and guides them toward a healthier lifestyle.

When a patient receives a life-altering diagnosis, it can be scary. What do illness and recovery feel like for the patient, for the patient's family?

The road to recovery can be pitted with small inconveniences that feel significant. The prospect of setting up multiple doctors' appointments and laboratory tests can be daunting and can upend what a patient considers his or her "normal" life.

At some healthcare institutions, the complexity of the diagnosis can lead to care that slips through the cracks.

THE MODEL TO MATCH

At Tulane hospitals and clinics, patient care is coordinated and complementary. Reflective of a multidisciplinary healthcare trend that emphasizes collaboration, Tulane is a leader in team medicine.

At the Tulane Transplant Institute, many patients are evaluated every day for abdominal transplants including kidneys, liver and pancreas. The wait for a suitable donor organ is often long, sometimes years long, and the process, which includes health evaluations, lifelong medicine needs, extensive paperwork and financial decision-making, can be tough on patients — before, during and after the surgery.

Having a knowledgeable, trustworthy and committed physician is part of the experience — but not the only part. In a complex medical procedure such as a

transplant, a patient has an entire care team rather than interactions with just one surgeon. Protocols for transplant medicine mandate that type of approach, such as daily multidisciplinary rounds and weekly meetings to discuss patient status and progress.

"The advantage is, it's mandated for us to do the rounds [together] because we know it's good for the patient, to see the patient from a holistic standpoint," said Anil Paramesh, MD, professor of surgery, urology and pediatrics and surgical director of the Kidney/Pancreas and Living Donor Transplant Program at the School of Medicine. Paramesh performs liver, pancreas, and kidney transplantation in adult and pediatric patients. He also performs surgery for living organ donation.

Before the transplant, surgeons, nephrologists, hepatologists and other specialists gather weekly to discuss the specific patient cases and their risk factors and other critical details that influence a successful surgical outcome. The care network extends to psychologists, social workers and financial planners, as well as healthcare providers from other fields.

"I think it [leads to] a good treatment plan for what the patients should be getting," Paramesh said.

"Four, maybe six, maybe eight eyes are better than two," he added. "There's a lot of bouncing of ideas between the doctors."

Some medical fields have traditionally been siloed — one patient, one doctor — said Professor of Surgery Hoonbae Jeon, MD, director of the Tulane Transplant Institute.

"For something like this, some complex medical and surgical problem which needs long-term management between specialties, this is actually a very nice model," Jeon said of the transplant program.

"We have physicians in different specialties. Surgeons and internists are not like the same species of animal," he said, using a lighthearted analogy. "In the same office we have 'meat eaters' and 'plant eaters' in the same space helping each other, so we created our own small ecosystem to work with each other. That's not only beneficial, but also this is essential to be a successful program."

Today's medical students are taught collaboration early on.

"Many of us did not train like this; when we trained 20, 25 years ago, it was for single-practice doctors," Paramesh said. "But that's not the case anymore. We're preparing the students and residents for the medicine of the future."

| PROSTATE CANCER TEAM |



A. OLIVER SARTOR, MD,
medical director of the
Tulane Cancer Center, is a
researcher, author and a
professor of medicine.

RAJU THOMAS, MD,
is professor and chair in
the Department of
Urology. He's also a
fellow of the Royal
College of Surgeons.

KENDRA HARRIS, MD,
says the patient experience
improves when doctors and
healthcare facilities work
together to reduce little
inconveniences.

PEDRO BARATA, MD,
joined the School of
Medicine faculty last year.
He's an assistant professor
of medicine, as well as a
clinician and researcher.

In March 2018 Tabatha Billiot of Livingston, Louisiana, donated a kidney to her husband, Nathan, who has lupus.

When Nathan first entered end-stage renal failure, his nephrologist referred him as a transplant candidate to Tulane. After Tabatha Billiot emerged as a potential donor, Paramesh planned to perform the surgery — but first she needed to have her gall bladder removed. Instead of referring her to another surgeon, Paramesh performed the gall bladder surgery himself.

“When he did that, I knew we were in the best hands,” Billiot said. Paramesh subsequently performed the nephrectomy less than three weeks later. Nathan Billiot has done very well since the surgery and continues to follow up at the transplant clinic.

“It was wonderful because I know how many patients go through there, but they made us feel like we were the only pair anytime we went in there,” she said. “It was a beautiful experience, from social worker to having my team set up to having his team set up; they made it that we were a priority every time we walked in those doors.”

Billiot also lauded the team approach in her after-care, during which the nurses and other staffers continue to answer their questions and check in on them.

“It was a nerve-racking experience from where we were, getting to this point,” Billiot added. “But they put me at ease.”

BETTER FOR PATIENTS, BETTER FOR DOCTORS

Even though physicians follow protocols for the diagnosis and management of conditions, every patient is different. At the Tulane Cancer Center, prostate cancer is examined and treated from a number of angles.

“Care has evolved in diseases like prostate cancer to become an inherently multidisciplinary [field],” said A. Oliver Sartor, MD, assistant dean for oncology at the School of Medicine, medical director of the Tulane Cancer Center, and C. E. and Bernadine Laborde Professor of Cancer Research, who has been treating prostate cancer for almost 30 years.

“Prostate cancer potentially involves a variety of specialists, especially for

those shortly after a diagnosis,” he said. Multidisciplinary care includes participation with a urologist, a medical oncologist and radiation oncologists.

Instead of grouping urologists in one location, oncologists in another, and so on, “at Tulane what we’ve done is to integrate those teams so that the different specialties are in the same clinic at the same time.” Patients can find the physicians they need to see in one clinic.

“We can interact on an ongoing basis for cases that require input from both urology and medical oncology, all at the same time.”

Sartor learned the value of physician proximity when he was treating patients in the 1990s, he said.

“I remember an amazing lightbulb moment that I had after a discussion with a nuclear chemist in 1993. He made me aware of an approach that I hadn’t considered before, and it made perfect sense. I’ve actually been incorporating it in some way or another ever since the conversation” 25 years ago, Sartor said. “Progress on this disease is going to require more than one physician’s specialty.”

That’s why even today, he relies on the counsel of other cancer specialists to help guide aspects of treatment. Among his colleagues is Jonathan Silberstein, MD, chief of the Section of Urologic Oncology.

“Many of my patients have advanced malignancies, and a scalpel can only go so far in addressing systemic processes,” Silberstein said. “Often using a knife or a robot, we can debulk the majority of a tumor, or after they’ve received systemic therapy, we can go in and clean up the pieces. It’s very common for us to work hand-in-glove with our medical oncologists.”

Blair Broussard of Thibodaux, Louisiana, underwent prostate and kidney cancer surgery at Tulane from 2017 to 2018. Silberstein and Sartor were among his physicians, who, Broussard said, communicated via group email, among other ways. The physician team, which also included gastroenterologist John Affronti, MD, even agreed that the Broussards should take their Disney vacation before treatment.

“Everybody knew what was going

on with everybody else,” Broussard said. “Nobody was left out. There was no lack of coverage, there was no time being wasted.

“My wife and I felt very comfortable with it,” he added.

Kendra Harris, MD, interim chair of the Radiation Oncology Section, also works closely with the genitourinary group at Tulane Cancer Center.

Harris said that sometimes patients’ dread is worsened by little inconveniences, like having appointments canceled at the last minute, or having to return to the same office over and over again to see different specialists. Tulane works to prevent such inconveniences.

“It’s the most respectful way that we can provide patients with a coherent plan,” she said. “People’s experience of their cancer, the way it impacts their lives, has [much] to do with being respectful of logistics. A lot of the things which trigger anxiety are related to logistical and timing questions, which can be resolved.”

EXTENDING THE MODEL

Tulane’s bariatric surgery program has grown rapidly. The program now has two surgeons and also added a fellow in 2018. Tulane surgeons specialize in minimally invasive gastric bypass and sleeve gastrectomy — surgeries done through small incisions.

Here, the team medicine approach includes a central downtown clinic but can also work virtually for the referring physicians who mainly work out of other facilities. Off-site physicians can manage their cases through electronic medical records, phone consultations and virtual meetings.

Assistant Professor Christopher DuCoin, MD, who is director of the bariatric surgery section, built the bariatric program from when he was the sole surgeon.

“The care team at Tulane consists of a coordinator, a nurse, two surgeons who offer the procedure, and a dietitian. That’s the group they will see almost every single time they come to see us at the hospital,” DuCoin said. “Depending on if they have a cardiologist or pulmonologist, I send them back to their referring doctors,” like an endocrinologist or a cardiologist.

“Four, maybe six, maybe eight eyes are better than two,” he added. “There’s a lot of bouncing of ideas between the doctors.”

—Anil Paramesh, MD, professor of surgery, urology and pediatrics and surgical director of the Kidney/Pancreas and Living Donor Transplant Program at the School of Medicine.

Since bariatric surgery is preceded by a months-long work-up, there’s adequate time for physicians to consult with one another and discuss patients’ various risk factors.

The patients who come to the bariatric program are often referred by other Tulane physicians, such as endocrinologist Vivian Fonseca, MD. Weight loss surgery can help individuals manage conditions like diabetes, which Fonseca treats, as well as contribute to an overall healthier lifestyle.

“We know the patients anyway, and we’ve had discussions with them regarding what to do about bariatric surgery,” said Fonseca, who often works out of Tulane Lakeside Hospital and Southeast Louisiana Veterans Health Care System. Coordinating during the preoperative and postoperative periods becomes important as the patient’s needs change, such as if and when the patient no longer needs insulin.

“We really believe in comprehensive care,” said Shauna Levy, MD, another bariatric surgeon in the program, and assistant professor of surgery in the School of Medicine. “I see my patients every visit and really form a relationship with them, which is the best part. I work so closely with our dietitian. It’s important not only for patients to have surgery but

really to be educated about nutritional and lifestyle choices. We want to give them the tools they need for success.”

Cardiologist Rohan Samson, MD, refers patients who are overweight and need to manage cardiovascular disease to the bariatric program.

“Obesity is a disease which has multi-pronged effects: risk factors like diabetes, blood pressure, dyslipidemia and sleep apnea often accompany obesity and predispose patients to cardiovascular events,” said Samson, an assistant professor of medicine. “Co-morbidities in obesity tend to be difficult to control, and a multidisciplinary team approach helps improve care and outcomes for obese patients.

“As a blanket statement, [telling patients] to ‘eat less’ is ineffective,” Samson added.

“Lifestyle changes such as diet and exercise are the primary recommendations for weight loss. However, for obese patients, lifestyle changes alone may not result in sustained weight loss and improvement in co-morbidities. Diet and exercise prescriptions need to be weighed from not just clinical, but also a social perspective. Having a dedicated team of nutritionists and physical and behavioral therapists really helps in tailoring treatment for individual patients. When lifestyle

changes are unsuccessful, weight-loss surgery can be a critical factor in an obese patient’s treatment.”

“Diet and exercise can work as obesity prevention, but they’re usually inadequate in obesity treatment. The additive effects of lifestyle modifications plus bariatric surgery usually lead to success,” Levy said.

Samson’s collaboration with DuCoin and other physicians resulted in a study published in the *Journal of the American Society of Hypertension*, which showed that hypertensive patients who undergo sleeve gastrectomy showed significant reduction in systolic blood pressure and antihypertensive therapy one month after the procedure.

At Tulane, team medicine isn’t as much a professional goal as it is a strategy to treat the whole patient for the best possible outcome.

“No one set of brains or training will optimally be able to strategize over each and every condition,” said Sartor, of the Tulane Cancer Center. “The opportunity to discuss cases, the opportunity to interact with the management of these patients are opportunities for all of us to get a little smarter. I like to tell my patients, ‘When I get smarter, you get better.’” *

PRIMATE RESEARCH

BREAKTHROUGHS AND BEYOND

By advancing cutting-edge treatments for infectious diseases and discoveries in regenerative medicine, the Tulane National Primate Research Center is making breakthroughs possible in conjunction with the School of Medicine.

BY KEITH BRANNON
PHOTOGRAPHY BY DAYMON GARDNER



FACULTY AND
RESEARCHERS AT
THE FOREFRONT

fig. 1

BRUCE BUNNELL, PhD

Leads projects in gene therapy, stem cell treatments and tissue/cartilage regeneration.

fig. 2

CHAD ROY, PhD

Collaborated with Dr. Morici to test her vaccine at TNPRC.

fig. 3

LISA MORICI, PhD

Developed a vaccine candidate for a fatal drug-resistant bacteria.

fig. 3





For more than half a century, scientists in the Tulane National Primate Research Center, (TNPRC) have battled major diseases such as AIDS and Zika virus.

Earlier this year, the National Institutes of Health awarded a \$42 million, five-year grant to TNPRC to continue its mission to fight diseases and improve human health through biomedical research.

The funding was a renewal of the grant that supports the operation of the 54-year-old center, which employs more than 300 scientists, staff and animal care workers on a 500-acre campus in Covington, Louisiana. As part of a network of seven national primate research centers across the country, TNPRC is dedicated to finding cures, treatments and preventions for major infectious diseases including HIV/AIDS, Lyme disease, malaria, tuberculosis and emerging diseases like Zika.

While the primate center is home for a substantial number of independent investigators, it is also a significant resource for researchers within Tulane University School of Medicine.

The study of nonhuman primates is critically important for medical research, as primate research often precedes clinical trials in humans. Because primates share more than 90 percent of our genes, non-human primates can demonstrate how diseases affect people unlike any other animal, computer or cell culture model.

"There's a recognition that a lot of studies in mice don't translate as well into what

would be predicted to work in humans," says TNPRC Director and Chief Academic Officer Jay Rappaport, PhD. "And there are a lot of studies that cannot be done in humans and can be done more effectively in nonhuman primates."

TACKLING GLOBAL THREATS

One key area of research is the search for new vaccines to protect against viruses and bacteria or the so-called select agents, which are biological toxins and infectious organisms that could become public health threats. An example is *Burkholderia pseudomallei* (Bps), an increasingly drug-resistant bacteria that causes melioidosis, a potentially deadly disease common in Southeast Asia and other tropical climates.

Without treatment, Bps can cause fatal organ failure within 48 hours. Those infected can get pneumonia, skin abscesses and other symptoms similar to tuberculosis.

Bps is rare in the United States, but public health officials consider melioidosis an emerging global threat because the bacteria can live in soil well outside the countries where the disease is endemic. It is a priority for the U.S. Department of Defense not only because it is a danger to troops stationed overseas but also because it could be aerosolized into a bioterrorism weapon.

ONE SCIENTIST'S WORK

Tulane microbiologist Lisa Morici, PhD, has spent more than a decade studying Bps and *Burkholderia mallei*, a closely related pathogen that infects animals. She worked with researchers at the primate center to develop the military's leading vaccine candidate against the bacteria.

Tulane National Primate Research Center was essential for the work, she says.

"From the very beginning I wouldn't be where I am right now without the primate center — without a doubt," says Morici, associate professor of microbiology and immunology. "The primate model, for me in particular, is very critical, because I work with select agents. I develop countermeasures for infectious agents that would never be feasible to test in a clinical trial in humans. Any work with the infectious organism had to be done at the primate center. And I think one of the

keys to my success was establishing relationships early on with primate center faculty."

Morici's research started with a \$25,000 pilot grant, and steadily grew into a \$7.68 million project. She worked closely with Chad Roy, PhD, director of infectious disease aerobiology at the primate center, to show that the vaccine could protect animals exposed to the pathogen in the air. Much of that work was conducted in the primate center's level 3 Regional Biosafety Lab.

Her vaccine is composed of outer membrane vesicles (OMVs), which are nanoparticles shed by bacteria as they grow. OMVs are also being developed as a new class of adjuvants or immune system triggers for use in next-generation vaccines.

"Outer membrane vesicles are very small particles that are shed from the surface of the bacteria, and our bodies have evolved signaling pathways to recognize these particles as a sign of a live infection. And as a result, our bodies mount a robust immune response," she says. "Outer membrane vesicles from bacteria are very similar between different species, and they contain conserved sequences that our bodies recognize. And as a result, we can use vesicles from one bacterium to mount immune responses against it and similar bacteria. And in this sense, we can use the vesicles that we produce here in our laboratory to stimulate immune responses against bacteria from many different clinically important pathogens."

In January, the Defense Department awarded her more than \$4 million for a three-year contract to develop a final prototype of the Bps vaccine for good manufacturing practice production.

"It's an amazing feeling to work on something that could save lives or prevent disease," she says. "We're excited to see the vaccine technology used in other areas. We'd like to take the platform and adapt it to other organisms like *Pseudomonas aeruginosa*, a drug-resistant bacterium, or perhaps salmonella or other diseases where there might still be a need. Then we can protect global populations in addition to the U.S. military."

EXPLORING GENE THERAPY AND REGENERATIVE MEDICINE

Next-generation vaccines aren't the only breakthroughs at the School of Medicine that rely on cooperation with the primate center. Bruce Bunnell, PhD, director of the Tulane Center for Stem Cell Research and Regenerative Medicine, depends on TNPRC for projects ranging from developing stem cell therapies to treat rare genetic diseases to using regenerative medicine to replace joint cartilage.

"Pretty much everything that I do from a research perspective, whether it's gene therapy, stem cells or tissue engineering projects, they all have involved nonhuman primate research," Bunnell says. "I wouldn't have the papers nor would I have some of the grants that I have without having access to the primate center. For me, it's a huge part of my research life."

Bunnell has three major research projects ongoing at TNPRC. One of the largest is his first collaboration with the center to investigate Krabbe disease, which is a rare inherited disorder that destroys the protective coating of nerve cells in the brain and the nervous system.

"Krabbe disease is a lysosomal storage disorder. It's an inborn error in metabolism," Bunnell says. "Humans that have Krabbe's are born with a genetic mutation such that their lysosomes, or the garbage disposal of our cells where everything goes to get degraded, don't work properly. They're missing a key enzyme such that things that normally get broken down into very small molecules can't get broken down."

Bunnell has been testing stem-cell therapies against Krabbe's. Years ago, primate center staff discovered the disease in rhesus monkeys in a breeding colony within the facility. TNPRC was the first to have a naturally occurring nonhuman primate model of the disease.

"We've been doing a lot of studies in nonhuman primates, where we're infusing various stem cell populations in the central nervous system to look at their ability to treat disease," Bunnell says.

Part of the research also involves a



CHERYL GERBER

JAY RAPPAPORT PhD

Directs 300 scientists, staff and animal care workers at the TNPRC.

WHAT THE CENTER WORKS ON

- Finding treatments for major diseases: HIV/AIDS, Lyme disease, malaria, Zika and others.
- Searching for vaccines to fight biological toxins.
- Developing stem cell therapies for rare genetic diseases.
- Using regenerative medicine to rebuild joints.

collaboration with the University of Texas Southwestern Medical School to engineer viruses to deliver targeted gene therapy. They are making viral vectors derived from Adeno-associated virus (AAV), a non-parthenogenic virus that doesn't illicit a strong immune response in people.

The project aims to transduce cells in

hard to reach regions of the brain and central nervous system.

"It's an approach called viral evolution, where you make libraries of different components of AAV viruses and let them recombine on their own and look at their ability to transduce cells in the brain, or to genetically engineer cells in the brain," Bunnell says. "And that work absolutely requires nonhuman primates, because the data that we get should mimic what we see in the human system, whereas data in the mouse model will be good data, but it won't necessarily indicate what's going to happen in people."

The technique could also work to fight Krabbe's as it has the potential to target cells in the spinal cord and brain.

"The unique thing about Krabbe's disease is that in the brain it effects oligodendrocytes, which are cells that produce a compound called myelin, which is like the installation on electrical wire. And so ideally, all we really need to do is get genes into the oligodendrocyte cells, and we should be able to correct that," Bunnell says.

The difficult challenge Bunnell's collaborator hopes to overcome is engineering vectors that are able to target specific cell types.

Bunnell is also conducting regenerative medicine research at the primate center. He is part of a project to develop an experimental graft that plastic surgeons can eventually use to regenerate a nipple and areola for complete breast restoration after cancer treatment. He is also working on a project with Dr. Zongbing You, PhD, to regrow cartilage to help repair joints damaged by age and degenerative diseases.

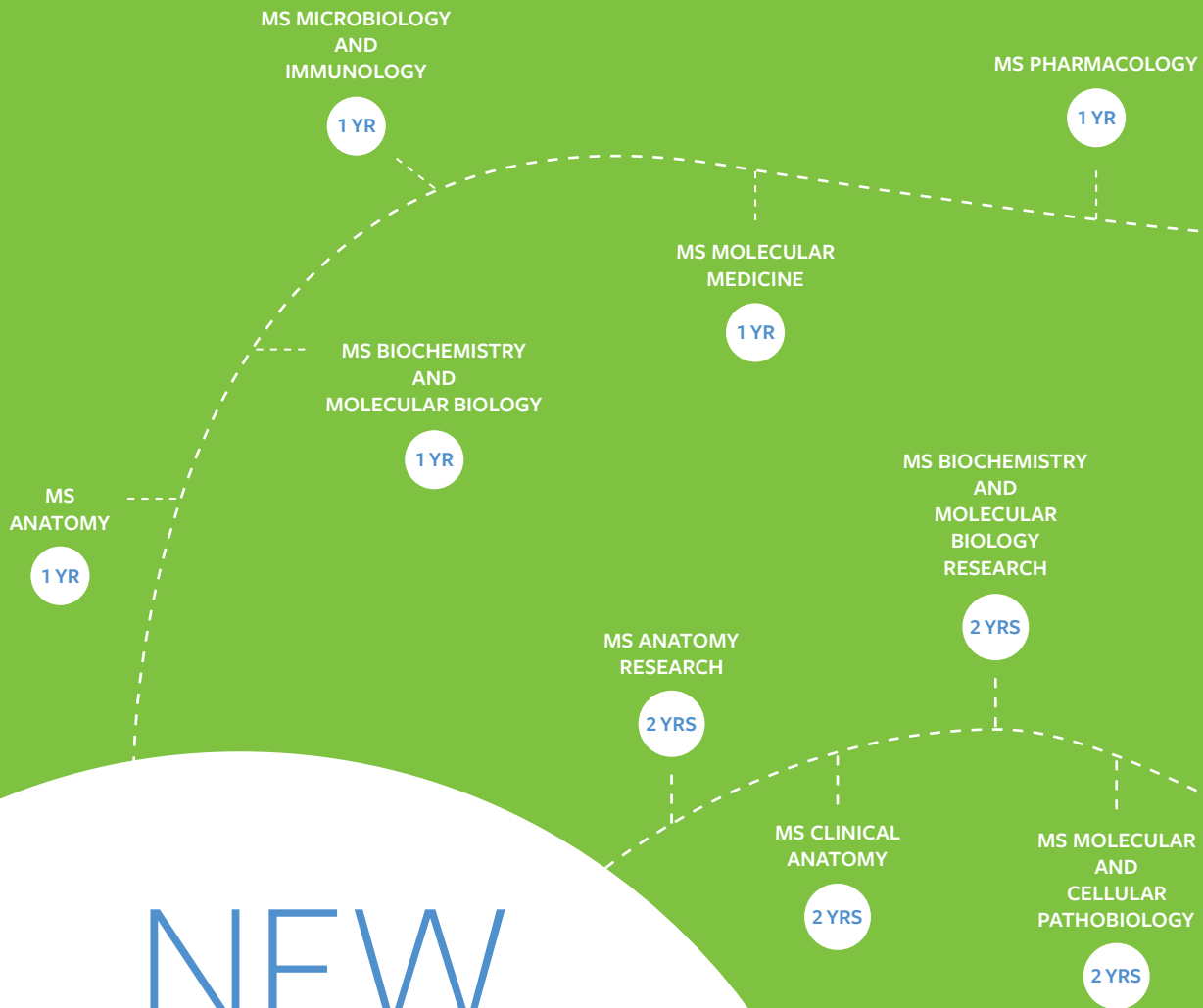
Such advanced work is only possible using nonhuman primates, Bunnell says.

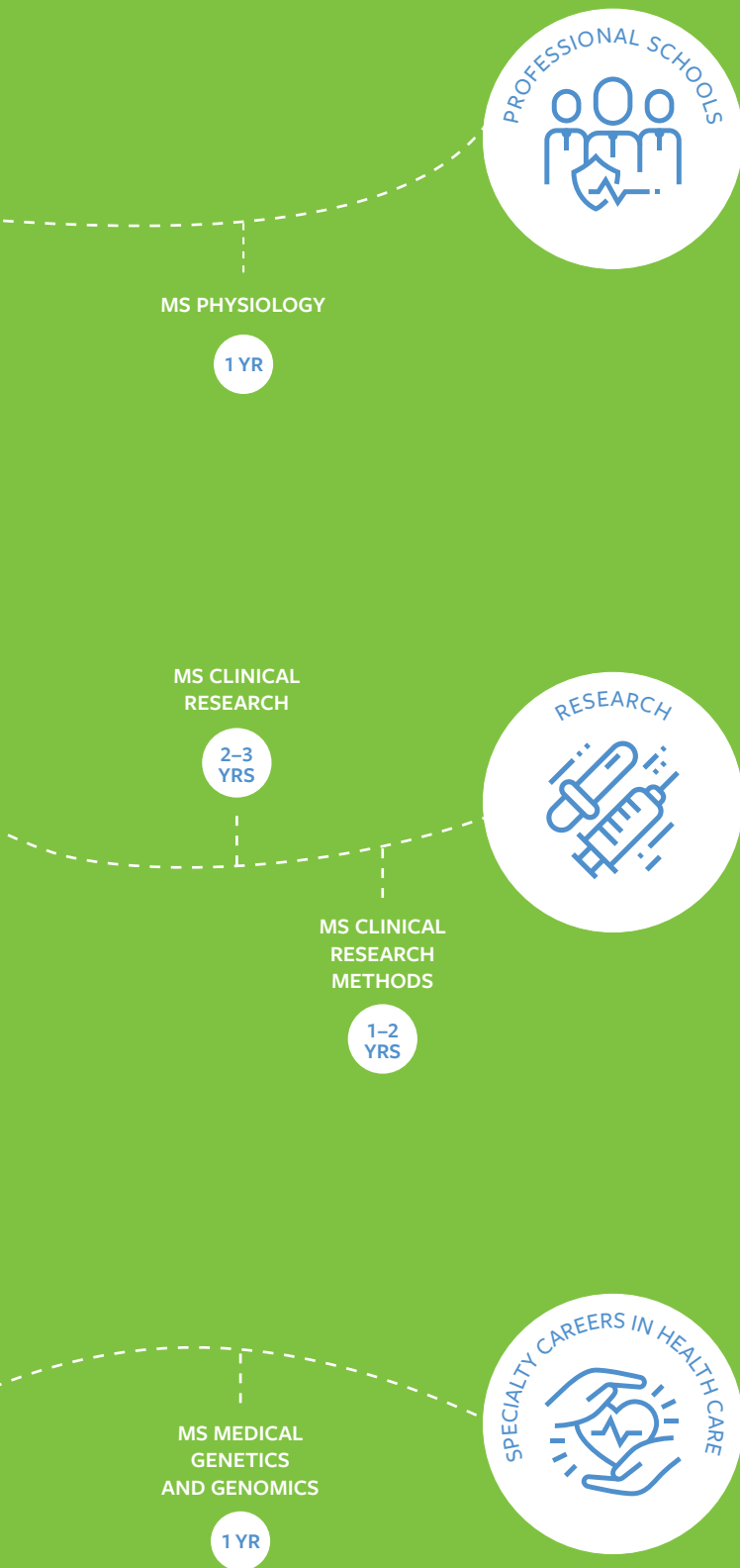
"Our field is still young and immature. To move something into a human being, there's still a lot of work that has to be done on large animal models," he says. "Gene therapy, stem cell treatments and new tissue-engineering-based approaches are all going to have to go through nonhuman primates in order to be successful.*"

NEW PATHS TO MEDICINE

Innovative master's programs built on creativity and public service help Tulane develop more well-rounded, compassionate doctors, researchers and teachers.

BY CAROLYN SCOFIELD





Twelve years in finance. A stint as a scuba instructor. For Jordan Brock, the question was clear: What would it take to put his degree in biochemistry to use?

A Tulane Master of Science degree in microbiology and immunology proved to be the step back into the scientific world. Brock thought the program offered by the School of Medicine could be the transition he needed to get into medical school.

"I learned a lot," said Brock, now in his third year of medical school. "It was a way to get back into a level of schooling much closer to medical school. It definitely prepared me for the level of homework and studying, and the instructors are fantastic."

ANOTHER PATH INTO MEDICINE

For students like Brock, who are interested in pursuing medical careers including research, clinical practice and teaching, Tulane's graduate program in biomedical sciences at the School of Medicine includes 14 different master's degree options in anatomy, biochemistry and molecular biology, human genetics and genomics, microbiology and immunology, pathology and laboratory medicine, pharmacology and physiology.

The programs are for students interested in pursuing careers in the medical field, from research to clinical practice and teaching. All basic science departments in Tulane School of Medicine offer a one-year master's program designed to improve the academic credentials of graduates and prepare them for entrance into medical or dental school or other health profession-related programs. Some departments also offer a two-year, research-intensive program that prepares students for careers in academic or industrial research.

The School of Medicine launched its biomedical sciences graduate program in 1999, first offering a Master of Science in pharmacology.

"We recognized at the time there was a large group of students who wanted to get into medical school but were just on the cusp of having a high enough GPA or MCAT score," said Craig Clarkson, PhD, professor and director of the graduate studies program in pharmacology.

"We decided to develop a one-year program to put them through a reasonably rigorous graduate curriculum that would not only increase their basic

23%

Enrollments in School of Medicine master's programs increased from 2014–2016 — outpacing peer schools.



science knowledge, but also expose them to the medical pharmacology course, which is historically a second-year medical course. We found that on average our MS students performed very similar to medical students on internal exams containing the same pharmacology questions used on medical exams.”

Clarkson said about 80 percent of students who graduate from the pharmacology program have been accepted to medical school. Others have gone on to dental school or into a research field.

“We have about 30 students in the class per year, so that’s about 400 students who have gone on to medical school in the last 20 years.”

Steven Hill, PhD, professor and Edmond and Lily Safra Chair for Breast Cancer Research, leads the master’s in anatomy. The department offers four different master’s degrees. The MS in anatomy is designed for students who want to enhance their eligibility for professional schools; anatomy research is a two-year thesis program for students who want to develop research careers in biomedical science and medical education; clinical anatomy is a two-year, non-thesis program for students who want to teach anatomical sciences; and a combined MD/MS degree in anatomy is for students who want to pursue careers in surgical specialties. Students in the MD/MS program earn a dual degree at the end of their four years in medical school.

“These students do surgeries on cadavers like doctors would,” Hill said. “They do all these different procedures and our faculty

can see what students have the skill set to be a surgeon.”

Felicity Fisk continued on to Tulane School of Medicine after earning a master’s in anatomy.

“I got to serve in an unofficial capacity as a teacher’s assistant, helping people with anatomy lab,” said Fisk, now an orthopedic surgery resident at Henry Ford Hospital in Detroit. “That’s given me a really solid foundation in anatomy, which has helped me with my career in surgery.”

GROWING THE MARKET

A market analysis this year showed Tulane School of Medicine master’s programs grew 23 percent from 2014–2016, outpacing the overall medical-related master’s market.

Diane Blake, PhD, professor of biochemistry and molecular biology and co-director of the BMS graduate program, credits word of mouth for the success.

“We haven’t been doing a lot of advertising,” Blake said. “Prospective medical students come down here, they spend a year in New Orleans, we coach them. Most of the time, they retake their MCAT after they go through the program, and they get a better score.”

THE ADVANTAGE

Blake said students who complete the Tulane MS graduate programs often have an advantage over their peers when they move on to the next chapter of their education.

“They have to go to seminars, they have to go to grand rounds, they take a very

intensive molecular biology course, they take cellular and cellular biochemistry, and biochemistry of human disease, and then they can participate in a number of different programs,” Blake said. “This gives them a step up in that they’ve already been introduced to some of these advanced-level courses before they get to medical school.”

For current student Heather Towns, the Master of Science in microbiology and immunology is helping her decide what the next step will be in her medical career.

“This program has been really helpful because there’s not pressure to decide what you want to do,” Towns said. “Camaraderie might be the best word in terms of not being judgmental about not knowing what you want to do, and the professors are really good with giving us a lot of options, forcing us to dig into things that we hadn’t quite considered before.”

Brock said the Tulane program provided a solid foundation for what he’s learning now.

“I really enjoyed it,” he added. “I thought everyone in the program was wonderful to work with, and it was a great experience.” *

ROUNDS



PHOTO COURTESY SCLERODERMA FOUNDATION

Doctor of the Year

Lesley Ann Saketkoo

Lesley Ann Saketkoo, MD, an associate professor of clinical medicine at Tulane University School of Medicine, has been named Doctor of the Year for 2018 by the Scleroderma Foundation.

The award recognizes leadership and commitment to the community battling scleroderma, a disabling and life-limiting multi-organ autoimmune disease.

Saketkoo is an internationally recognized researcher, educator and clinician in scleroderma/systemic sclerosis, sarcoidosis, myositis, pulmonary hypertension and interstitial lung disease.

“As an expert in scleroderma care, Dr. Saketkoo is a great champion of the foundation’s mission,” said Robert Riggs, CEO of the Scleroderma Foundation. “Her commitment to advancing patient care through clinical research and patient education helps those living with the disease become stronger advocates for themselves.”

Lesley Ann Saketkoo, MD, addresses the Scleroderma Foundation at its annual gathering. The foundation named her Doctor of the Year.

Letter from Dean Lee Hamm



A SOLID TEAM

The concept of teamwork, a critical component of success in the business world, has become an important part of modern health care. When many of us were training to become physicians, collaboration was seldom discussed, the focus being the individual doctor-patient relationship. As medicine has become more complex, superior patient outcomes are not merely the result of the doctor-patient relationship, but depend on the inner workings of a medical team.

This issue of *Tulane Med* focuses on the role of teamwork and collaboration in the School of Medicine's major missions. From a research perspective, the concept of a single principal investigator is evolving into teams of scientists working together to solve problems. At Tulane, this is no more evident than the collaborative research undertaken at our National Primate Research Center and the School of Medicine. We are fortunate at Tulane to have one of only seven designated primate centers in the United States.

From an education perspective, Tulane offers a palette of combined MD degrees including MPH, MS, MBA, JD and PhD degrees. Combined degrees not only foster collaborations between the School of Medicine and the university at large, but also allow for a more individualized approach to a given student's educational goals.

From a clinical care perspective, care is best provided by a team as demonstrated by collaborative clinics established in the cancer center where patients are evaluated and managed by a team of physicians and other healthcare providers.

At the School of Medicine, we appreciate the support of faculty, students, friends and alumni who are all part of our team. Let's have another winning season.



Fourth-year honors surgery course students prepare for an operating room lab.

CLASS NOTES

1950s

Frederick C. Atkinson Jr., MD (M '58)

practices family medicine in Dallas.

Dorothy Ford Bainton, MD (M '58) and her husband, Cedric, are both retired from University of California-San Francisco.

Edmond Allen Lamperez, MD (M '58) has been retired for over 15 years

and lives with his wife of 52 years in New Iberia, Louisiana.

Key D. McMurray Jr., MD (M '58) spent 25 years as the corporate medical director of Procter & Gamble Co. He retired in 1994 and moved back to Georgia.

Joel B. Steinberg, MD (M '59, R '62, F '63), received the Tulane Medical Alumni Association's C.D. Taylor Award in April.

1960s

Gary C. Morchower, MD (M '62, R '65)

received the 2018 Highland Park High School Distinguished Alumni Award.

David Drez Jr., MD (M '63, I '64, R '65, '69, R '71) has been married to Judy Drez for 55 years.

Andrew G. Finlay Jr., MD (M '63) retired in December 2016, but still does volunteer work at a hospital.

Richard C. Finn, MD (M '63, I '64, R '67)

is retired, though he performs volunteer clinical work at a free clinic.

John T. Fitch, MD (M '63) retired in 2010, and his son John took over his pediatric practice. He still helps with business aspects of the practice.

Richard J. Grayson Jr., MD (M '63) retired from private ENT practice in Roanoke, Virginia, in 2002. He works full time for the VA in Pensacola, Florida.

Donald J. Palmisano, MD (M '63, R '68) retired from the practice of surgery after Hurricane Katrina. He is currently writing a suspense novel.

Frederick M. Pevow, MD (M '63) teaches one semester a year at University of Texas–Houston.

Robert E. Treuting, MD (M '63, R '68) retired from a practice of anatomical and clinical pathology, and from service as coroner for Jefferson Parish (1988–2012) in Louisiana.

W. Abe Andes, MD (M '68, R '71, F '72) and **John W. Hammon Jr., MD (M '68)** were honored as co-recipients of the TMAA Lifetime Achievement Award at their 50th reunion in May 2018.

Edward L. Soll, MD (M '69) was named a 2018 Health Care Hero by *New Orleans CityBusiness*. Soll developed the Concussion Imaging Program at his private practice, Doctors Imaging.

1970s

Jerome (Jerry) S. Blackman, MD (M '71) is a professor of clinical psychiatry at Eastern Virginia Medical School (Norfolk, Virginia), senior analyst at the Freudian Society in Washington, D.C., and author of three books.

Joseph R. Dalovisio, MD (M '73) practices infectious disease and internal medicine at Ochsner — 40 years at the same place.

George P. DesOrmeaux, MD (M '73, R '77) has been doing only emergency room work since 2004.

David Worth Dunn, MD (M '73, I '75) is the section director and training director at the Child and Adolescent Psychiatry Section at Indiana University, and is the Arthur B. Richter Professor of Child Psychiatry.

Martin T. Evans, MD (M '73, I '74, R '78) retired from vascular surgery.

J. Monroe Laborde, MD (M '73) currently teaches foot surgery at LSU Health Sciences Center.

Edward A. Layne, MD (M '73) has been practicing gastroenterology and preventive medicine in Atlanta since 1980.

Kenneth H. Mullen, MD (M '73) is semi-retired, doing clinic work in family practice and palliative care consults.

Nicholas J. Petrelli, MD (M '73) is trained as a surgical oncologist and is medical director of a cancer center in Delaware.

D. Melessa Phillips, MD, MPH (M '73)

retired in 2006 from the University of Mississippi School of Medicine. She is now the chief medical officer for United Healthcare's Medicaid program in Mississippi. She serves on the Newcomb College Institute Dean's Advisory Council.

Robert W. Tofte, MD (M '73) did his residency in internal medicine and an infectious disease fellowship at the University of Minnesota. He retired in 2009.

Ulla Ule, MD (M '73, R '76, F '81, B '91) practices hematology and oncology in Alexandria, Louisiana.

John W. Winter IV, MD (M '73) retired from general surgery in June 2015.

James H. Allender, MD (M '78) practices pediatric cardiology in Fort Worth, Texas, at outpatient outreach clinics across west Texas.

Roger A. Bonomo, MD (M '78) is married with two adult daughters.

Emmett B. Chapital Jr., MD (M '78, I '79, F '83, R '83, B '96) is a cardiologist in private practice in New Orleans. He received an MBA from Tulane A. B. Freeman School of Business.

Geoffrey W. Daugherty, MD (M '78) works at the Mobile, Alabama, VA clinic. He lives in Daphne, Alabama.

Kenneth E. Engelhart, MD (M '78)

along with his wife, Carol, who is a nurse, often speaks in the rural areas of Minneapolis about a better way for rural health care. The Engelharts both sit on the board for Physicians for a National Health Program-Minnesota.

Nathan H. Fischman, MD (M '78, I '79, R '82, F '83) practices urology in New Orleans.

Gary F. Gansar, MD (M '78, R '83) retired from general surgery in 1992 and went on to be a football and baseball coach. He is a senior medical director at American Medical Forensic Specialists.

Edward M. Hallowell, MD (M '78) specializes in ADHD, and has offices outside Boston and in Manhattan, San Francisco and Seattle. His 20th book came out in June: *Because I Come from a Crazy Family: The Making of a Psychiatrist*.

Daniel K. Jens, MD (M '78) is a family physician at Ochsner in Mandeville, Louisiana.

Thomas C. Kelly, MD (M '78) is in general surgery private practice at Mercy Hospital and Clinic in Fort Smith, Arkansas.

Ruston Y. Pierce, MD (M '78) practices gynecology in Pine Bluff, Arkansas.

James A. Robbins, MD (M '78, I '80) retired as a colorectal surgeon.

Neil H. Robinson, MD (M '78) has been practicing ophthalmology in New Jersey since 1982.

Diane I. Duncan, MD (M '79, R '82), a speaker, author and educator in plastic surgery, has been appointed to the Bovie Medical Corp. Medical Advisory Board.

Bruce K. Rubin, MD (A&S '75, E '77, M '79) holds a dual appointment in Virginia Commonwealth University's schools of Medicine and Engineering.

Gary M. Wiltz, MD (A&S '75, M '79, I '80, R '82) received the 2018 John Gilbert Award from the National Association of Community Health Centers (NACHC).

1980s

Mary P. Lupo, MD (M '80, R '84), received the Tulane Medical (cont.)

TULANE DESIGNATIONS

A&S: College of Arts & Sciences

B: A. B. Freeman School of Business

E: School of Engineering

F: Fellowship

G: Graduate School

I: Internship

M: School of Medicine

NC: Newcomb College

PHTM: School of Public Health and Tropical Medicine

R: Residency

SLA: School of Liberal Arts

SSE: School of Science and Engineering

Alumni Association Distinguished Service Award in April.

Alon S. Aharon, MD (M '82) has joined Health Quest Medical Practice in its Division of Cardiovascular Surgery, Poughkeepsie, New York.

Courtney A. Bethel, MD (M '83, PHTM '83) enjoys an emergency medicine practice and working with residents at Drexel University College of Medicine.

Richard H. Bobo, MD (M '83) is a neurosurgeon at North Mississippi Medical Center. His research interests include cervical laminoplasty for myelopathy, motion-preserving spine surgery, primary brain tumors and minimally invasive skull-base surgery.

Greg S. Buchert, MD (M '83, PHTM '79, R '85) is currently the president/CEO of Blue Shield of California's Medicaid and Medicare health plans. He is married to **Mariko Tsuchiya, MD (M '85)**.

Steven S. Greenbaum, MD (M '83) lives in the Philadelphia suburbs, where he practices Mohs surgery for skin cancer.

Robert B. Link, MD (M '83, R '84) has lived in New Orleans almost his entire life and works full time at Leonard J. Chabert Medical Center in Houma.

Richard L. Pang, MD (M '83) practices otolaryngology.

R. Mark Saroyan, MD (M '83, F '90) is a vascular surgeon at Kaiser South Bay Medical Center in Harbor City, California.

Fumi L. Suzuki, MD (M '83, PHTM '83) is a family physician in Albany, California. He is the associate director of risk and peer review for Sutter East Bay Medical Group.

Roger W. Timperlake, MD (M '83, R '88) practices pediatric orthopedics at Driscoll Children's Hospital in Corpus Christi, Texas.

Sally A. Webb, MD (M '83) is on the faculty at the Medical University of South Carolina as a pediatric intensivist.

Patrice Gendel Whistler, MD (M '83, PHTM '83, R '86) is still in private practice with her husband, **Michael Whistler, MD (M '85, R '86, R '88)**, at Western Colorado Pediatric Associates in Grand Junction, Colorado.

Debra Moore Carter, MD (M '88), after years practicing pediatrics, transitioned to a new career and now works for a pharmaceutical company.

Randall Garth Fisher, MD (M '88) is the medical director of the Division of Infectious Diseases in the Department of Pediatrics at Eastern Virginia Medical School. He took over the textbook *Moffet's Textbook of Pediatric Infectious Diseases* when Dr. Hugh Moffet retired.

Steven A. Gillespie, MD (M '88) enjoyed

residency at Brown. He finished up at the Alaska Psychiatric Institute and now lives in Gloucester, Massachusetts.

Kenneth D. Gordon, MD (M '88, R '91) ran his own internal medicine practice in New Orleans until 2005. After Katrina, he moved to Georgia.

Kathryn E. Macaulay, MD (M '88) has been living in Seattle for the past 23 years. She sees her classmate **Paul Gott, MD (M '88)** on occasion.

Etienne A. Mejia, MD (M '88) has been living in Appleton, Wisconsin, since 1999, after finishing 10-year Navy active-duty payback and fellowship in orthopedic sports medicine.

Denise A. Nigro, MD (M '88, R '93, R '94) is an interventional radiologist living in the western suburbs of Chicago.

James M. Robbins, MD (M '88) lives in Michigan. He does general surgery, trauma and critical care at William Beaumont Hospital, where he did his residency.

Maria M. Rodriguez, MD (M '88) is currently president of Radiology Services Envision.

Eric A. Schoenberg, MD (M '88) is slowing down as an anesthesiology independent contractor. Following internship,

Scott D. Tweten, MD (M '88, R '89) completed his residency in anesthesiology at Stanford. He has lived in the North Bay since.

Wayne Anthony Wilbright, MD (M '88) and his wife have lived mostly in Louisiana since finishing his residency and fellowship at Mayo Clinic, in 1993. Presently, he is the CEO for LSU Health Care Services Division.

Sheryl Young, MD (M '88) is a plastic surgeon in Kansas City, Kansas, and Missouri.

David S. Kushner, MD (A&S '86, M '89), a University of Miami neurorehabilitation expert, and some colleagues recently published "Trepanation procedures/outcomes: Comparison of prehistoric Peru with other ancient, medieval and American-Civil-War cranial surgery."

1990s

Richard Gitter, MD (A&S '86, M '92), board-certified in general cardiothoracic surgery, is the founder of the Gitter Vein Institute.

Takla E. Gardey, MD (M '93, PHTM '93) has had a varied practice in family medicine, from family practice with obstetrics to an integrative private practice for 13 years, and now telemedicine.

Vivienne M. Hayne, MD, JD (M '93, L '78) is in a general psychiatry private practice in New Orleans. She is also the pro bono medical director for the nonprofit Eden House.

H. Lorena Mayuga, MD (M '93, PHTM '93) is currently living in Kennewick, Washington, and

working for Trios Hospital as a family practitioner. She celebrated her 25th wedding anniversary with **David Morrison (M '92)**.

Susan N. McNamara, MD (M '93) moved to Baton Rouge since Katrina. There she is practicing internal medicine at Ochsner Clinic. Her daughter is a student at Tulane medical school.

Tami Megumi Nakahara, MD (M '93) lives in San Diego and has been working at the same pediatric office for almost 20 years.

Shannon Penick Pryor, MD (M '93) lives in Chevy Chase, Maryland, where she practices medical otology part time at Georgetown University.

Rudolf Thompson, Jr., MD (M '93) is a plastic surgeon at The Thompson Center for Plastic Surgery in Colts Neck, New Jersey.

Murray F. Dweck, MD (M '95) resides in Melbourne, Florida. He recently retired from delivering babies and is now the medical director and head of the High-Risk OB/GYN Program at the Florida Department of Health in Brevard County.

George F. Chimento, MD (R '95), chair of the Department of Orthopaedic Surgery at Ochsner Medical Center in New Orleans, was elected as president of the Louisiana Orthopaedic Association.

(cont.)

Gifts matter

Greenberg family endowment boosts fight against prostate cancer



Mark S. Greenberg Sr.

“My children face a genetic war against cancer.”

—Barbara Greenberg, whose family endowment supports the pioneering research of Oliver Sartor, MD.

Cancer has been particularly devastating for the Greenberg family, who have lost many family members to this deadly disease. Mark Greenberg passed away from prostate cancer in 2014. His son Mark S. Greenberg Jr. was diagnosed with prostate cancer in 2015.

“Our intent is to support Dr. Oliver Sartor in his mission to find a cure for this disease. Dr. Sartor has led us in this fight and has provided guidance and support along the way,” said Mark Greenberg Jr.

As a result, Mark Greenberg’s family — Barbara Greenberg, Jennifer and Mark Greenberg Jr., Diana and Sean Greenberg, and Lauren and Devin Wakeman — have established the Mark S. Greenberg Endowment for the Cure of Prostate Cancer at Tulane University.

“Cancer does not discriminate, and unfortunately, has shown little mercy on the Greenberg/Wakeman family,” Barbara Greenberg said. “Through the BRCA 1 and CHEK2 genetic mutations, my children face a genetic war against cancer.”

Lauren Wakeman said, “Thanks to research, however, we have gained the knowledge and guidance to take the needed preventative measures

to protect ourselves. Still, more research and clinical studies are essential.”

The Greenberg Endowment will support the pioneering research of Oliver Sartor, MD, medical director of Tulane Cancer Center and C.E. and Bernadine Laborde Professor of Cancer Research at Tulane University School of Medicine (see related story, page 8). Sartor leads Tulane’s top-ranked Prostate Cancer Research Program and is a medical oncologist with an interest in prostate cancer from both a basic research and clinical perspective. His current research includes clinical trials in advanced prostate cancer with novel drugs and innovative combinations of drugs.

“Only with research can we improve the care for those with prostate cancer,” Sartor said. “I am truly grateful to the Greenberg family for their incredible generosity. It is because of support like theirs that I am confident that we will continue to make progress that will advance our understanding of this disease.”

If you would like to make a gift to improve the lives of men with genetic prostate cancer, contact Holly Gulden at hgulden@tulane.edu or 504-314-7628.

Honoring surgery legend Jack Wickstrom

2018

New professorship launched

Fernando L. Sanchez, MD, was invested as the inaugural holder of the Bette and Jack Kenneth Wickstrom, MD, Professorship in Orthopaedics, named in part for one of Tulane’s legendary surgeons.

A department chair from 1955 to 1978, Jack Wickstrom conducted landmark studies on automotive whiplash and was a pioneer of biomedical engineering and sports medicine.

Charles Wickstrom, Merrilee Kullman and Cynthia Wright established the endowed fund to honor their parents.

Sanchez graduated from the Instituto de Ciencias de la Salud in Colombia and completed his internship and residency at the University of Alabama–Birmingham and a fellowship at the Anderson Orthopaedic Research Institute in Virginia. Sanchez became Tulane’s director of joint reconstruction in 2017.

The American Health Council has named **John E. Baker, MD (M '97)** as one of America's "Best in Medicine." Baker is the owner and head surgeon at Allegiance Orthopedic and Spine Institute.

Darcy P. Baird, MD (M '98, PHTM '98) is chief of women's health at Kaiser Livermore.

Rachel Nowak Bishop, MD (M '98) works at Houston Methodist Hospital.



ALUMNI EVENTS

REUNIONS

SPRING 2019

If your class year ends in 4 or 9, plan to celebrate with your classmates on **APRIL 4-6, 2019**. Be in that number!

**Class of 1969
50th Reunion
MAY 16-18, 2019**

Contact Cynthia Hayes, senior director of Medical School Alumni Relations, at chayes@tulane.edu for information about all upcoming events.

She was named medical director for the rapidly growing telehealth program.

Jennifer L.

Buckley, MD (M '98, PHTM '98, R '01) is a dermatologist in private practice with her husband, **Mark Chastain, MD (M '96, R '00)**. They live in Atlanta.

Alison G. Cameron, MD (M '98, R '99) renovated a fantastic old farmhouse and is still working as an anesthesiologist part time. She found out she had multiple myeloma, so she has been undergoing a trial at Dana-Farber Cancer Institute.

Megan Purcell Douglas, MD (M '98, PHTM '98) is a med-pediatrics primary care physician in Rehoboth, Massachusetts.

Eric M. Heinberg, MD (M '98, PHTM '98) is a general surgeon at Swedish Medical Center in Seattle. In October 2014 **Debra E. Houry, MD (M '98, PHTM '98)** joined the CDC as the director for the National Center for Injury Prevention and Control.

Amin Kamyar, MD (M '98) is a nephrologist in Baton Rouge, Louisiana.

Joseph L. Melendres, MD (M '98) is associate chief of emergency services at The Permanente Medical Group in Napa-Solano, California.

Kenneth Kamyar Moghadam, MD (M '98) is a reproductive endocrinologist/

director at Austin Fertility Institute in Texas.

Brian A. Moore, MD (M '98) and his wife, Kristin, have been back in New Orleans since 2011. He is currently the chair of the Department of Otolaryngology and Communication Sciences and the director of the Benson Cancer Center for Ochsner Health System.

Donna Gilman Tepper, MD (M '98, R '99) is a plastic surgeon at Henry Ford Hospital in Detroit.

Jeffrey M. Zimmerman, MD (M '98) is an otolaryngologist at Dartmouth-Hitchcock in Manchester, New Hampshire.

Stanton M. (Mark) McKenna, MD (M '99, R '00) is owner of OVME Aesthetics.

2000s

Stephen L. Curry, MD (M '03) is a radiologist at the VA in Jackson, Mississippi.

Roy Kumar, MD (M '03, PHTM '03, R '07) is a musculoskeletal radiologist.

Lily P. Love, MD (M '03, R '05) is in private practice in Santa Fe, New Mexico, in both otolaryngology and facial plastic and reconstructive surgery.

Esteban Marten, MD (M '03, PHTM '98, R '07, R '08) moved to Nashville, Tennessee, in 2018 to help launch a new plastic surgery clinic.

Diana T. McDermott, MD (M '03, PHTM '03) is working in an

FQHC in Chalmette, Louisiana.

Christopher L. Myers, MD (M '03, PHTM '03) is the medical executive director of Bridgewater State Hospital. He is also a faculty member at the University of Massachusetts Medical School.

Sara P. Petrillo, MD (M '03) is a radiologist at Kaiser Permanente, with a concentration in abdominal imaging.

Amanda R. Salvado, MD (M '03) is an ENT/laryngologist in Los Angeles.

Stephanie Lynn Schnepf, MD (M '03) is a breast surgeon at a community hospital in St. Louis.

Lia A. Thomas, MD (M '03) is an associate professor and associate psychiatry residency program director at UT-Southwestern in Dallas.

Kelly Hoskins Tyler, MD (M '03) practiced obstetrics and gynecology for six years, but is now an academic dermatologist at Ohio State, specializing in vulvar disease and skin disease of pregnancy.

Mollie Dahlgren Carruthers, MD (M '08) is a rheumatologist in Vancouver, British Columbia.

Robert L. Carruthers, MD (M '08) is a multiple sclerosis neurologist in Vancouver, British Columbia.

Meaghan A. Combs, MD (M '08, PHTM '08) is developing a breastfeeding clinic at Metro Health in

Cleveland, Ohio, and collaborating to start a Centering Pregnancy program.

Meryle J. Eklund, MD (M '08) is a pediatric radiologist at the Medical University of South Carolina.

Benjamin J. Jabara, MD (M '08) lives in El Paso, Texas, where he is the chief of interventional radiology at William Beaumont Army Medical Center.

Anna K. Lara, MD (M '08, PHTM '08) went to UAB for a pediatrics residency, then worked at a community health clinic in Houston. She now works as a general pediatrician at Ochsner.

Diego A. Lara, MD (M '08, PHTM '08) went to UAB for pediatrics residency, then completed a fellowship in pediatric cardiology and fetal echo at Texas Children's Hospital in Houston. He works at Ochsner.

Anjali Malik, MD (M '08) is a breast imaging radiologist at Washington Radiology in the Washington, D.C., region.

Lee M. Nakamura, MD (M '08, R '09) works at Kapiolani Children's Hospital in Honolulu as a pediatric neuroradiologist.

Pedro F. Paz, MD (M '08, PHTM '08) works as a private practice neonatologist in San Diego and is the associate medical director and director of quality and performance improvement for the NICU.

Lipi Roy, MD (M '08, PHTM '08)

worked for five years after residency at Duke. She is the medical director of an addiction treatment center in New York City and has a website, www.LipiRoy.com, and YouTube channel.

John S. Scales, MD

(M '08) practices as an interventional radiologist in Central Florida.

Andrew M. Schutzbank, MD (M '08, PHTM '08)

and his wife, **Whitney Schutzbank, MD (M '09)**, live in the Boston area.

Brian D. Stewart, MD (M '08)

is currently an assistant professor of pathology at the University of Florida–Gainesville.

Ashley P. Doucette, MD (M '09, PHTM '09, R '13)

has been recognized by Continental Who's Who. Doucette is the doctor of psychiatry and CEO of Doucette Consultants, LLC.

2010s**Ted D. Klein, MD (SSE '08, M '12, PHTM '12)**

completed a urology residency and joined Texas Oncology in the Urology Specialists Division in Dallas. He is married to

Megan K. Klein, MD (SSE '08, M '10)

Benjamin M. Azevedo, MD (M '13, PHTM '13) is a hospitalist in Lake Charles, Louisiana.

Aaron C. Denson, MD (M '13) is completing a

hematology/oncology fellowship at the Moffitt Cancer Center in Tampa, Florida.

Phillip B. Hitchcock, MD (M '13) has been employed at the OIC Internal Medicine Clinic, OIC Inpatient Hospitalist Service, OIC Student Education Internal Medicine, and Evans Army Community Hospital in Fort Carson, Colorado.

Ashley Case McClary, MD (M '13, PHTM '13)

moved outside Asheville, North Carolina, as lead of ambulatory pediatrics for Mission Health System, after finishing her pediatric residency at Stanford.

Jessica L. Reeves, MD (M '13) is an Army physician, currently doing OEM residency.

Jonathan D. Santoro, MD (M '13) received the Tulane Medical Alumni Association Young Alumni Leadership Award in April.

SEND NEWS!

Tulane Med seeks news and notes about alumni of the School of Medicine, as well as faculty members and "alumni" of the Tulane Residency programs.

Please send your news to mednotes@tulane.edu.

In Memoriam

'41 Albert Frederick, MD
William Habeeb, MD

'44 Gene George Carp, MD
Marjorie Kister Miller, MD

'44 Alexander Van Winkle McBee, MD

'45 Charles Pinkoson, MD

'47 Albert Lobdell Exline Jr., MD
Arthur Jerome Silverman, MD

'49 Sherman Herbert Bruckner, MD

'49 Juan Luis Correa, MD
Guy Morgan Hicks Jr., MD
David Lamar Stephens,
USN (Ret.), MD

'50 Sol I. Courtman, MD
Roger S. Geibel, MD
Bruce McPherson Kuehnle, MD

'51 James Kirl Avent Jr., MD
Robert James Fairchild, MD

'52 John Lockwood Ochsner, MD
Wiley Rufus Smith Jr., MD

'53 Edwin E. Buckner, MD
J.H. Walker Harris, MD
Karl Lander Lawing Jr., MD

'54 John Gilbert Alexander, MD
Robert Dixon McAfee, PhD
Eldon Dryden Pence Jr., MD

'55 Gerald Patrick Falletta, MD
Ray Gilbert Hooper, MD
Richmond Francis
Sharbrough, MD
Mitsuo Tottori, MD
Joseph House Wright, MD

'56 Travis Eugene Lunceford, MD

'57 Stanley Ross Payne, MD

'58 James Anderson Cunyus, MD
Jimmie Harlan Grant, MD
Edward Stormont Lindsey, MD
Otto Zivko Sellinger, PhD
Hoke H. Shirley Jr., MD

'59 James Oliver Manning, MD

'60 Badi' Adeeb Batshon, PhD
Domenick P. Reina, MD
Daniel Mitchell Rencher III, MD

'61 Jack Calcedonia
Castrogiovanni Sr., MD
Bennie C. Faul, MD
Albert P. Michelbach, MD
Robert David Nichols, MD

'62 Billy Ray Eubanks, MD
Thomas Davis Giles, MD

'63 James Harper Larose, MD

'64 William Ralph Hardcastle, MD
David Adam Maurer, MD

'65 Leona Bersadsky, MD
Larry Randolph Brown, MD
Eugene Paul Shafton, MD
Tony Milton Toledo, MD
Jonathan Richard Williams Jr., MD

'68 Fred Monroe Sandifer III, MD

'71 Winston L. Anderson, Jr., MD

'72 Hugo Tristram Engelhardt Jr., MD
Brian Taylor Travis, MD

'77 Douglas William Johnson, MD

'78 Ronald Gary Victor, MD

'79 Philip R. Farris, MD

'80 Mary Patrice Williams Gillespie, MD

'81 Stephanie Marie Mouton Reed, MD

'82 Marshall House Crenshaw, MD

'94 Tom Christopher Bruff, MD

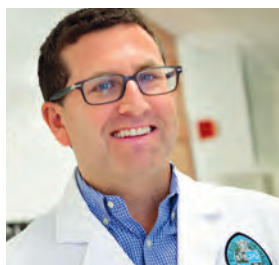
'97 Oscar del Rio, MD

STANDOUTS:

'Diffusion of responsibility' and other barriers to cancer care

Lynch Syndrome, a common but often undiagnosed condition, carries a high lifetime risk of developing colorectal cancer — yet many physicians do not test their patients for it. But why?

Jordan Karlitz, director of the Hereditary GI Cancer and Genetics Program and associate clinical professor of medicine at the School of Medicine, explains his study published last year in *Clinical and Translational Gastroenterology*.



**JORDAN
KARLITZ, MD**

BY FAITH DAWSON

Q. How common is Lynch Syndrome?

About 1 in 300 people in the U.S. are carriers of it, and most people don't even know it. It's actually very common and under-recognized, and it has a very high rate of developing colon cancer, up to an 80 percent lifetime risk. There are also a number of other cancers associated with Lynch Syndrome including uterine cancer, ovarian cancer, stomach cancer and several others.

Q. What prompted this study?

We published a paper in 2015 in the *American Journal of Gastroenterology* that looked at early-onset colon cancer patients in Louisiana to see whether they were getting screened for Lynch Syndrome using tumor microsatellite

instability (MSI) or immuno-histochemistry (IHC) testing. We used Louisiana tumor registry data, and it was the first population-based study in the U.S. to try and figure out if these early-onset patients under 50 were getting properly screened for Lynch Syndrome. We found that the screening rate was very, very low — it was only 23 percent, and it should be 100 percent. The follow-up was to do a national physician survey study to try and figure out what are the barriers to getting the screening done. A large national survey of this type had not been conducted previously.

Q. What barriers did you find among physicians?

Important barriers were concerns about the cost of testing, concerns that there may not be genetic counseling services available; there was also some unfamiliarity in interpreting the results. A lot of these barriers tended to cluster in rural and nonacademic settings. Another barrier was that among respondents, there was no consistent specialist that was felt to be responsible for ordering testing. Hence, one provider may think another provider is ordering testing even though they may not be. We termed this "diffusion of responsibility."

Q. Why does Lynch Syndrome screening matter for a person who has already been diagnosed with colorectal cancer?

It matters for a number of reasons. If the tumor testing is abnormal, germline genetic testing is needed to confirm Lynch Syndrome. Having Lynch Syndrome can affect the amount of colon that's taken out when patients undergo surgery, and it affects how they get screened for other associated cancers. Patients also need to get frequent colonoscopies after being diagnosed with Lynch Syndrome, even after surgery. Importantly, if Lynch Syndrome is identified it will prompt testing in family members who will have a 50 percent chance of being carriers because it is an autosomal dominant condition.

Q. What do you enjoy most about doing research at Tulane School of Medicine?

One of the most satisfying things about doing research is working with medical students, residents and fellows. In this survey study, a Tulane medical student, Alan Noll (first author), really helped to lead the implementation of the survey and the data collection. It is great to give young investigators research opportunities that can help them in their career.

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at Tulane University School of Medicine

The 1834 Society is named for the year the Medical College of Louisiana, now Tulane University School of Medicine, was founded. Members of the 1834 Society are committed to the future of medical education at Tulane, to attracting the best medical students and to ensuring these aspiring doctors learn from the top minds in medicine. By making a gift of \$1,500 or more to the School of Medicine, you will be recognized in the 1834 Society.



By being a member of the 1834 Society, I'm supporting the Dean's Fund for Excellence and Dean Hamm's vision for the future of the School of Medicine. I give every year to the School of Medicine because I know my gift makes a difference in the lives of students, supports pioneering research and allows Tulane to recruit top faculty.

– KENNETH JANSON MD, '69

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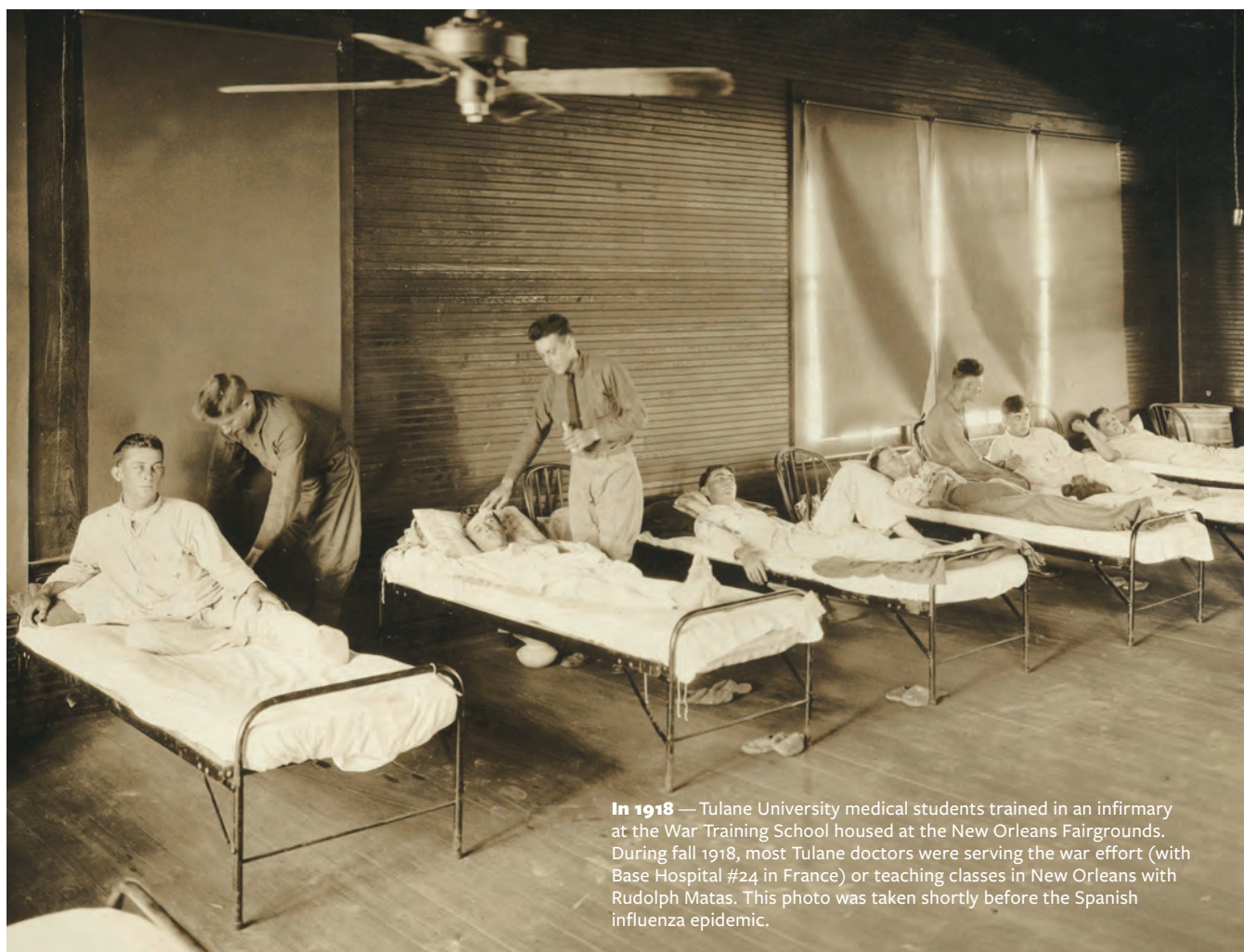
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In 1918 — Tulane University medical students trained in an infirmary at the War Training School housed at the New Orleans Fairgrounds. During fall 1918, most Tulane doctors were serving the war effort (with Base Hospital #24 in France) or teaching classes in New Orleans with Rudolph Matas. This photo was taken shortly before the Spanish influenza epidemic.