

Robert Wood Johnson MEDICINE



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Promise Clinic
Turns 10

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LETTER FROM THE DEAN

Dear Colleague,

This issue of *Robert Wood Johnson Medicine* deepens my appreciation for the exceptional people and programs at Robert Wood Johnson Medical School. Each article provides new insights into the ways in which we are advancing medicine through innovative programs both here and beyond our campus.

“Turning Point: Recovering from Stroke to Dance Again” describes the lifesaving skills of the team that diagnosed and treated a teenager’s ruptured cerebral arteriovenous malformation and preserved her quality of life.

Lauren Evans ’17 and two classmates traveled to South America to work in community clinics and improve their medical Spanish. In “Experiencing Medical Practice in Medellín, Colombia,” Lauren reflects on their personal growth, lessons learned, and perspectives gained.

“The Gift of Hearing” tells the hopeful story of a toddler whose hearing was restored after she received bilateral cochlear implants. The Pediatric Cochlear Implant Team, one of our newest initiatives, is providing a much-needed service to the region.

The medical school is celebrating a particularly exciting anniversary in 2015. “HIPHOP-Promise Clinic Turns 10” describes the mission and impact of this remarkable clinic, created and run by students eager to give back to the community while building their doctor-patient skills.

“Expanding Lifesaving Options in Aortic Valve Replacements” recounts the nation’s first transcatheter valve-in-valve replacement procedure, an intricate operation that required the collaborative expertise of a 15-member OR team.

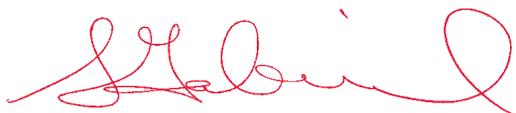
Testing the theories and mechanisms of preterm birth—a rising phenomenon in this country—investigators in the division of maternal-fetal medicine are focusing on the “primitive brain” of the placenta as a possible key, as explained in “Controlling the Clock That Regulates Labor.”

“A Child’s Point of View Inspires a Research Center” describes the center’s work and its role as a training ground for future pediatric clinical researchers. The multidisciplinary Pediatric Clinical Research Center promotes and advances the safety and effectiveness of pediatric drugs.

I am honored to serve as dean of Robert Wood Johnson Medical School and appreciate the opportunity to be interviewed for “A Dual Passion for Epidemiology and Medical Education,” the profile that appears in this issue. I am pleased to describe my vision for the future of the medical school and the U.S. health care system.

I want to thank everyone who has made me feel welcome and hope you will enjoy this excellent issue of *Robert Wood Johnson Medicine*.

Sincerely,



Sherine E. Gabriel, MD, MSc
Dean



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Dean

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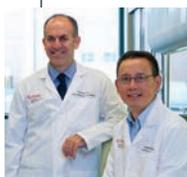


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Our team of specialists recently became the first in the nation to perform a transcatheter valve-in-valve TAVR. With this addition to the full spectrum of care we offer related to the aortic valve, the "no-available-treatment" discussion is becoming obsolete.

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By Jennifer Forbes

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Sherine E. Gabriel, MD, MSc, *Dean:*
*A Dual Passion for
Epidemiology
and Medical Education*

Sherine E. Gabriel, MD, MSc, is a trailblazer. She took office on July 28 as the first woman to serve as dean of Robert Wood Johnson Medical School. And she has set this precedent twice: she also served as the first woman dean of Mayo Medical School at the Mayo Clinic.

Dr. Gabriel was attracted by the opportunity to lead Robert Wood Johnson Medical School. From her earliest contacts in the interview process and increasingly since taking on her responsibilities as dean, she has appreciated the warmth and support of the people she has met. Just as important, she notes, they are open to change. “You don’t see that everywhere,” she says. “But here, it was not so much a matter of when we would evolve but how, and who would lead the transformation.” Dr. Gabriel is more than ready for that challenge—not by implementing top-down change, but by leading a grass-roots movement.

The move to New Jersey had another significant attraction for Dr. Gabriel: it was unexplored territory. Born in Cairo, Egypt, she moved with her family to Canada when

she was 10 years old. She later earned her doctor of medicine degree with distinction at the University of Saskatchewan, before completing her residency in medicine and a fellowship in rheumatology at Mayo School of Graduate Medical Education. She says, smiling, “To someone from Saskatchewan, Minnesota was south.”

During her residency, Dr. Gabriel developed an interest in applying an epidemiological approach to the study of rheumatology, her chosen specialty. To gain additional skills, she earned a master of science degree in clinical epidemiology at McMaster University, in Hamilton, Ontario. She brought that knowledge to Mayo, where she put it to work not only to frame her research, but also to develop new education programs in epidemiology and clinical research.

BY KATE O’NEILL • PORTRAITS BY JOHN EMERSON



After her appointment to the faculty, she spent three decades at Mayo Medical School, rising to the rank of professor both of epidemiology and of medicine. She cared for patients, taught, and mentored, while pursuing her research and serving in increasingly senior positions. She held the William J. and Charles H. Mayo Professorship, and her leadership roles included chair of the Department of Health Sciences Research and a member of the Mayo Clinic Executive Board. Her career at Mayo Medical School culminated with her appointment, in 2012, as dean.

When asked about her two groundbreaking appointments, Dr. Gabriel says, “I’ve spent my career in the minority,” adding that only 12 percent of the deans of American medical schools are women. Does that put her in the spotlight? “No—it’s more like being under a microscope. But I’m used to it; there are no surprises,” she says.

“The most important thing for women professionals is to realize that it’s a missed opportunity if they don’t make the time to serve as a role model for the women coming along behind them,” she adds. And she hopes, as dean at Robert Wood Johnson Medical School, to have that opportunity.

Inseparable Visions for the American Health System and Medical Education

In addition to epidemiology, medical education has always been Dr. Gabriel’s passion. “It stems from my interest in the transformation of the American health care system. To do that, we must change the way we educate future physicians,” she says. “I wanted to play a role in changing the health care system, by undertaking a real-world experience.” Robert Wood Johnson Medical School seemed to provide that opportunity: it is in the Northeast, in the heart of one of the nation’s most diverse states. The recent integration with Rutgers, The State University of New Jersey, which has many professional schools, and the affiliations within the newly established Rutgers Biomedical and Health Sciences created a climate of change and promise.

Dr. Gabriel loves finding creative ways to address and solve problems. “It is especially exciting to come in on the ground floor and be part of the transformation of the medical school. If the job description required keeping everything as is, I probably wouldn’t have come,” she says.

“Transformation” is a word that Dr. Gabriel uses frequently and with conviction. She strongly believes that only by transforming medical education can the nation successfully overhaul its health care system. In New Jersey, she sees the potential for a statewide, integrated system, with health-related schools, hospitals, and state government working together, all with a shared focus on community and patient health.

Not only would this statewide system be organizationally integrated, but, at both the individual and institutional levels, health care would be cross-disciplinary, without professional silos, institutional barriers, and bureaucratic obstacles. At this point, Dr. Gabriel’s visions for health care and medical education become inseparable. Transformation of medical school curricula is essential, she believes, if today’s students are to become effective providers in the nation’s fast-changing health care system.

Interdisciplinary training is key. “If medical students learn as a team, they are much more likely to be effective team members as practicing physicians,” she says, observing that by breaking from the traditional pyramidal model, with the physician at the top, students will appreciate the value that each discipline brings to providing optimum care to the patient and, by extension, to the community. “This is the direction we want to go as we innovate our curriculum,” she adds.

There is precedent: the comprehensive redesign, implementation, and dissemination of a new undergraduate curriculum at Mayo Medical School, led by Dr. Gabriel, follows this educational model. The revised curriculum is designed to prepare future physicians to achieve a triple aim: providing better care, making people and communities healthier, and offering more affordable care in the rapidly shifting health care arena.

Building on Strengths: Multidisciplinary Learning and Community Service

Early in her first month as dean, Dr. Gabriel met with the medical school’s education team to discuss the curriculum, present and future. She found proven academic strengths that promise to be the foundation of a curriculum that builds on the school’s strengths and answers its needs.

Interdisciplinary training is intrinsic to the Robert Wood Johnson Medical School curriculum. In responses to the Association of American Medical Colleges Graduation Questionnaire, the Class of 2015 reported nearly 100 percent participation in curricular activities where the students learned alongside peers from other health professions.

To expand on multidisciplinary training, Dr. Gabriel and a team of the medical school’s senior educators submitted a proposal to the American Medical Association (AMA) that would support embedding students in the existing teams of the Robert Wood Johnson Medical Group’s Home Visit Service. As a result, the medical school has been selected to join the AMA Accelerating Change in Medical Education Consortium to help advance the AMA’s innovative work aimed at transforming undergraduate medical education to better align with health care delivery in a changing environment. “The patient’s home is a novel learning environment, a care setting that most stu-

dents never see,” says Dr. Gabriel. “Students would learn a lot about interdisciplinary care coordination, and they would add value to the team.”

In addition, Robert Wood Johnson Medical School graduates earn consistently high rankings for their participation in service learning. In her preliminary interviews, Dr. Gabriel was struck by the school’s longtime commitment to the Eric B. Chandler Health Center. Most medical students do at least one rotation at the clinic, allowing them to observe and appreciate the value of multidisciplinary care teams.

“Community service is a concept that very few medical schools have embraced and is something I felt missing in my professional experience at Mayo,” says Dr. Gabriel. “But here it is very strong, and we need to sustain it, so that it can continue to be a strength.”

Epidemiology Provides Ideal Approach to Understanding Rheumatic Diseases

Dr. Gabriel’s discovery of epidemiology as a medical student spurred her interest in pursuing a career in rheumatology. A population-based science, epidemiology helped her to elucidate an understanding of the rheumatic diseases: their risk factors, determinants, and outcomes, including their economic impact. Why, she hoped to learn, is rheumatoid arthritis five times more prevalent in women than in men, and why does the disease so often run in families?

Dr. Gabriel later focused on the cost-effectiveness of non-steroidal anti-inflammatory drugs, and she is well known for her research on the risks of connective tissue diseases among women with breast implants. Her work has advanced medical knowledge about the comorbidities of the rheumatic diseases, most recently the high risk of cardiovascular disease among people with rheumatoid arthritis.

Early in her career, Dr. Gabriel received the American College of Rheumatology, Henry Kunkel Young Investigators Award, the Hench Award for Rheumatology Research at the Mayo Clinic, and a Mayo Foundation Scholarship. Her highly successful research program was funded for nearly 20 years by the National Institutes of Health and has led to more than 250 peer-reviewed articles in scientific publications. In addition, she serves as coeditor of *Kelley’s Textbook of Rheumatology*, the premier global text in the field.

Dr. Gabriel was appointed William J. and Charles H. Mayo Professor at the Mayo Clinic in 2005, and a year later, she was named a McCann Scholar by the Joy McCann Foundation, for excellence in mentoring in science and medicine.

In 2011, Dr. Gabriel was appointed by the U.S. Government for Accountability Office to the Methodology Committee of the



Patient-Centered Outcomes Research Institute (PCORI). PCORI was created by the Patient Protection and Affordable Care Act of 2010, and she was chosen as its first chair. She has served on many other governmental committees and advisory boards, including the Drug Safety and Risk Management Advisory Committee of the U.S. Food and Drug Administration and an advisory council of the National Institute of Arthritis and Musculoskeletal and Skin Diseases.

Looking Ahead: A “Union of Forces”

A statement by William J. Mayo, MD, guides Dr. Gabriel’s vision for health care: “The best interest of the patient is the only interest to be considered, and in order that the sick may have the benefit of advancing knowledge, union of forces is necessary.”

Robert Wood Johnson Medical School is well positioned to influence that “union of forces,” Dr. Gabriel believes. From the medical school itself, to its partners in Rutgers Biomedical and Health Sciences, to Rutgers University, to health-related institutions throughout New Jersey, the forces exist to build a clinically integrated, statewide, high-value health care delivery system.

Hoping to contribute significantly to the reorganization of the American health system, Dr. Gabriel accepted the opportunity to serve as dean of Robert Wood Johnson Medical School. It promises to be the “real-world experience” that she seeks. Her own proven strengths as an innovative academic leader suggest that, under her leadership, the medical school will be a major force in this pioneering effort. **M**





*Physicians use
their training and the newest
treatments to restore a
teenager's life*

Turning Point

Recovering from Stroke to Dance Again

At first, 13-year-

old Christina Blumstein thought she had an ordinary headache. She and her parents were returning from a visit to Long Island in July 2014 when the pain struck. Was it a bout of carsickness? Too much screen time on her iPad?

But a few hours later, back home in Old Bridge, her mother, MaryAnn, says, “Christina started screaming that somebody was stabbing her in the head with a knife.” Soon afterward, Christina was comatose and in an ambulance—and her life was in grave danger.

Until that night, nobody knew that Christina had been born with a rare clump of small, abnormal blood vessels in her brain called an arteriovenous malformation, or AVM—which occurs in just 18 people per 100,000 according to the American Association of Neurological Surgeons. Most AVMs cause no harm, but a few—like Christina’s—rupture and cause bleeding inside the brain. Christina had suffered a stroke.

BY
ROBERT FORMAN

PORTRAITS BY
KIM SOKOLOFF



“I’m feeling great. I think I’ve recovered really well,” says Christina Blumstein (above), with her team of lifesaving physicians from Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital: Sudipta Roychowdhury, MD, clinical assistant professor of radiology (standing, left); Gaurav Gupta, MD, neurosurgeon and assistant professor of surgery (standing, right); and Rachana Tyagi, MD, assistant professor of surgery and director, pediatric neurosurgery.

“It’s a shock for parents whose child was normal and healthy just a few hours earlier,” says Sudipta Roychowdhury, MD, clinical assistant professor of radiology, Robert Wood Johnson Medical School, and director, interventional neuroradiology, at Robert Wood Johnson University Hospital, who had to explain to Marc and MaryAnn Blumstein what had just happened to Christina and how he and his colleagues would work to save her life.

The first step was sealing the blood vessel shut, with what Dr. Roychowdhury calls “brain glue.” He and neurosurgeon Gaurav Gupta, MD, assistant professor of surgery at the medical school, inserted a catheter through an artery in Christina’s leg, guided it past her heart and through the carotid artery in her neck, and positioned it at the site of the bleed. “It’s almost the same as Krazy Glue,” Dr. Roychowdhury says. “If you pour it on your fingers, you will make them stick together. With a microcatheter we injected the glue, and we were able to shut the bleeding down.”

Pediatric neurosurgeon Rachana Tyagi, MD, assistant professor of surgery and director, pediatric neurosurgery, then led a team that removed part of Christina’s skull to prevent further damage as her brain tried to heal. “The pressure from the swelling can cause secondary damage to additional areas of the brain,” says Dr. Tyagi. “We gave her brain space.”

Christina emerged from surgery still in a coma, which would last for nine days. When Christina woke up in the pediatric intensive care unit, her mother says, “It was ‘Oh my God—she recognizes me and she can speak.’ One of the first things she asked for was her phone, so I knew things were happening in that brain, that this is my child and I’m getting her back.”

Christina remembers none of this—in fact, everything is a blank from when she had the headache in the car until she was in rehab hoping to recover the use of the left side of her body. But she remembers very well what she now considers the turning point in her recovery—just a month after her stroke, when she began to walk.

“I really pushed myself because I wanted to get out of there,” Christina says of the strenuous rehab sessions that began just days after she awakened. “I wanted to get out by my birthday, August 31, and I made it, one day before.”

Soon she resumed her ninth-grade schoolwork at home, wearing a helmet to protect the area where the portion of her skull was still missing. She stayed mostly indoors for a few months, because “I didn’t want to be seen that way.” She also set another deadline, this time for the medical team.

“We had to have her major treatment items done before Christmas,” Dr. Tyagi recalls. “It was very important to her.”

That meant reattaching the piece of skull and also performing a delicate procedure designed to eliminate all vestiges of the AVM, so it could never rupture and bleed again.

For that, Dr. Tyagi enlisted Atif Khan, MD, associate professor of radiation oncology, whose specialty is using a device called a Gamma Knife that destroys malignant cells with radiation. It was Dr. Khan’s job to demolish Christina’s abnormal blood vessels. Guided by imaging technology, Dr. Tyagi showed Dr. Khan which delicate structures of the brain he needed to avoid, and he did the rest.

“We used headgear that resembles the ladies who used to sit under the drying machines with curlers in their hair,” says Dr. Tyagi. “Imagine that the curlers can shoot. You choose angles from which brain tissue won’t be damaged, and then shoot multiple beams to deliver a high dose to the spot you want with submillimeter accuracy.”

As recently as 10 years ago, says Dr. Tyagi, trying to eliminate the abnormal vessels would have produced significant complications, because the risk of damaging brain tissue would have been too high. Now, she says, “it’s a one-day process and it’s much more precise, only possible because we have a great team of subspecialists, and the latest technology.”

Christina got her Christmas wish. She was finished with the procedures by mid-December, and since then she has progressed even more, picking up where she had left off at a dance studio. In June, she gave a stirring jazz dance recital.

The one lingering vestige of her stroke appears to be her memory. Christina feels she needs to work harder to retain what she learns at school. With cognitive therapy, however, that, too, is getting better. “I’m feeling great,” Christina says. “I think I’ve recovered really well.”

That means everything to her physician. “It makes staying up at night, phone calls at 3 in the morning, all worth it,” says Dr. Tyagi. “It’s the best reward you could ever ask for.” **M**



COURTESY OF THE BUNNSTEIN FAMILY



[B Y L A U R E N E V A N S]

Experiencing Medical Practice in Medellín, Colombia

Lauren Kurlander, Aixa Navia, and I wanted to spend the summer between our first and second years of medical school improving our medical Spanish skills and experiencing medical practice in Medellín, Colombia. For one month, we lived with a host family in barrio El Poblado and participated in several rotations throughout the city. We were able to experience a successful national health care system, learn about illnesses that are uncommon in the United States, and see Colombia in a very different light from what many people had known only a generation before.



[Editor's Note: The Global Health Fellowship is supported by the Robert Wood Johnson Medical School Retired Faculty Association and several other sources. The summer experiences are coordinated by the Office of Global Health. Lauren Evans, a third-year medical student, and two classmates spent the summer of 2014 observing and working in the medical system of Medellín, Colombia. This is her account of the experience.]

"We were able to experience a successful national health care system, learn about illnesses that are uncommon in the United States, and see Colombia in a very different light from what many people had known only a generation before," says Lauren Evans, a third-year medical student (left), with classmates Aixa Navia (middle) and Lauren Kurlander.

COURTESY OF LAUREN EVANS



There are multiple private and public hospitals in Medellín, and we were initially assigned to rotate in the Hospital General de Medellín. In this public hospital, we spent three to four days each in surgery, OB/GYN, emergency medicine, and internal medicine. In addition to being immersed in the Spanish language, we learned about the process of becoming a doctor in another country, and we encountered a variety of attitudes among some toward Americans. For example, we met doctors who teased us about our Spanish abilities or completely ignored our presence, but also doctors who invited us to personal events such as World Cup celebrations or a Saturday at the Museum of Antioquia to teach us about the political works of art by Fernando Botero. This was eye-opening in that it was a chance not just to view changing perceptions between Americans and Colombians, but also to get a personal glimpse into parallels between people living in other countries and the immigrant experience in the United States.



The Clínica Infantil Santa Ana is a private, nonprofit children's clinic that mainly serves the population of southern Medellín. The treatments we learned about there were for conditions related to malnutrition, such as marasmus and kwashiorkor, as well as a variety of bacterial and viral infections—especially pneumonia. It was here that we were encouraged to take basic histories in Spanish, perform pediatric physical examinations, and present on rounds the patients we followed all week. We also met a member of Colombia's indigenous population and learned about the language, cultural, and socioeconomic gaps that exist, which parallel what the three of us were trying to overcome in our own country.



Our fourth and final week was spent at the Instituto Colombiano de Medicina Tropical. This is a public health clinic and research laboratory that serves the regions of Chocó, Amazonas, and La Guajira. We met and interviewed patients with a variety of diseases that we had learned about in the classroom but never thought we would actually encounter in our careers. This included cases of leprosy, mucosal and cutaneous leishmaniasis, and leptospirosis. The faculty there was very receptive to us, and by this time our Spanish had improved dramatically, thus allowing us to speak with everyone about Medellín culture, religion, politics, and the World Cup.

In addition to our rotations, we took 20 hours of Spanish lessons over the four weeks and graduated from pronunciation and basic vocabulary to grammar and medical conversation, and ultimately to conversation on abstract concepts. In learning another language, there is no substitute for doing it by immersion. When we



“Medellín—‘the City of Eternal Spring,’ as it is affectionately nicknamed—taught me more about myself in one month that I could ever have dreamed. Traveling abroad gives students the perspective they need to have a deeper understanding of the people they will encounter in their careers, as well as a firm grounding for their role as physicians in society.” —Lauren Evans



returned to the United States, I felt very comfortable conversing in Spanish and was confident that I knew what was being communicated.

Both Robert Wood Johnson Medical School’s Office of Global Health and Universidad CES in Medellín did an excellent job of securing housing for us with a warm and inviting host family in a safe neighborhood. Our host mom made traditional Colombian meals for us, showed us some



PHOTOS COURTESY OF LAUREN EVANS

of her favorite areas of Medellín, and even took us to volunteer at the local orphanage where she had adopted her son.

Medellín—“the City of Eternal Spring,” as it is affectionately nicknamed—taught me more about myself in one month that I could ever have dreamed. Traveling abroad gives students the perspective they need to have a deeper understanding of the people they will encounter in their careers, as well as a firm grounding for their role as physicians in society. At times, medical school can be an isolating and difficult journey, but this trip reinforced my desire to always strive to broaden my horizons and reminded me of the larger purposes of becoming a doctor. **M**



By Beth-Ann Kerber

THE
Gift of 
Hearing:
How Our Cochlear Implant Team Is
Making a Difference in Children's Lives

With a sweet, engaging smile, 2-year-old Annabella Macias works diligently on the tasks of toddlerhood, pointing to colors as her mother names them, imitating animal sounds, and dancing to the beat of music from the radio.

Like most new moms, Maryann Florio eagerly awaits each new milestone in her daughter's young life. But for Florio, every hard-won achievement is all the more precious: a little more than a year ago, she learned that Annabella had profound hearing loss and was not responding to any sounds, let alone trying to repeat them. Over a period of weeks this summer, however, Florio saw her daughter making huge strides in her language development.

"I almost cried when I said, 'Annabella,' and she turned around to look at me. It's amazing. One day, your child isn't hearing any sounds, and the next, there are so many possibilities," Florio says.

The dramatic transformation is the result of surgical devices known as cochlear implants, which simulate hearing in individuals who have little to no hearing, and the work of the comprehensive Pediatric Cochlear Implant Team at Robert Wood Johnson Medical School and The Bristol-Myers Squibb Children's Hospital at Robert Wood Johnson University Hospital.

Led by pediatric otolaryngologists Michael Chee, MD, and Kelvin M. Kwong, MD, both assistant professors of surgery, Robert Wood Johnson Medical School, the highly specialized, multidisciplinary Pediatric Cochlear Implant Team also includes audiologists, speech/language pathologists, neuropsychologists, and a nurse coordinator and is one of the most comprehensive programs of its kind in the tri-state region. Established in early 2014, it

"I almost cried when I said, 'Annabella,' and she turned around to look at me. It's amazing," says Maryann Florio of the care that her daughter received from the Pediatric Cochlear Implant Team. "One day, your child isn't hearing any sounds, and the next, there are so many possibilities."

ANAN SCHINDLER PHOTOGRAPHY

offers parents and children complete evaluation, treatment, and rehabilitation services related to cochlear implants. By the end of the program's first year, the team had completed 10 cochlear implants in children ranging in age from 13 months to 5 years old.

A Shocking Discovery

When Annabella was born on June 10, 2013, Florio never imagined her daughter would need these types of services; Annabella had passed her newborn hearing screening with no indications of any issues. But just three months later, Florio was noticing that there might be a problem.

"She wasn't responding to any noises around the house. You could bang pots and pans right next to her, and there would be no reaction," Florio recalls. "When I brought her to the pediatrician for her 4-month-old check-up, they did another hearing test, but they got no reading off of it."

A hearing test the following week yielded the same result. A subsequent auditory brainstem response test—which measures the way the hearing nerve responds to different sounds—confirmed that Annabella had sensorineural hearing loss.

In sensorineural hearing loss, damage to the inner ear prevents the process by which sound travels to the brain, whether due to missing or damaged hair cells, or damage to the nerve pathway itself. A cochlear implant bypasses the process, transmitting sound from an external speech processor and transmitter to an internal receiver that generates electrical pulses directly to the auditory nerve itself.

Finding Some Answers

One of Annabella's teachers at the Midland Park Schools' early intervention program for deaf and hard-of-hearing children first mentioned the Robert Wood Johnson Pediatric Cochlear Implant Team to Florio, prompting her to do some in-depth online research about the team and cochlear implants in general. What she discovered had her reaching out to learn more, she says.

Months of tests followed, including MRIs, CT scans, and genetic testing, which revealed that Annabella has connexin 26—a protein found on the GJB2 gene that disrupts potassium flow in the ear and is the most common cause of congenital sensorineural hearing loss.

Annabella was 16 months old when the first cochlear device was implanted in her left ear in October 2014, and it was activated a month later; the remaining device was

implanted in her right ear at the end of April 2015 and activated in June.

"With the first implant, we noticed that, yes, she could hear *something*. But as soon as she got that second implant, it was like a switch was flipped and everything started to go really quickly," Florio says. "She's trying to say her ABCs, she knows about eight different colors and the noises of different animals—says 'ooo' for 'moo'—and has really started catching up a lot quicker than what was expected. It's wonderful. She's babbling, making noises, and starting to sing. She knows the difference between when people are speaking and when they are singing. Every time she hears music, she stands up and dances."

Hard Work... and Teamwork

Florio is well aware that the process is just beginning. Annabella is involved in classes and therapy four days a week, including sessions with a speech therapist, as well as twice-weekly classes where she interacts with other children who have hearing loss. She sees a member of the cochlear implant team every few weeks for "mapping," or adjustments to the sound programming of the device. Once mapping on both sides is complete, Annabella will return annually for any necessary tweaks to the programming, Florio says.

"It can take approximately a year to stabilize the sound mapping so the implant can be customized to each child's individual hearing loss," explains Dr. Kwong.

"While the surgery itself takes only a few hours, and most children are home the same day, it's not just a simple procedure and then you're done," he adds. "The process is very labor-intensive after the surgery, and a committed team is needed to help lay the groundwork for success."

It takes dedication from the family and everyone else involved, agrees Dr. Chee. "It's very intensive, but fortunately there is a lot of support from the team. They are not in it alone," he says.

Clinical developmental psychologists with the Institute for the Study of Child Development in the medical school's Department of Pediatrics work with the program to help families understand the developmental and cognitive potential of their young child, consider potential obstacles, and help them cope with the stresses and anxieties associated with the procedure. After surgery, they also are available to assist as children learn to understand new sounds and adjust to life with their implant.

In addition, the Pediatric Cochlear Implant Team has developed partnerships with other organizations—for





The Pediatric Cochlear Implant Team, led by pediatric otolaryngologists Michael Chee, MD (left), and Kelvin M. Kwong, MD, both assistant professors of surgery at Robert Wood Johnson Medical School, is one of the most comprehensive programs of its kind in the tri-state region.



example, schools for the deaf and school systems that have programs for children who are deaf or hard of hearing—to identify children who may benefit from cochlear implants, as well as provide further support to the child post-procedure.

Improving the Chances of Success

“There was a real need in Central Jersey for this type of service,” Dr. Chee says.

As many as three out of every 1,000 children in the United States are born with a detectable level of hearing loss in one or both ears, according to the Centers for Disease Control and Prevention. Nine out of 10 babies born with hearing loss are born to hearing parents.

“In the past, some kids wouldn’t be identified with hearing issues at all until they were 3 or older,” says Dr. Chee. “That number has gone down with the universal newborn hearing screenings, but even now we see children being identified at 3, 4, and even 5 years old.”

The earlier that children are identified, the better the chance of success, say Dr. Chee and Dr. Kwong.

For children who are born deaf or with profound hearing loss, there is some limit on the maximum age at which cochlear implants can be performed—usually 5 or 6 years old—because the brain can only go so long without any aural stimulation, Dr. Kwong explains: “At that late stage, they may have sound awareness as a result of the implant, but it would not be meaningful enough to have normal speech recognition.”

As a result, the best possibility of success is with children who are between 1 and 2 years old, says Dr. Chee, because they will be exposed to sounds during an optimal period to develop speech and language skills. In fact, a growing body of research has shown that when children receive a cochlear implant followed by intensive therapy before 18 months of age, they are better able to hear, comprehend sound and music, and speak than their peers who receive implants when they are older, according to the National Institute on Deafness and Other Communication Disorders.

In addition, children who receive bilateral cochlear implants—that is, cochlear implants in both ears, such as Annabella—benefit from the ability to have directionality of sound, improved hearing quality, and improvement in distinguishing sounds in noisy environments, says Dr. Kwong. Bilateral cochlear implants are performed sequentially, ideally less than six months apart, because the brain is better able to handle both signals if the surgeries are performed closer together, he adds.

Finding the Right Candidates

Like most medical procedures, cochlear implants are not a good fit for everyone. Individuals whose hearing is improved by hearing aids, or who have conductive hearing loss, which results from problems with the ear canal, eardrum, or middle ear and its ossicles, would not be candidates for cochlear implants, for example. The amount of work needed afterward by the child and family also requires commitment and a strong support system to be in place. The Robert Wood Johnson Pediatric Cochlear Implant Team conducts an intensive process to determine which individuals would be most appropriate and reap the largest benefit from the procedure.

“We meet every month with all members of the team to discuss prospective cases. It’s not always a straightforward decision. Family support is critical,” Dr. Kwong says.

The team also meets with family members to discuss what they hope the results of the implantation will be, so the team can set realistic expectations, he says. For example, speaking fluently following the surgery may be possible for some children but not all, and many factors—physical and otherwise—can affect the success of cochlear implants for each child. As a result, Dr. Kwong says, the team develops an individualized plan and goals and shares them with the family so that everyone is on the same page with regard not only to the possibilities for their child, but also to the work needed to help the child make the most of the implant.

Besides expanding access to cochlear implants for children in the area who are deaf or have profound sensorineural hearing loss, the team hopes to add to the research being conducted on this technology. They have proposed additional research with the Institute for the Study of Child Development to explore such issues related to pediatric cochlear implants as the development of hearing and/or speech and a comparison of outcomes based on the different ages at which a child has the procedure, says Dr. Kwong.

They also hope to focus on increasing general awareness, Dr. Chee says. “We follow children who are very borderline—they’re developing some language, but are very hard of hearing, even with hearing aids—or those whose hearing loss might progress to the point they might benefit from cochlear implants, to be sure they don’t just fall through the cracks. With the advent of universal hearing screening, there should be no reason for a child to have profound hearing loss and not at least be offered a chance for hearing,” he says. **M**



10 • YEARS

HIPHOP~ Promise Clinic Turns 10

BY KATE O'NEILL • PORTRAIT BY STEVE HOCKSTEIN



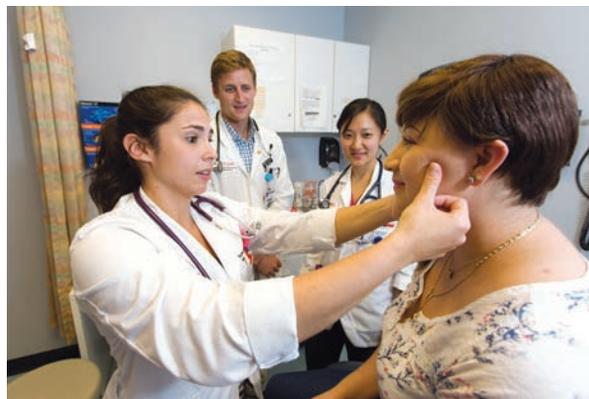
The HIPHOP-Promise Clinic turns 10 this year, a milestone that gives Robert Wood Johnson Medical School and the New Brunswick community much to celebrate.

Proposed, led, and staffed by student volunteers, the clinic has provided a decade of primary, preventive health care to some of the city's most vulnerable residents: the medically uninsured. From the start, the students have worked in partnership with Elijah's Promise, a comprehensive social services provider that focuses on the city's homeless residents. Elijah's Promise began as a soup kitchen, and nutrition is still its focus, with 260 healthful meals served 365 days a year. "It's a wonderful partnership, which provides two basic necessities, food and health care," says James Zullo, executive director,



Elijah's Promise. "No matter how motivated you are to get your life together, your problems are that much more insurmountable if you're ill or hungry."

For medical students, The Promise Clinic offers not only service-based learning but also team-based, long-term clinical experience with their own patients. Under the supervision of faculty preceptors, the students learn from their older peers and teach those who follow them. "Hands down, it was the best learning experience I had in medical school," says Pheobe Askie, MPH, MD '14, a former clinic director.



PHOTOS BY STEVE HOCKSTEIN



The Germination of a Plan

In 2004, Manuel Jimenez, MD '06, MSHP, and John Babineau, MD '06, along with many classmates, were eager to put their budding clinical skills to work to serve the community. They also hoped to begin working with health care delivery teams and develop a program offering continuity of care. The students met with Yvette Molina, longtime director of community services at Elijah's Promise, to discuss a proposed survey of the clients' access to health care. Having seen many well-intentioned student volunteers come and go over the years, she responded, "What are the real benefits of this survey, not for the students but for our clients? What's in it for *them*?"

"I didn't think they'd be back," she says. But a week later, they returned to her office with a detailed description of the scope of the project, starting with a community needs assessment. "I was amazed and delighted to see their work," she says.

The assessment took six months to complete, and it revealed that about one-third of the soup kitchen's clients lacked regular access to health care. The findings helped frame planning for a new free clinic, designed to meet the specific needs of the clients of Elijah's Promise.

The students sought to create an organic partnership, rooted in the community—a concept that was key to the clinic's launch and has guided its continuing success. "Working together, the partners would sit around a table to determine what problems to solve and how to do it," says Dr. Jimenez. "Elijah's Promise knew its clients and their needs. We learned that the clients didn't just need health care, they also needed services, such as social services, that promote health."

During early planning for the clinic, Denise V. Rodgers, MD, now vice chancellor for interprofessional programs, Rutgers Biomedical and Health Sciences, was serving as associate dean for community health at Robert Wood Johnson Medical School. "I'll always have a warm spot in my heart for John and Manny and the work they did," says Dr. Rodgers. "But at the time, I was the constant voice of caution: 'You have to line up faculty preceptors and ensure there will always be enough. And you *have* to make this sustainable. If others don't have your energy, it will all fall apart, and you will disappoint community expectations, especially the care recipients.' But



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Left, top: Student doctor and scheduler Ila Nimgaonkar (left) with student doctor and manager Sanjay Jumani. • Left, middle: Manuel Jimenez, MD '06, MSHP, was the cofounder of the Promise Clinic. • Facing page: Student doctors (left to right) Taleen Macarthur, Andrew Butler, and Caroline Na, consult with a patient.

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they did their homework, putting forth an extraordinary effort. They met every guideline and did an exceptional job.”

The students had to be pragmatic, says Steven J. Levin, MD, associate professor of family medicine and community health and medical director, Eric B. Chandler Health Center. At the time, Dr. Levin was medical director of St. John’s Family Health Care Center, where the proposed clinic would take place. “They realized that for this project to work, they needed not only to make it meaningful, but also to limit its scope, accepting only adult clients of the soup kitchen. They ruled out caring for pregnant women, or patients with cancer or AIDS,” says Dr. Levin, who served as the group’s faculty adviser for seven years.

The Promise Clinic became an initiative of the Homeless and Indigent Population Health Outreach Project (HIPHOP), the medical school’s student service organization. Susan Giordano, HIPHOP program coordinator, worked closely with the students from the start.

From Plan to Reality: Commitment, Sustainability, and Continuity of Care

During the decade since its launch, The Promise Clinic has succeeded thanks to support from the dean’s office, HIPHOP volunteers, and the staff of Elijah’s Promise, says Eric G. Jahn, MD ’88, associate professor of family medicine and community health, senior associate dean for community health, and faculty adviser, HIPHOP-Promise Clinic. Above all, adds Dr. Jahn, it succeeds because of its volunteer faculty preceptors and the commitment of its student participants.

“The structure is brilliant,” says Dr. Jahn. “Students hone leadership and teaching skills, and through required reports to the steering committee, they gain administrative experience. In addition, new students always work with a team member who’s been involved for a few years. That



helps make caring for a complex patient feel less overwhelming.”

Student response has always been enthusiastic. Through a competitive application and interview process, the number of student-doctors is limited to 160—approximately 40 from each class—who comprise 40 student teams, with four members on each team. Students are assigned to the same team for four years. When they graduate, fourth-year students are replaced by first-years, providing a longitudinal model that encourages team spirit and ensures continuity of care for the one or two patients assigned to the team.

“Our student doctors don’t give up on patients,” says Promise Clinic faculty adviser Karen W. R. Lin, MD ’89, associate professor of family medicine and community health and assistant dean for global health. “They say, ‘If we don’t see them, who else will?’ and they’re always willing to spend extra hours helping their patients navigate the challenges of our health care system.”

Medical students, absorbed in their studies, are often shocked to learn the nonmedical determinants of health care, says Stephanie Oh, a clinic director, who continues to volunteer at the clinic while completing a combined MD/PhD degree. “For a person with diabetes, the overriding concerns might be shelter, transportation, and employment. We learn to explain the importance of issues like good nutrition and sleep hygiene—concerns that we take for granted but that are also part of taking care of yourself.”

Within the team, responsibilities correlate with experience: first- and second-year students greet the patient, note any complaints, and take vital signs. They present to the third- and fourth-year team members, who complete the physical exam and then develop an assessment and treatment plan, which they review with the faculty preceptor.

The Promise Clinic could not function without the preceptors—supervising physicians who serve as advisers and mentors to the student-doctor teams. Some have served for years, coming every month to work with the students and patients. The Department of Family Medicine and Community Health is strongly represented. Besides Dr. Lin, the department’s regular clinic preceptors include David Swee, MD; Frances Wu, MD; and Euton Laing, MD ’90. In addition, Iris Udasin, MD, professor of environmental and occu-



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Left, middle: Eric G. Jahn, MD ’88, associate professor of family medicine and community health, senior associate dean for community health, and faculty adviser, HIPHOP-Promise Clinic. • Bottom left: Rutgers School of Social Work students Vanessa Ferreira (left), Sarah Livingstone (center), and Suzanne Haggerty.

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pational medicine, volunteers frequently at the clinic.

The transition to a structured health care program began with student-run blood pressure screenings, which continue twice a week. The staff encourages those with abnormal blood pressure to make an appointment with a student team. By doing so, they hope to persuade appropriate clients to become involved with the clinic. Trust and respect for the student doctors have grown among clients, says Ms. Giordano. “Gradually, they have come to recognize the students as their health care resource.”

In the clinic’s first decade, the number of soup kitchen clients has nearly doubled, to more than 40. As potential patients, they are given an initial screening and diagnosis; then, once assigned, they begin receiving ongoing care based on a customized plan—ideally, seeing the same students at every appointment. Their regular prescheduled appointments include a physical exam and assessment; lab work; evaluation of vaccinations, medications, and compliance;

Above: “Trust and respect for the student doctors have grown among clients,” says Susan Giordano, HIPHOP program coordinator (seated), with student doctors (back row, left to right) Alex Pronko, Andrew Butler, Sanjay Jumani, who is also a manager, (front row, left to right) Rachel Deberardinis, Ila Nimgaonkar, who also serves as a scheduler, and Eleni Stavrou.

and, when necessary, specialist referrals. Residents from the medical school’s psychiatry residency program provide on-site support for clients with mental health issues.

Sixty students serve on the 12 administrative committees that keep the clinic running efficiently and facilitate the work of the steering committee. A student-run pharmacy team helps patients obtain prescriptions. The laboratory team helps patients obtain prescriptions. The laboratory team runs simple on-site tests or blood draws, working with technicians from Robert Wood Johnson University Hospital as needed. Many student clinicians receive elective credit toward their medical degree.



The Clinic Moves Forward

“By providing a regular clinic, the students have had a huge positive impact on our clients’ lives,” says Ms. Molina. For example, not long after the establishment of the clinic, she was able to discontinue the practice of having an ambulance outside the door during soup kitchen hours, ready to deal with health emergencies. Education, prevention, intervention, and regular care have eliminated that need.

Although its basic concepts have stayed the same, The Promise Clinic has evolved. In 2014, it moved from St. John’s to the Eric B. Chandler Health Center, owned and operated by Robert Wood Johnson Medical School: “a new home in an extraordinary medical school setting,” says Dr. Jahn. At Chandler, patients are seen in 10 examining rooms and have better access to specialists, either at the health center or through referrals to the hospital. The clinic now uses electronic record keeping and has introduced a system that allows patients to fill prescriptions using vouchers at a local pharmacy.

Interdisciplinary care has expanded with the addition of PharmD candidates from Rutgers Ernest Mario School of Pharmacy, plus students from the Rutgers Physician Assistant Program and the Rutgers School of Social Work. In addition, the new Spanish interpreter program promotes communication in a city where 60 percent of the residents speak Spanish at home.

With the clinic stronger than ever, the steering committee is looking ahead. It still hopes to serve as many clients of the soup kitchen as possible. To increase the multidisciplinary nature of the clinic, the Rutgers School of Nursing and other schools at Rutgers Biomedical and Health Sciences may come on board as well.

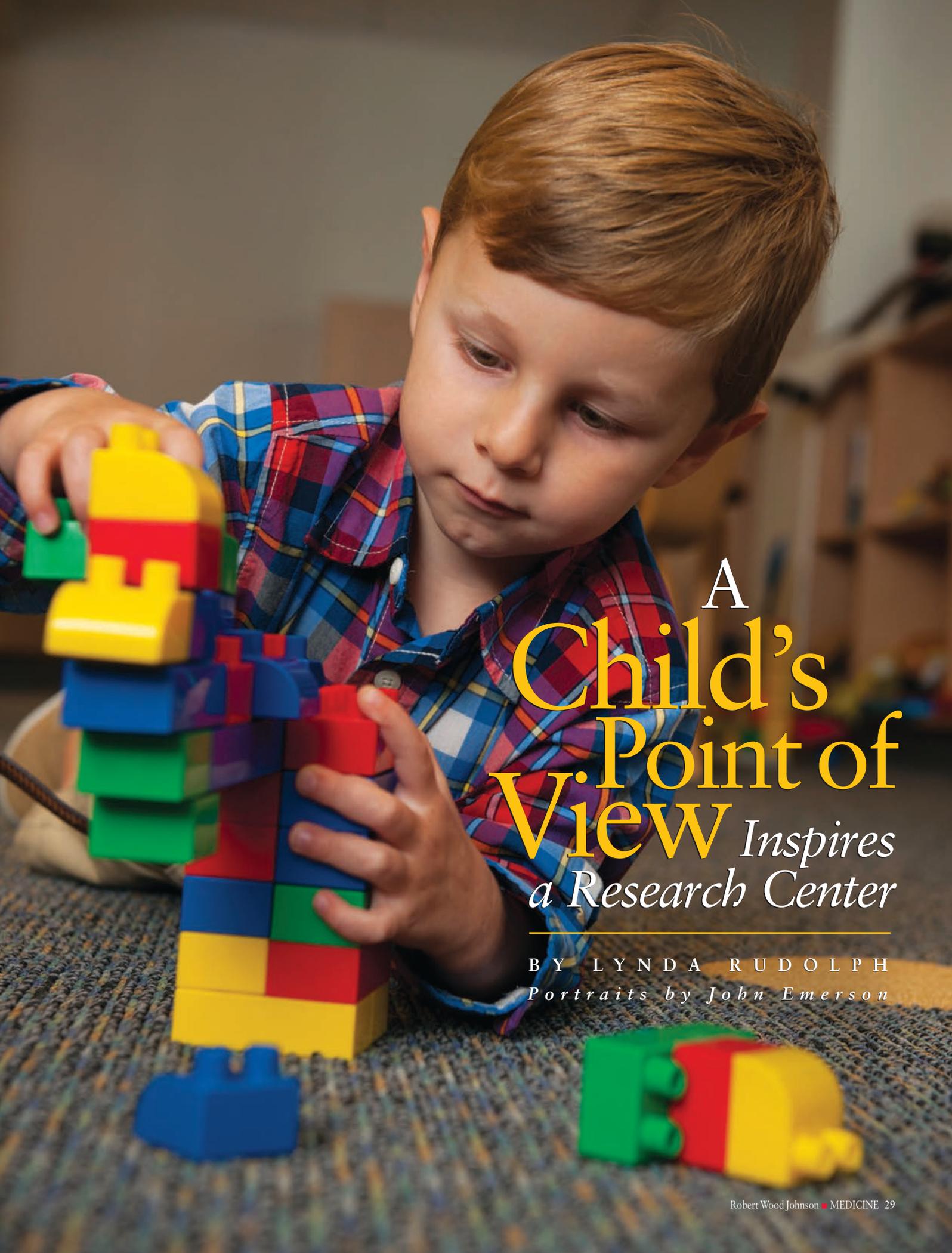
“It’s exciting to think that The Promise Clinic is changing medical education, helping to build a new generation of doctors, and making a difference in the community,” says Stephanie Oh.

“We’ve moved on in our careers,” adds Dr. Askie, a second-year resident in family medicine. “But we’ll never forget that experience. I often find myself wondering how my patient is doing and where she is now.” **M**



PHOTOS BY: STEVE HOCKSTEIN

Left, middle: Robert Mason, social services coordinator, Elijah’s Promise, and Yvette Molina, director of community services, Elijah’s Promise. • Left, bottom: Tito Mantilla (standing), communications committee chair and certified Spanish interpreter, with (seated, left to right) Sanjay Jumani, student doctor and manager, and Rutgers School of Social Work students Sarah Livingstone, Vanessa Ferreira, and Suzanne Haggerty.



A
Child's
Point of
View *Inspires
a Research Center*

BY LYNDA RUDOLPH
Portraits by John Emerson

There

are 73.7 million children in the United States.

According to a study in the *Journal of the American Medical Association*, 52 percent of them have had a chronic disease at some point in their lives. Yet the American Academy of Pediatrics reports that in conditions where the pediatric disease burden was as high as 59.9 percent, only 12 percent of the clinical trials for

new drugs or devices were pediatric.

There is a significant unmet need for pediatric research.

In New Jersey, the Pediatric Clinical Research Center (PCRC) at Robert Wood Johnson Medical School is metaphorically putting a stake in the ground. Sunanda Gaur, MD, professor of pediatrics and director, PCRC, feels strongly about the center's importance. "It still needs to be said: people don't have a grasp on clinical research in pediatric disease," she says. "Over the years it's improved, but it's not where it should be."

Dr. Gaur and her staff are passionate about the work they are doing and the consequences it can have in ensuring that safe, effective drugs are available to children. The PCRC is a full-fledged academic clinical research center within the medical school's Department of Pediatrics,



The Pediatric Clinical Research Center (PCRC) at Robert Wood Johnson Medical School has expanded in scope since its inception in 2007. "Because of the quality research and data produced by the studies at the PCRC, there has been tremendous growth," says Sunanda Gaur, MD, professor of pediatrics and director, PCRC (left).



housed in a dedicated 5,000 square feet of space within the Child Health Institute of New Jersey. The staff includes physicians, research nurses, nurse coordinators, a pediatric psychologist, and a research pharmacist who coordinate the business of conducting clinical trials. The challenges are huge: protecting children from exposure to undue risks while using effective methods to test promising drugs.

Access to Drugs Motivates Families

Julianne Wilson, RN, research coordinator, says the studies give kids the chance to receive medications they might not otherwise have access to. “Most drugs are FDA-approved for adults, but not approved for children,” she says. There’s another reason families decide to participate. “We tell our patients and families, even if the study doesn’t help them, it will help others in their situation in the future,” says Wilson. “No matter the outcome, we learn from every study, helping other children who have these diseases.”

Research coordinator Lisa Cerracchio, RN, recalls one feel-good moment that affected the entire team. “A young boy suffered from idiopathic thrombocytopenic purpura (ITP)—a disorder that can lead to easy or excessive bruising and bleeding. He couldn’t participate in gym or play contact

sports,” Cerracchio says. “He came in for injections for an ITP trial. Just as a result of the drugs to treat his condition that he received in the study, he found out he could sign up for Pop Warner football. He got the biggest smile on his face. We walked away feeling fantastic because he was so happy.”

The center has expanded in scope since its inception in 2007. “Because of the quality research and data produced by the studies at the PCRC, there has been tremendous growth,” says Dr. Gaur. Now the center is part of national and international networks doing research to look for new treatments. There are about 25 studies under way at any one time. Some may have one or two patients in them; in others, as many as 15 are enrolled. Researchers are currently doing work that could have far-reaching consequences.

“One of the primary missions of the PCRC is the training of tomorrow’s pediatric clinical investigators,” says Marc Sturgill, PharmD, associate professor and chair, Department of Pharmacy Practice and Administration, Rutgers Ernest Mario School of Pharmacy, and associate director of education, PCRC. “We’re actively involved in the training and mentoring of medical and pharmacy students and residents as well as Rutgers University pharmaceutical industry fellows.”

Breaking Ground on Drugs for Cystic Fibrosis

The cystic fibrosis (CF) research collaboration is relatively new. Thomas F. Scanlin, MD, professor and senior vice chair, Department of Pediatrics, and chief, division of pulmonary medicine and the Cystic Fibrosis Center, explains, “We’ve partnered with the PCRC to become a therapeutic development network.” The first trial potentially affects only 4 percent of cystic fibrosis patients, but there was spectacular improvement in members of that group. Then a breakthrough drug was tested that could affect more than half of all patients with CF. The trial produced a result that was less than expected—but a newer, more advanced version of that drug is being readied for research. Results



Dr. Gaur (fourth from left) and her team at the PCRC—(left to right) Surasak Puvabanditsin, MD, assistant professor of pediatrics; Sreenivas Reddy, graduate assistant; Maya Ramagopal, MD, assistant professor of pediatrics; research coordinator Lisa Cerracchio, RN; Richard Drachtman, MD, professor of pediatrics and chief, division of pediatric hematology and oncology; research



coordinator Julianne Wilson, RN; and Thomas F. Scanlin, MD, professor and senior vice chair, Department of Pediatrics, and chief, division of pulmonary medicine and the Cystic Fibrosis Center—are passionate about the work they are doing and the consequences it can have in ensuring that safe, effective drugs are available to children.

could be truly groundbreaking. “We’ve never had drugs like this—take two pills a day, for example, and see dramatic improvement for cystic fibrosis,” says Dr. Scanlin.

Usually airway clearance, which involves a rigorous daily routine, is the protocol for patients with CF. “These new drugs are an improvement on top of the daily regimen,” says Dr. Scanlin. The cystic fibrosis study is approved for patients as young as 12 years old, and the therapeutic development network is getting geared up to do research with children who are 6 or older. “It’s exciting if in the future, after a newborn screening, we can start the child on medications before scarring begins on his or her lungs,” the doctor adds.

Record Enrollment in Studies for Sickle Cell

The PCRC is also conducting a study for Mast Therapeutics that looks at a new drug to treat sickle cell crisis. The drug, MST-188, would enable kids to leave the hospital sooner

and enhance their quality of care by decreasing the time they are in crisis. The study is a placebo trial that involves a 48-hour infusion. Researchers look at pain medications used and the last dose in comparison to patients not getting the drug. The PCRC sickle cell study has among the highest enrollment numbers in the country. “We have a relationship with these patients, many of whom we’ve known since they were babies,” says Richard Drachtman, MD, professor of pediatrics and chief, division of pediatric hematology and oncology. “They are willing and excited to participate in this research.”

According to Dr. Drachtman, the PCRC will soon conduct a study for another sickle cell drug, from Pfizer, called Rivipansel. The study, which has been put on the fast track, will look at treating sickle cell crisis by attacking the inflammatory component. A number of patients are already enrolled. Dr. Drachtman, like Dr. Gaur, emphasizes the importance of pediatric research. “It’s very important to get these trials done,” he says. “These kids are the generation of the future. We want them to have a better life—and to be advocates for research.”

Studying Low-Birth-Weight Babies

In neonatal intensive care units (NICUs), bronchopulmonary dysplasia (BPD) is a threat to babies who were born weighing less than 1,500 grams. It’s the most common chronic problem in neonates who are on prolonged mechanical ventilation due to respiratory distress syndrome. “These babies often go home on oxygen with saturation monitors and are prone to infection,” says Maya Ramagopal, MD, assistant professor of pediatrics. Dr. Ramagopal, who is spearheading research on BPD through the PCRC, says the infants often undergo tracheal aspiration—an invasive method to suction the airway—when they develop signs of a lung infection. “We asked ourselves, how could we make things better for these babies?”

“We thought about how children with asthma are monitored and applied that thinking to the BPD study,” says Dr. Ramagopal. Older children with asthma can breathe into an RTube to obtain exhaled breath condensate (EBC), in which indicators of airway inflammation can be measured. Dr. Ramagopal and her colleagues Elizabeth Yen, MD ’10, neonatology fellow, Department of Pediatrics, and Robert J. Laumbach, MD ’97, MPH, associate professor of environmental and occupational health, Rutgers School of Public Health, collected EBC and tracheal aspirates from neonates and measured cytokines and nitrite levels—indicators of inflammation and oxidative stress. If the levels in EBC and tracheal aspirators are correlated, EBC might eliminate the need for the invasive method.

To date, the researchers have enrolled 40 infants, at or less



In neonatal intensive care units, bronchopulmonary dysplasia (BPD) is the most common chronic problem in neonates who are on prolonged mechanical ventilation due to respiratory distress syndrome. “We asked ourselves, how could we make things better for these babies?” says Maya Ramagopal, MD, assistant professor of pediatrics, who is spearheading research on BPD through the Pediatric Clinical Research Center at Robert Wood Johnson Medical School.

than 28 weeks' gestation age and born at Robert Wood Johnson University Hospital's NICU, in the study, which is still under way. Preliminary data show that an elevated nitrite level in EBC in the first week of life may be a predictor of BPD.

The PCRC has also assisted with another NICU study, under the direction of neonatologist Surasak Puvabanditsin, MD, assistant professor of pediatrics. The study is determining if a drug is effective in the treatment of neonatal candidiasis in term and preterm infants. Data from this study are being presented this fall and have led to dosage recommendations.

Not Just Developing Drugs, but Screening for Risk

Parents who want to know the risk their child faces in the future for a specific disease also take part in the studies at PCRC. Lindsay Vastola and her son, Emilio, went for a screening to track if either had antibodies for type 1 diabetes. "My brother and sister both have type 1 diabetes," says Ms. Vastola. "My brother received dual kidney and pancreas transplants. Not a day went by that I didn't think about how it wouldn't be uncommon for us to develop the disease."

The test looks at antibodies to determine if a child is at risk for developing type 1 diabetes. In Emilio's case, both he and his mother tested negative. The study was through TrialNet—an outlet that uses clinical trials to examine the prevention and early treatment of type 1 diabetes, including screening close blood relatives of people with the disease.

Advocates for Children above All

The PCRC makes it possible for scientist-researchers and scientist-physicians to rapidly translate a medical discovery into a drug modality. They even have the potential to unlock new preventive treatments for childhood diseases. The groundbreaking work they are doing can ultimately have an impact on the future of health care for children. "It is a tribute to Dr. Gaur and her extremely committed group of physicians and staff," says Sally Radovick, MD, professor of pediatrics and senior associate dean for clinical and translational research. "They are conducting highly rigorous, difficult studies to answer important questions about how to treat childhood diseases." Dr. Radovick also points out that the center is important as a training ground. "New investigators are being trained here today so tomorrow they can be part of developing a new cure, a new drug, or a new therapy," she says.

For Dr. Gaur, it's all about the children. She stresses that pediatricians are advocates for the youngest of patients. Physicians who specialize in children take on that additional role of advo-



"My brother and sister both have type 1 diabetes," says Lindsay Vastola, who participated in a study with her young son, Emilio, at the Pediatric Clinical Research Center, to determine if they were at risk for developing the disease.

cacy, looking out for children on a larger scale. "We have a role to play in educating young physicians—to bring them into the fold and teach them about how we're doing this," says Dr. Gaur.

Because the PCRC is relatively small, there is significant room to grow compared to other research sites. "What we need to do is become part of a National Institutes of Health (NIH) center for clinical and translational research," says Dr. Gaur. The center is doing industry-funded studies now. But if it were part of a larger NIH-funded effort, it would be possible to do many more studies that look at other pathways of treatment. "Taking a role earlier in the cycle in drug development would involve us in more groundbreaking studies," she says.

Dr. Gaur believes there are regional connections that also make greater growth possible in the future. The relationship with the Child Health Institute of New Jersey positions the center for success. So much is happening there that dovetails with the studies at the PCRC. And because Robert Wood Johnson Medical School is now part of Rutgers, The State University of New Jersey, and because of the central location of the academic community, there is a chance for much more collaboration that will allow the Pediatric Clinic Research Center to have greater reach.

"Exciting research is happening within our walls," says Dr. Gaur, "but we never lose sight of the reason we're doing it—to improve the health of children." ■



“We can offer the full spectrum of care related to the aortic valve, including several different kinds of TAVR procedures. As a result, we can really tailor the treatment to the patient’s needs. There is almost no circumstance in which we can’t treat a patient now.” says Leonard Y. Lee, MD '92, professor and interim chair, Department of Surgery; James W. Mackenzie, MD, Endowed Chair in Surgery; and chief, division of cardiothoracic surgery, Robert Wood Johnson Medical School (center), with Saum A. Rahimi, MD, assistant professor of surgery (left); and Zoltan G. Turi, MD, MPH, MScAI, FACC, professor of medicine and associate director, division of cardiovascular diseases and hypertension, Robert Wood Johnson Medical School, and director of the Structural Heart Program at Robert Wood Johnson University Hospital.

PHOTO BY: JOHN EMERSON



EXPANDING

Lifesaving Options

in Aortic Valve Replacements

Faculty Perform Nation's First Transcatheter Valve-in-Valve TAVR

BY BETH-ANN KERBER



After experiencing congestive heart failure related to valvular heart disease, a failing pacemaker, and an aortic valve replacement that had degenerated, leading to significant aortic stenosis, Brenda Rossi sought the expertise of the team at Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital, which specializes in cases such as hers.



When Brenda Rossi told her primary care doctor about the fatigue that had been plaguing her for weeks, she never expected her heart was the cause—or that the situation was dire enough to put her in the emergency room.

“I kept feeling tired and was very weak. Everything was an effort. I told my doctor about it during my annual physical, and he said, ‘Brenda, you need to go to the hospital; your pulse is 120!’” Rossi recalls.

That trip to the emergency department of her local hospital and subsequent testing revealed the toll her hypertension and other cardiopulmonary issues had taken. Rossi was experiencing congestive heart failure related to valvular heart disease, her pacemaker was failing, and the aortic valve replacement she had received approximately 15 years earlier had degenerated, leading to significant aortic stenosis.

Her cardiologist recommended she seek the expertise of the team at Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital (RWJUH), which specializes in cases such as hers. Additional tests and examinations confirmed that Rossi needed another aortic valve replacement, and time was of the essence.

But while Rossi had originally had traditional open surgery to replace her aortic valve in 2000, that option was no longer viable, nor were some of the more traditional access routes for transcatheter aortic valve replacement (TAVR), one of the newest modalities for treating aortic stenosis, says Leonard Y. Lee, MD '92, professor and interim chair, Department of Surgery; James W. Mackenzie, MD, Endowed Chair in Surgery; and chief, division of cardiothoracic surgery, Robert Wood Johnson Medical School.

Aortic stenosis is a condition whereby the valve at the top of the heart, which controls blood flow being pumped to the rest of the body, becomes extremely tight, forcing the heart to pump harder and resulting in some blood going backward through the heart, Dr. Lee explains. Without surgical treatment, individuals who have aortic stenosis survive only about two to five years after symptoms present, he says.

TAVR—a procedure that enables specialists to replace the aortic valve using fluoroscopic-guided, catheter-based technology—is performed by making a small incision into an artery, then feeding a catheter with a tiny balloon at the end of the tip through the artery to the aortic valve. The balloon is inflated to push the damaged valve open, then deflated and removed. The new replacement valve is delivered the same

way, placed in position in the middle of the old valve, and begins working immediately. Unlike some surgical procedures that require cardiopulmonary bypass and stopping the heart, the TAVR procedure is performed while the heart is still beating and provides an option for individuals who could not otherwise tolerate surgery.

Taking a Novel Approach

Rossi's issues, not only because of the previous surgery but also due to the inability to use some of the traditional TAVR access points (such as the femoral artery), put her in the unique position of being the first person in the United States to undergo a transcarotid valve-in-valve TAVR procedure—that is, the insertion of a new replacement valve through an incision in the carotid artery at the neck. The frame of the degenerated replacement valve acts as the anchor for the TAVR valve, Dr. Lee explains.

TAVR procedures in general are not unusual, notes Zoltan G. Turi, MD, MPH, MSCAI, FACC, professor of medicine and associate director, division of cardiovascular diseases and hypertension, Robert Wood Johnson Medical School, and director of the Structural Heart Program at RWJUH, who has been involved with the technique from its earliest days. Since November 2011, when the U.S. Food

Identifying the Problem

The symptoms of aortic stenosis often present very late in the disease process, so individuals can be very asymptomatic for years, says Dr. Lee. Eventually, however, the tightness will get to a point where symptoms begin to manifest. Those symptoms include:

- *Chest pain/tightness with exertion*
- *Shortness of breath with exertion*
- *Lightheadedness or syncope—nearly passing out as a consequence of not enough blood getting through to the brain*
- *Fatigue, especially when particularly active*
- *Rapid or irregular heartbeat, or heart palpitations*





and Drug Administration approved TAVR for commercial use in treating severe aortic stenosis, more than 50,000 procedures have been performed worldwide.

However, valve-in-valve (i.e., a new artificial valve inside a previously placed surgical valve) procedures are quite uncommon, and use of the transcatheter approach is extremely rare, Dr. Turi says. Only about 20 transcatheter procedures have been performed nationally—two of which were performed by specialists at the medical school and RWJUH. Until Rossi's surgery in June, none of them had involved a valve-in-valve procedure.

"People are afraid to use the carotid approach because of the theoretical risks involved," says Dr. Lee.

"The brain is fed by the carotid artery. If you interfere with the blood flow in the carotid artery, there is the potential risk for stroke," Dr. Turi explains.

As a result, the procedure requires highly specialized expertise and what has been described in cardiac interventions literature as "a truly dedicated TAVR team approach."

The multidisciplinary team at the medical school and RWJUH involves specialists in cardiothoracic surgery, vascular surgery, and interventional cardiology, among others. During Rossi's surgery, for example, approximately 15 individuals were present in the hybrid operating room, including cardiologist Hemal Gada, MD, assistant professor of medicine; vascular surgeon Saum A. Rahimi, MD, assistant professor of surgery; and Dr. Lee and Dr. Turi, as well as cardiac anesthesiologists, nursing staff from the cardiac catheterization lab and operating room, and technicians.

Expanding Availability of Treatment

While traditional surgery is still the procedure of choice for relatively healthy individuals in need of aortic valve replacement, the availability of TAVR and the ability to offer patients a transcatheter option further expands the number of individuals who can receive lifesaving treatment, says Dr. Lee.

"We can offer the full spectrum of care related to the aortic valve, including standard surgery, two different kinds of minimally invasive surgeries, and several different kinds of TAVR procedures. As a result, we can really tailor the treatment to the patient's needs and overall medical condition," he says. "There is almost no circumstance in which we can't treat a patient now."

"The idea that there's nothing we can do, there are no options for you, is really an obsolete discussion," Dr. Turi agrees.

Changes in the availability of the TAVR technique and its technology have come rapidly, Dr. Turi notes. What once was a procedure exclusively for people who were absolutely inoperable has now been expanded to include individuals who are at high risk from surgery.

"We're using it in healthier patients than before, because the data about outcomes have been compelling," Dr. Turi explains.

Since the first TAVR procedure was performed in 2002, Dr. Turi has seen the devices used getting smaller and smaller—about half the size they were originally, he says. More patients have expanded options, they are ambulated and out of the hospital in days instead of weeks, and ongoing refinements are taking place in the technology, he adds.

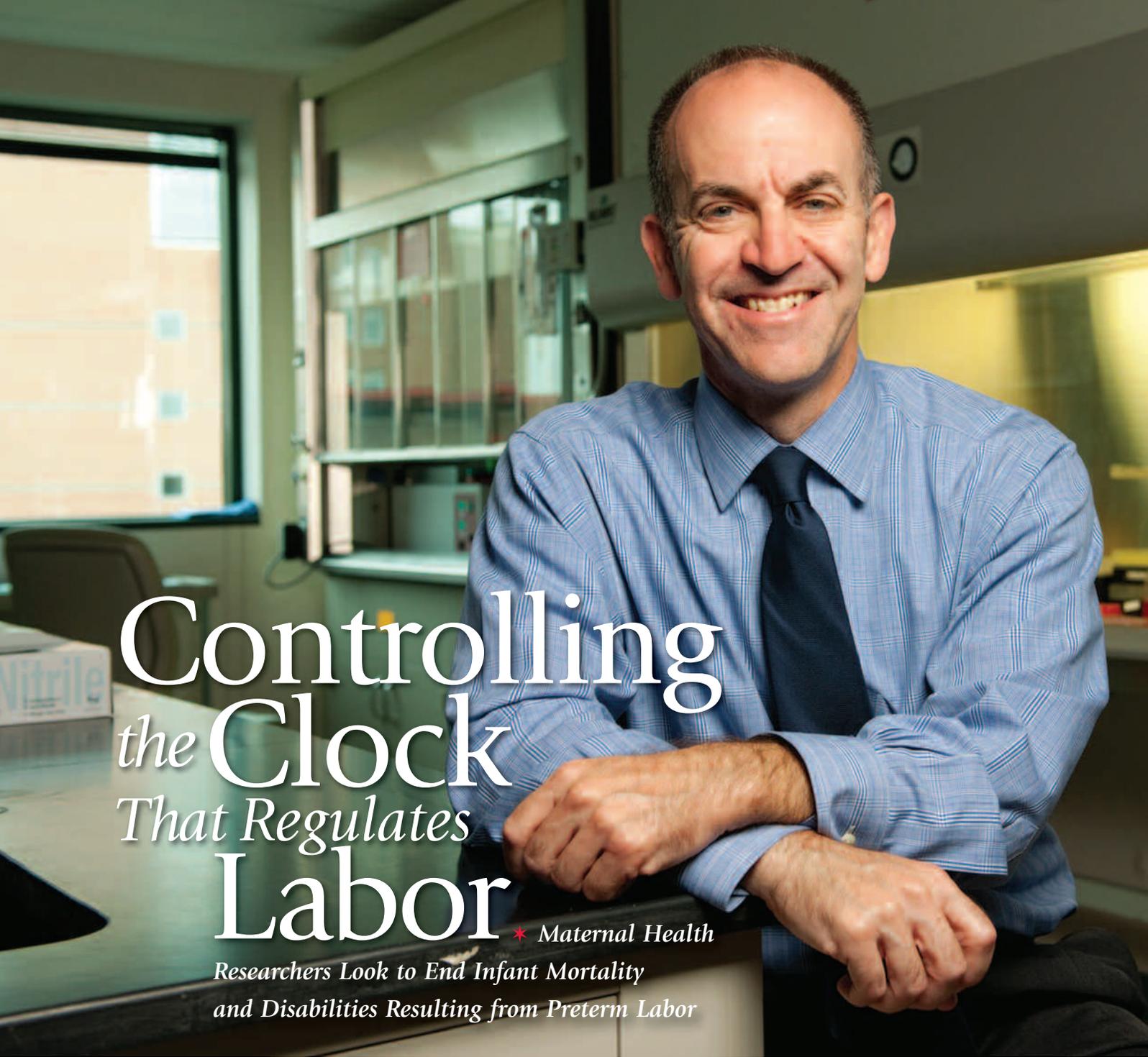
Improving Outcomes

While the average age of patients undergoing the procedure at RWJUH is in the late 80s, Dr. Turi has performed a TAVR procedure on a patient as young as 42. But because TAVR patients are typically older and more frail, the ability to have an alternative to open surgery has a lot of appeal to patients, Dr. Turi says: it's a shorter procedure, it involves deep sedation instead of general anesthesia, it avoids having the chest open in invasive surgery, and there's even a chance they will be able to sit in a chair that same night. TAVR eliminates some of the fear people have about surgery in general, he says.

As for Rossi, she has been pleased with the outcome.

"At first I was weak and couldn't do much, but now I'm getting my strength back. There may be times when I get tired, but I'll sit down for a few minutes and will be fine. Little by little, I'm getting better all the time," she says. "The last three years had been an ordeal, but so far, it seems to be successful."

Another positive outcome is the improvement in her appetite, she says. In the years prior to the surgery, she had lost more than 50 pounds, bringing her well below the acceptable weight range for a woman of her height. She would have a piece of chicken smaller than her palm and only be able to eat less than half of it, she recalls: "Now I'm able to eat more, which I'm really happy about. My appetite is still improving, and I'm hoping to gain more weight to get into the correct weight range." **M**



Controlling *the* Clock *That Regulates* Labor

★ *Maternal Health*
Researchers Look to End Infant Mortality
and Disabilities Resulting from Preterm Labor

As Todd Rosen, MD, chief, division of maternal-fetal medicine, articulates the turning points of his career, including the switch to medicine after obtaining a bachelor's degree in engineering from Rutgers, The State University of New Jersey, it becomes clear that he returned to Rutgers in 2009 with a purpose, which in time could revolutionize one of the nation's leading public health issues. Dr. Rosen is an expert in high-risk pregnancies, and his passion is far more than bringing babies safely into the world. He wants to stop bringing them into the world too early. This is why Dr. Rosen joined the Department of Obstetrics, Gynecology, and Reproductive Sciences at Robert Wood Johnson Medical School—to help find a way to prevent preterm births.



BY JENNIFER FORBES ★ *Portraits by John Emerson*

“We see preterm labor far too often,” explains Dr. Rosen, who also is director of the Regional Perinatal Center at Robert Wood Johnson University Hospital. “It is the number one cause of infant death in the United States, and children who do survive may have disabilities throughout their lifetime.”

Dr. Rosen knows he has arrived at yet another critical juncture in what has become his life’s work. He and his research team, which is working to understand the basic processes of labor, may have achieved a breakthrough that could lead to understanding the underlying causes of some case of preterm labor.

“In the United States, preterm births are substantially higher than they were in 1990, and the majority of available therapies do not help prevent preterm labor,” he says. “If we can understand what drives typical labor with a full-term pregnancy—why women go into labor when they do—then we may be able to find a therapy to avoid or stop early labor and prevent death or disabilities in infants as a result of preterm birth.”

Dr. Rosen’s excitement is palpable as he shares the news of an impending publication, even as he cautions that it is only a breakthrough, one that will take more study before it has a direct benefit on his high-risk pregnancy patients.

Valeria Di Stefano, MD, assistant professor of obstetrics, gynecology, and reproductive sciences, who previously worked in Dr. Rosen’s research lab as a fellow in maternal-fetal medicine, concurs.

“It is very hard to predict when our discovery could benefit expectant women,” she says. “However, I am confident that the information we obtained thus far will provide the building blocks to understand the mechanisms that surround the onset of labor, and therefore uncover possible targets for therapy.”

As a physician and mother of two—who was on maternity leave when the team’s research study was published—Dr. Di Stefano understands the importance of melding research and clinical care.

“As physicians, we are constantly reviewing the newest studies and the latest literature to provide our patients with the most up-to-date, evidence-based treatments,” Dr. Di Stefano explains. “Completing a fellowship in maternal-fetal medicine has afforded me the opportunity to treat women experiencing high-risk pregnancies and participate in various cutting-edge research projects.

“Within our lab, we test theories and possible mechanisms of actions that I believe will ultimately become the foundation for determining future standards of care,” she says. “We are

filling a void of knowledge in the field of obstetrics.”

Three floors above where Dr. Rosen and Dr. Di Stefano provide care to mothers-to-be is the perinatal research laboratory, an ideal location for the translational research that could end the leading cause of major illness and mortality in newborn infants.

In this clean and unusually orderly lab, Bingbing Wang, PhD, assistant professor of obstetrics, gynecology, and reproductive sciences, has been working since 2010 to determine the molecular mechanism that regulates labor in a full-term pregnancy. A physician in his native China, Dr. Wang came to the United States to obtain a doctoral degree in the molecular biosciences and has since focused on translational research, first in cancer and now maternal-fetal medicine.

“If we can understand what drives typical labor with a full-term pregnancy, then we may be able to find a therapy to avoid or stop early labor and prevent death or disabilities in infants as a result of preterm birth,” says Todd Rosen, MD, chief, division of maternal-fetal medicine, Robert Wood Johnson Medical School (facing page, center), with members of his research team, Bingbing Wang, PhD, assistant professor of obstetrics, gynecology, and reproductive sciences (right) and laboratory technician Natalia Parobchak.



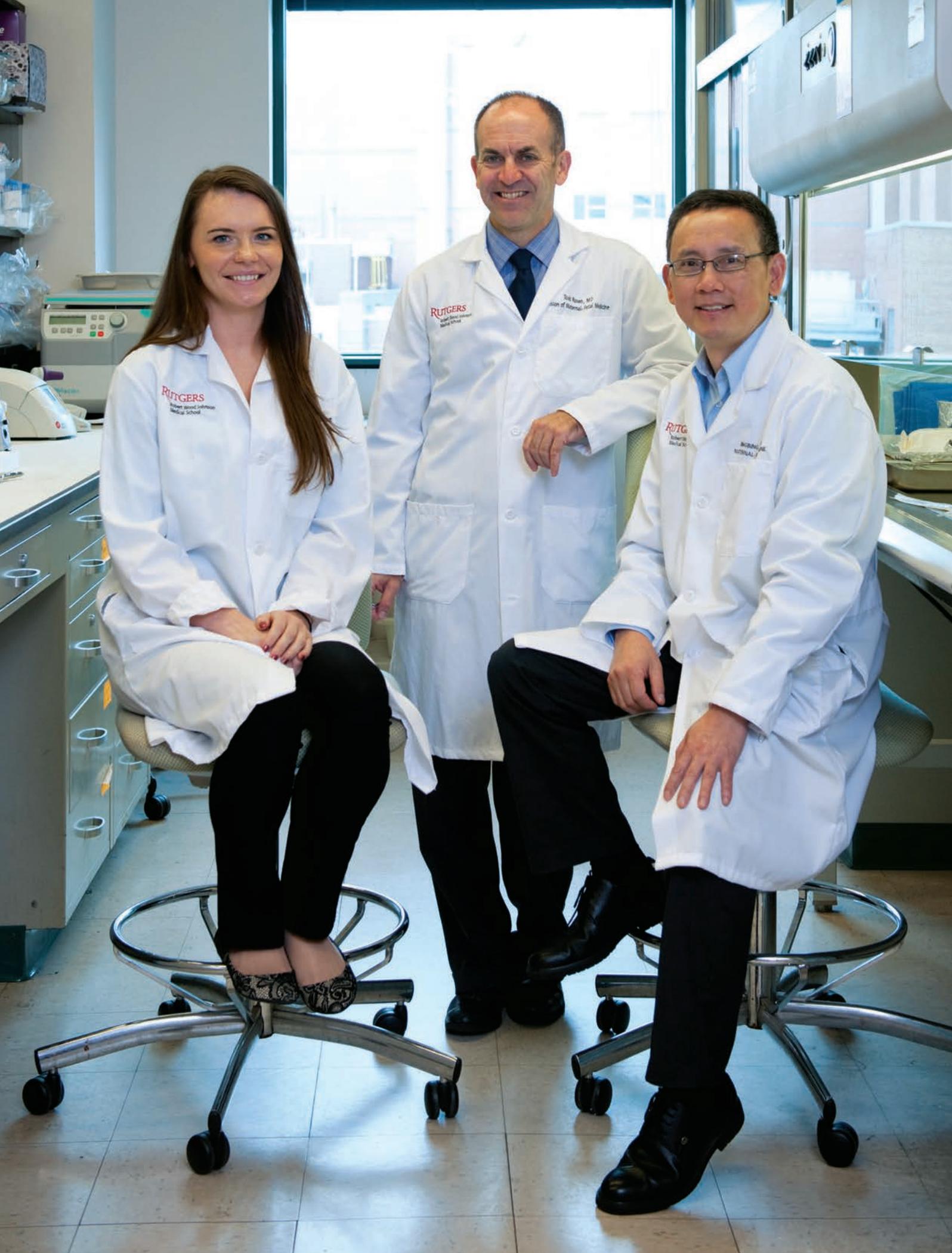
Dr. Rosen and Dr. Wang have conceived numerous ideas about the process of labor, with a specific focus on designing experiments to test their hypotheses that the clock which determines the length of pregnancy resides in the placenta. In fact, the investigators have come to believe that the placenta has a primitive “brain” that can decide when it is safe to deliver the baby.

“This is an important theory, in which we hope to find concrete answers,” says Dr. Wang.

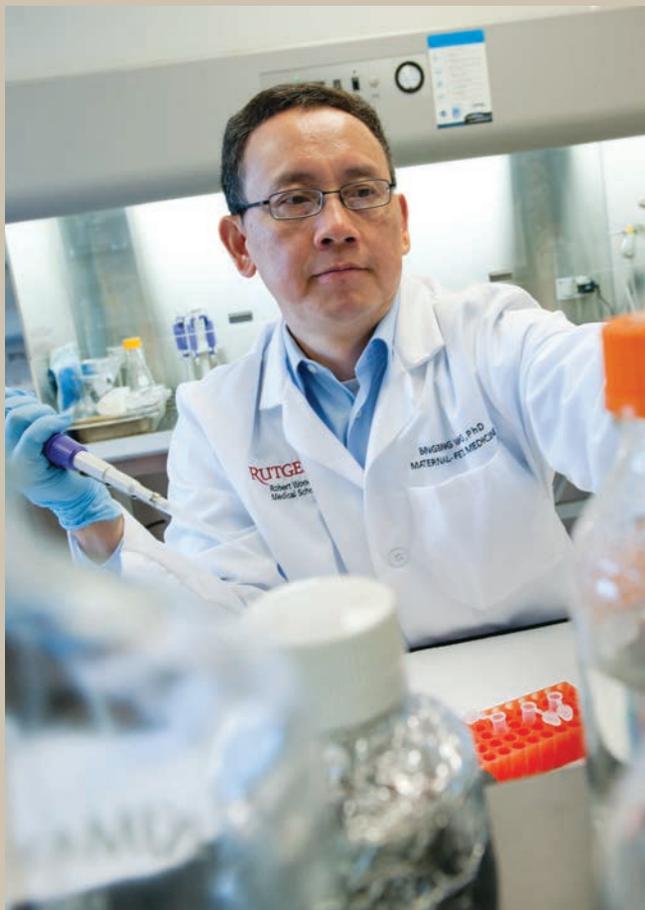
The team’s latest research study, published during the summer in the journal *Science Signaling*, did just that by identifying the signaling pathway that induces labor in full-term pregnancy. It is the breakthrough they have been working toward.

“We found an epigenetic switch that turns on the corticotropin-releasing hormone (CRH), and cyclooxygenase-2 (COX-2) genes, in the placenta,” explains Dr. Wang. The increase in CRH and the prostaglandins produced by COX-2 are important steps in the initiation of labor.

In other words—and no surprise to any woman who has experienced labor—it’s all about stress and hormones.



CRH is found both in the brain and in the placenta. It is released by the brain in response to stress. In the placenta, it is increasingly produced throughout gestation. When a pregnancy reaches full term, between 37 and 41 weeks, stress hormones known as glucocorticoids initiate a reconfiguration through the signaling pathway, causing a surge of CRH in the placenta and triggering labor.



Motivated by his medical background, Dr. Wang is committed to finding the therapeutic treatment for preterm labor.



As Dr. Rosen explains, stress induces change, and during pregnancy there are three potential targets for stress: the mother, the fetus, and the placenta. The body is designed to keep the mother and fetus safe. When it recognizes that the fetus is too big to support, it places stress on the placenta and begins the process of birth.

The same process can also occur in preterm labor. However, the question remains, why does the process switch on before the fetus is full term?

Further research into the signaling pathway by the team

determined that blocking any step in the process prevents the surge in CRH. Although there are no known chemical inhibitors for the signaling pathway, the team screened approximately 1,300 candidate drugs and determined that eight have the potential to halt the process of labor if it occurs too early.

“Using these potential drug inhibitors, we have experiments planned to attack the pathways we have identified that could lead to better cures for preterm labor,” Dr. Wang says.

Motivated by his medical background, Dr. Wang is committed to finding the therapeutic treatment for this unique disorder—unique in that only women who are pregnant are at risk.

“We are actually no better at preventing preterm birth now than we were 25 years ago, which is what makes this research so important; it is a significant, national public health issue,” Dr. Wang explains.

Preterm labor’s impact is more than evident, as reported by the U.S. Centers for Disease Control and Prevention: it affects more than 11 percent of women in the United States, meaning that one in every nine newborns is affected. About 35 percent of infant deaths can be attributed to complications of preterm labor. One in 50 pregnancies experience preterm labor before 32 weeks, one in 200 pregnancies before 28 weeks of gestation. Women of African descent are twice as likely to deliver early as women from other ethnic backgrounds.

Unlike heart disease or cancer, research into causes of preterm labor is limited. So is available funding.

In addition to submitting grants for financial support, the team has opened a Benefunder website, hoping to gain private support for the work. Benefunder is a new tool that connects investigators with philanthropists who care about their cause, offering additional financial support that cannot be garnered through traditional channels.

“With this breakthrough, we are prepared to move forward with new research that we hope will lead to clinical trials of drug therapies,” says Dr. Rosen. “With funding from private donors, we can broaden our study and look at other genes within the placenta that we believe affect the process of labor.

“Preterm labor has a substantial impact on families before and after the birth of a child born premature,” explains Dr. Rosen. “One of my mentors told me that if I was going into maternal-fetal medicine and conducting research, then I had better do something important. To me, there is nothing more important than ending the preterm delivery epidemic in this country.” **M**

By Kate O'Neill

NEWS

Faculty Members Recognized or Honored

Congratulations to the following faculty members on their notable achievements.



JENNIFER FORBES

Martha Lansing, MD

Martha Lansing, MD, associate professor and vice chair, Department of Family Medicine and Community Health, was named Family Physician of the Year by the New Jersey Academy of Family Physicians. The award honors Dr. Lansing's commitment to improving the quality of life for patients and for members of the community. Dr. Lansing began mentoring Robert

Wood Johnson Medical School students in 1986, while still in private practice. She joined the full-time faculty a decade later and became the residency program director, overseeing family medicine residents at Capital Health System in Trenton.



STEVE HOCKSTEIN

Judith A. Neubauer, PhD

Judith A. Neubauer, PhD, associate vice president for research regulatory affairs, Office of the Vice President for Research and Economic Development, Rutgers University, and professor of medicine, Robert Wood Johnson Medical School, has been named to the inaugural class of Fellows of the American Physiological Society. The rank of fellow is designed to honor distinguished members who have demonstrated excellence in science, contributed to the physiological sciences, and served the society.

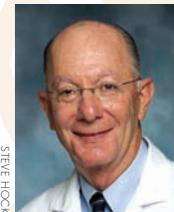


COURTESY OF NAOMI SCHLESINGER, MD

Naomi Schlesinger, MD

Naomi Schlesinger, MD, professor of medicine and chief, division of rheumatology, was selected as the 2015 New Jersey Rheumatologist of the Year. She was honored by the Arthritis Foundation at the 39th Annual Commitment to a Cure Gala in October. This recognition is awarded to a rheumatologist who excels in his or her field and has

demonstrated vast contributions to the field of rheumatology as well as exemplifying a commitment to patients and families.



STEVE HOCKSTEIN

Melvin Weinstein, MD

Melvin Weinstein, MD, professor of medicine and pathology and laboratory medicine and chief, division of allergy, immunology, and infectious diseases, will be honored with the 2016 Hardy Diagnostics ABMM/ABMLI Professional Recognition Award, which recognizes a diplomate of the American Board of Medical Microbiology (ABMM) or the American Board of Medical Laboratory Immunology (ABMLI) who has enjoyed a compelling career and personal achievements that are noteworthy and that bring credit to himself or herself, the ABMM/ABMLI, and the profession.



STEVE HOCKSTEIN

Jill M. Williams, MD '93

Jill M. Williams, MD '93, professor of psychiatry and director, division of addiction psychiatry, received the 2015 Remarkable Achievement Award from the New Jersey Psychiatric Association (NJPA). The award recognizes NJPA members who help promote the science, art, and practice of psychiatry; consistently demonstrate professional standards; educate the public; and serve the community.

Save the Date:

RUTGERS
Robert Wood Johnson
Medical School

Alumni Association's
28th Annual

**Career
Night**

Tuesday evening,
March 8, 2016
6:30–9:30 p.m. • Great Hall
Piscataway campus
RSVP:
ribners@rwjms.rutgers.edu

Noted Physician-Scientists Join Faculty

Two outstanding physician-scientists have been appointed to leadership positions at Robert Wood Johnson Medical School.

Fredric E. Wondisford, MD, was named professor and chair, Department of Medicine, and **Sally Radovick, MD**, was named professor of pediatrics and senior associate dean for clinical and translational research. Dr. Wondisford and Dr. Radovick are both Chancellor Scholars, a designation awarded by the Rutgers Biomedical and Health Sciences to the school's academically strongest new recruits.

Dr. Wondisford previously served as professor of medicine, pediatrics, and physiology and as director of the division of metabolism at Johns Hopkins



Fredric E. Wondisford, MD

University School of Medicine. He also served as director of the Johns Hopkins Diabetes Institute, leading a multidisciplinary effort by research scientists and physicians to improve the quality of care for patients. His well-funded research program focuses on pituitary and pancreatic hormonal growth and regulation. He is the inventor of an approach to synthesize recombinant human thyroid-stimulating hormone (TSH), for which he

holds two U.S. patents. The synthetic TSH, Thyrogen, is approved by the U.S. Food and Drug Administration for use in the diagnosis and treatment of patients with thyroid cancer.

Dr. Radovick served as the Lawson Wilkins Professor of Pediatrics, director of the division of endocrinology, and vice chair for research, Department of Pediatrics, at Johns Hopkins



Sally Radovick, MD

University School of Medicine. An expert in pediatric growth and development disorders, Dr. Radovick leads a well-funded research program focusing on steroids that control sexual maturity and reproduction, neurotransmitters, and growth factors. In addition, she studies the deficiency of hormones produced by the pituitary gland in children with growth failure.

Both Dr. Wondisford and Dr. Radovick are members of the Association of American Physicians and the American Society for Clinical Investigation.

Research Grants

The National Institutes of Health awarded grants of \$1 million or more to the following members of the Robert Wood Johnson Medical School faculty:

- **Paul R. Copeland, PhD**, associate professor of biochemistry and molecular biology, a four-year, \$1,257,900 competing continuation grant for "Functional Analysis of SBP2 and Selenocysteine Incorporation" (2R01GM077073).
- **Benjamin F. Crabtree, PhD**, professor of family medicine and community health, a three-year, \$1,954,578 grant for "PCMH Implementation Strategies: Implications for Cancer Survivor Care" (1R01CA176545).
- **Cheryl Dreyfus, PhD**, professor and chair, Department of Neuroscience and Cell Biology, a five-year, \$1,739,065 grant for "The Role of Neurotrophins in Oligodendrocyte Function" (R01NS036647).
- **Estela Jacinto, PhD**, associate professor of biochemistry and molecular biology, a four-year, \$1,247,768 competing continuation grant for "The Regulation of Cell Metabolism and Proliferation by MTOR Complex 2" (2R01GM079176).
- **Terri Goss Kinzy, PhD**, professor of biochemistry and molecular biology, a four-year, \$1,532,404 competing continuation grant for "Regulators of Translation Elongation Factor EEF1A" (2R01GM057483).
- **Peter Lobel, PhD**, professor of biochemistry and molecular biology and member, Center for Advanced Biotechnology and Medicine, a four-year, \$2,544,000 award for "Rutgers Mass Spectrometry Center for Integrative Neuroscience Research" (P30 NS046593). Dr. Lobel was a dual recipient of the award with Hong Li, PhD, associate professor of microbiology, biochemistry, and molecular genetics and director, Center for Advanced Proteomics Research, New Jersey Medical School.



Research News

By Kate O'Neill

- **James Millonig, PhD**, associate professor of neuroscience and cell biology, senior associate dean, Rutgers Graduate School of Biomedical Sciences at Robert Wood Johnson Medical School, a five-year, \$1,937,500 grant for “Interdisciplinary Job Opportunities for Biomedical Scientists—iJOBS” (1DP70D020314). Joseph Marcotrigiano, PhD, associate professor of chemistry and chemical biology, Rutgers University, is co-principal investigator on the project.
- **Smita S. Patel, PhD**, professor of biochemistry and molecular biology, a four-year, \$1,534,868 grant for “Structural and Mechanistic Studies of Self and Non-Self Recognition by RIG-I” (1R01GM111959).
- **Martha Soto, PhD**, associate professor of pathology, a four-year, \$1,335,600 competing continuation grant for “Molecular Mechanisms Initiating Cell Migrations in *Caenorhabditis Elegans*” (2R01GM081670).
- **Ann M. Stock, PhD**, professor of biochemistry and molecular biology and interim director, Center for Advanced Biotechnology and Medicine, a four-year, \$1,856,755 competing continuation grant for “Structure and Function of Response Regulator Proteins” (5R01GM047958).
- **Huaye Zhang, PhD**, assistant professor of neuroscience and cell biology, a five-year, \$1,717,860 grant for “Polarity Determinants in Synaptic Stability and Plasticity” (1R01NS089578).

The Gordon and Betty Moore Foundation

awarded a three-year, \$1.6 million grant to **Vikas Nanda, PhD**, associate professor of biochemistry and molecular biology and member, Center for Advanced Biotechnology and Medicine, as co-principal investigator of “The Design and Construction of Life’s Transistors.”

Published Research

The following is a representative sample of articles by Robert Wood Johnson Medical School researchers published in leading biomedical journals:

- **Jeffrey L. Carson, MD**, Richard C. Reynolds Professor of Medicine and provost, Rutgers Biomedical and Health Sciences, was first author of “Liberal Versus Restrictive Blood Transfusion Strategy: 3-Year Survival and Cause of Death Results from the FOCUS Randomised Controlled Trial,” published in *Lancet* March 28, 2015:385(9974):1183–1189.
- **Jonathan W. Cruz, PhD**, a postdoctoral researcher in the Rutgers Graduate School of Biomedical Sciences, was first author of “Growth-Regulating Mycobacterium Tuberculosis VapC-mt4 Toxin Is an Isoacceptor-Specific tRNase,” published in *Nature Communications* July 9, 2015:6:7480. **Nancy A. Woychick, PhD**, professor of biochemistry and molecular biology, was senior author of the article.
- **Darios Getahun, MD, PhD, MPH**, clinical assistant professor of obstetrics, gynecology, and reproductive sciences, was senior author of “Association of Maternal Diabetes with Autism in Offspring,” published in the *Journal of the American Medical Association* April 14, 2015 313(14):1425–1434.
- **William J. Kostis, PhD, MD '07**, assistant professor of medicine, and **Abel E. Moreyra, MD**, professor of medicine, were coauthors of “Risk Profile of Clinical Trial Participants,” a letter published in the *Journal of the American Medical Association* January 6, 2015:313(1):93–94.
- **M. Maral Mouradian, MD**, William Dow Lovett Professor of Neurology and director, Center for Neurodegenerative and Neuroimmunologic Diseases, was senior author of “Dual K-Agonist/M-Antagonist Opioid Receptor Modulation Reduces Levodopa-Induced Dyskinesia and Corrects Dysregulated Striatal Changes in the Nonhuman Primate Model of Parkinson’s Disease,” published in the *Annals of Neurology* June 2015:77(6):930–941.
- **Divya Nandakumar, PhD**, a member of the laboratory of **Smita S. Patel, PhD**, professor of biochemistry and molecular biology, was first author of “Finding the Right Match Fast,” published in *Cell* February 26, 2015:160(5):809–811. Dr. Patel was senior author of the article.
- **Yuefeng Tang, PhD**, a research associate in the laboratory of **Gaetano T. Montelione, PhD**, adjunct professor of biochemistry and molecular biology and resident member, Center for Advanced Biotechnology and Medicine, was first author of “Protein Structure Determination by Combining Sparse NMR Data with Evolutionary Couplings,” published in *Nature Structural & Molecular Biology* June 22, 2015:22(6):433–434. Dr. Montelione was senior author of the article.
- **Donald A. Winkelmann, PhD**, professor of pathology and laboratory medicine, was the first author of “Structural Basis for Drug-Induced Allosteric Changes to Human β -Cardiac Myosin Motor Activity,” published in *Nature Communications* August 6, 2015:6:7974. **Ann M. Stock, PhD**, professor of biochemistry and molecular biology and interim director, Center for Advanced Biotechnology and Medicine, was a coauthor of the article.

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SAVE THE DATE

Saturday, April 9, 2016

6 p.m. ■ The Heldrich

New Brunswick

RUTGERS

Robert Wood Johnson
Medical School

Scholarship



GALA

6th ANNUAL

A *Celebration* with Alumni and Friends

6:00 p.m. Cocktails &
Silent Auction

- 7:00 p.m. Awards Presentation
- Dinner & Dancing ■ Black Tie

2016 Gala Honorees:

Distinguished Alumni Award:

Kathryn L. Holloway, MD, Class of 1984

Honorary Alumni Award:

Judith K. Amorosa, MD, *Clinical Professor of Radiology*
and Louis Amorosa, MD, *Professor of Medicine*

**Celebration of the Following
Anniversary Classes:**

45th : 1971	20th : 1996
40th : 1976	15th : 2001
35th : 1981	10th : 2006
30th : 1986	5th : 2011
25th : 1991	

LETTER FROM THE
ALUMNI ASSOCIATION
PRESIDENT

Dear Alumni and Friends:

It is my pleasure to welcome you to the fall issue of *Robert Wood Johnson Medicine!*

This past August, Robert Wood Johnson Medical School welcomed the largest incoming first-year class in the school's history—190 newly matriculated students and 10 students from our pipeline programs with Rutgers, The State University of New Jersey, and Seton Hall University. The first-year class is among the most diverse classes in our school's history, in demographics, languages spoken (35!), countries of birth, and service experiences. It also included our inaugural MD/PharmD class and five Global Health Chancellor Scholars.

SAVE THE DATE: The Alumni Association's 28th Annual Career Night will be on Tuesday evening, March 8, 2016, in the Great Hall, Piscataway campus. As assistant dean for student affairs at Robert Wood Johnson Medical School, I know that our students are always excited to meet and learn from alumni and are very appreciative of your time and efforts. We are always interested in expanding the scope of represented specialties and welcome new participants.

The Day in the Life Program is another opportunity for our alumni to provide informal mentorship to the students. Many of you are already part of this program. I would love to see this program expanded. It would be a wonderful opportunity for our students to have alumni contacts across the country so they have someone to speak with when they are on away rotations or on the interview trail. If you are interested in being part of our Day in the Life Program, please reach out to Roberta Ribner at ribners@rwjms.rutgers.edu.

The Sixth Annual Scholarship Gala will take place on Saturday evening, April 9, 2016, at The Heldrich in New Brunswick. We will celebrate the anniversaries of the following classes: 45th: 1971, 40th: 1976, 35th: 1981, 30th: 1986, 25th: 1991, 20th: 1996, 15th: 2001, 10th: 2006, 5th: 2011.

Through our other annual alumni fundraising efforts, the Alumni Annual Fund provides scholarships and low-interest loans to medical students. Alumni contributions provided \$70,000 in scholarships and loans for the 2015–2016 academic year. Thank you for your contributions and continued dedication to helping students to defray the ever-rising costs of medical education.

The Alumni Association is a great way for you to stay connected with our school. Your education at Robert Wood Johnson Medical School has provided you with great opportunities. Please share your career and family updates for our "Class Notes" section of the magazine. I am particularly interested in hearing from alumni on how the association can better serve your needs. Please join us on Facebook (www.facebook.com).

I want to thank the past presidents of the Alumni Association and members of the Board of Trustees for all the work that they have done and continue to do. It is my hope that we can continue to grow our alumni base, strive for excellence, and accomplish great things together this year.

Sincerely,



Sonia Garcia Laumbach, MD '99

President, Robert Wood Johnson Medical School Alumni Association



STEVE HOCKSTEIN

P.S. Please visit our website at <http://support.rutgers.edu/RWJMSAlumni> to contribute to the Alumni Annual Fund, or you may also mail your gift in the enclosed envelope.

Can Doesn't Mean Should

Through Blog and Book, Paul Smolen, MD '78, Counsels Thousands of Parents

The 21st century offers myriad “cans”—or possibilities—for families. But these aren’t necessarily the healthiest “shoulds”—or choices—for growing children, says pediatrician Paul Smolen, MD '78. In his parenting book, *Can Doesn't Mean Should: Essential Knowledge for 21st Century Parents*, published in March 2015, Dr. Smolen discusses how parents can best balance the cans with the shoulds.

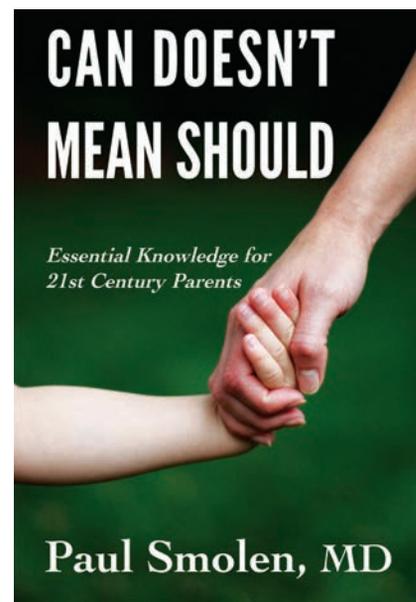
Emphasizing the dizzying evolution of today’s technology and the rapid pace of modern life, he groups parental options into five spheres: nutrition, screen time, disposable income, family responsibility, and, finally, a balance of extracurricular activities, academics, and unstructured play.

In 2010, 28 years into his career, Dr. Smolen decided to enter the blogosphere, “morphing old-world skills into a new-world career,” he says. His homegrown blog, “DocSmo.com,” started as an experiment in “Studio 1E”—his son’s old bedroom. Drawing on the diverse expertise of his family, Dr. Smolen developed a highly successful series of podcasts in

which he shares his knowledge on a wide variety of subjects with a global audience. He has researched, written, and recorded 350 “portable, practical, pediatric ‘pedcasts.’” By the spring of 2015, DocSmo.com was logging 40,000 visitors a month (many returning regularly), with an average viewing time of six minutes per visit.

The podcasts provide time-tested answers to parents’ commonly asked questions, including “Straight Talk about Sleep in Infancy,” “The Potty Refuser,” and “The Tired Teen.” “Every morning I get up and add new topics,” he says. “The list is endless.”

“I love to teach, and, after all, that really is what pediatricians do,” says Dr. Smolen, who also serves as an adjunct associate professor of pediatrics at the University of North



Carolina–Chapel Hill. “An informed parent is a good parent, and the podcasts give me the opportunity to teach both parents about a lot of things that there just isn’t time for during a routine office visit. Extending the conversation beyond the office was my original concept, and it worked!”

Rutgers Medical School (now Robert Wood Johnson Medical School) was an excellent choice for him, says Dr. Smolen. He originally planned to practice family medicine. Then, during his clinical rotations, he worked with Paul Winokur, MD, a

BY KATE O'NEILL



PHOTOS COURTESY OF PAUL SMOLEN, MD '78

great teacher and pediatrician serving as an adjunct faculty member at Muhlenberg Hospital. The experience changed Dr. Smolen's outlook on medicine. Pediatrics became his passion, and he decided to do his residency and fellowship in a field that

allowed him to specialize in caring for children.

Exploring new areas and experimenting with new technologies, Dr. Smolen has extended his knowledge and influence well beyond boundaries he could only have imagined just five

years ago. "An already rewarding career has become thrilling," he says. "Connecting with my patients in novel ways has been the experience of a lifetime, and sharing what I have learned in 33 years of private practice is just awesome." **M**

Carole Sampson-Landers, MMS '74, MD: A Leader in Clinical Research Comes “Back to the Banks” as a Rutgers University Trustee

“Back to the Banks”

Life has been a journey of discovery for Carole Sampson-Landers, MMS '74, MD. Throughout childhood, she planned to go to medical school and then return to Somerville, her hometown, and become a family doctor. Instead, she made choices that steered her in unforeseen directions, ultimately leading to her current position as director of global clinical development at Bayer HealthCare Pharmaceuticals. By remaining open to change, she says, “exploring everything and anything you can,” she was able to investigate career alternatives, guided at crucial junctures by the right people at the right time.

Dr. Sampson-Landers treasures memories of her undergraduate experience at Douglass College. As a premed student, she found that the college offered every science course she needed except physics, which she happily took at Rutgers University. The strength of her preparation at Douglass, then an all-women's col-

lege, followed by her education in the basic sciences at Rutgers Medical School, formed a solid foundation for her career in clinical research.

Dr. Sampson-Landers was named to the Douglass Society in 1997, in recognition of her exceptional career as a research physician. And this past spring, she was appointed to the Board of

Trustees of Rutgers University. “I like to say I’ve come back to the Banks [of the old Raritan],” she says. “The merger of Robert Wood Johnson Medical School and Rutgers made perfect sense, and they needed someone with a medical background on the board. I am lucky to be one of those individuals.”

The Journey Begins

Although Dr. Sampson-Landers entered Douglass College as a premed student, she discovered that the premed curriculum, including calculus—“the bane of my existence,” she says—was not required for admission to medical school. That left her free to delve into the sciences she loved, and she earned a bachelor of arts degree in biological sciences.

After graduation from Douglass, she took a break “to rest her brain” and worked in the Ortho Research Foundation’s Philip Levine Laboratories. Named, she notes, for the renowned scientist who identified the newly discovered Rh factor in blood as the cause of a sometimes fatal maternal, prenatal, and neonatal dis-

BY KATE O’NEILL ■ PORTRAIT BY JOHN EMERSON



ease, the labs were an inspiring learning environment for the eager young scientist.

Two years later, she met William Ascari, MD, lead pathologist at Somerville Hospital, who encouraged her to move forward by applying to Rutgers Medical School. “I had learned a lot, including the fact that I didn’t want to spend my career in a lab,” Dr. Sampson-Landers says. But the work provided valuable experience that emphasized the importance of team-

work, she says. And, she adds with a laugh, she acquired a skill that would prove unique among her first-year classmates at Rutgers Medical School: performing phlebotomies.

At that time, Rutgers Medical School offered a master’s in medical science (MMS), a two-year degree that featured academic rigor and a scientific focus. The fledgling medical school was ahead of its time in preparing medical students. The Class of 1976 topped the national average for the

number of women and minority students. “Rutgers Medical School was a home away from home,” says Dr. Sampson-Landers, “where everyone looked out for you, like family.”

The MMS program sharpened her interest in the world of research. “To other schools, the degree represented the strength of our preparation in the basic sciences,” she says, “and it was a great foundation for the next level.” At the start of her second year, she decided

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Robert Burke, MD '75, MPH: A Special Love for Children with Special Needs

At the Robert Wood Johnson Medical School 2015 Scholarship Gala, a conversation developed between Robert Burke, MD '75, MPH, and Manuel M. Porto, MD '75, about their experiences in the Class of 1975 at Rutgers Medical School. At one point, Dr. Burke said that his being accepted to medical school was a miracle. What did that mean? He later clarified this as he described the evolution of his medical career over the last 40 years.

Dr. Burke reported that after being a totally undistinguished student, he graduated from St. Mary's High School in Perth Amboy, then held several dead-end jobs before taking a position as an orderly at Perth Amboy General Hospital. Two years later, he joined the U.S. Army with the intent of becoming a medic but, instead, was assigned to the military police. Following his discharge from the army, he returned to the hospital and attended Middlesex County College, later transferring to Rutgers, The State University of New Jersey, in Newark. He applied to 12 medical schools—and promptly received negative responses from 11. Rutgers Medical School was the only one to offer him any interviews. One of those was with Robert Johnson,



MD, a family physician who had been a U.S. Navy corpsman. Dr. Burke believes that, ultimately, this interview was central to his acceptance. Nevertheless, months passed with no word from the medical school. Then, unexpectedly one evening in late August, he was contacted by Elizabeth Vale in the admissions office at Rutgers Medical School and offered a place in the upcoming class—entering in less than two weeks. He enthusiastically accepted the offer. That evening, he wrote

himself a note promising that when he became a doctor, he would focus on the needs of underprivileged children and those with disabilities.

In their conversation at the Gala (*photo below*), Dr. Burke (*left*) and Dr. Porto (*right*), reminisced about the medical school's excellent faculty. Dr. Burke was inspired by the late Christian Hansen, MD, professor of pediatrics, a tireless advocate for the health of impoverished children worldwide, and the late Lawrence T. Taft, MD, professor and chair, Department of Pediatrics, who encouraged Dr. Burke's interest in pediatric neurology, cerebral palsy, and developmental disabilities.

Dr. Burke received his master's in medical science degree in 1973 and continued at Rutgers Medical School in its second four-year class, receiving his doctor of medicine degree in 1975. He began his residency at the University of Rochester but later returned to this state to study genetics and birth defects with Theodore Kushnick, MD, at New Jersey Medical School. His intention was to be better able to address the needs of children with physical and developmental disabilities and those with genetic disorders.



SCOTT LAJUE

After completing his residency, Dr. Burke joined the Commissioned Corps of the U.S. Public Health Service, with an initial assignment to the National Health Service Corps site in Camden. He worked together with Charles Tyler,

MD, and they created the pediatric care program of the CAMcare Health Corporation, beginning in the basement of an abandoned church behind Cooper University Hospital. Within two to three

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“Dr. Burke made my life easy. He said, ‘You are not alone. We are here to help you,’” says Kenia Perez (above right), with her 5-year-old son, Kenny, and his favorite doctor, Robert Burke, MD ’75, MPH.

Danielle Perret Karimi, MD '03: A Star with a Heart

Danielle Perret Karimi, MD '03, is a young alumna in one of medicine's newest specialties: physical medicine and rehabilitation (PM&R). She is also a remarkably young rising star in academic medicine, appointed in 2014 to serve as associate dean for graduate medical education at the School of Medicine at University of California, Irvine (UCI). In this position, she is responsible for the institutional accreditation of 55 graduate medical education programs for almost 700 residents and fellows. A specialist in PM&R and pain medicine, Dr. Perret holds her primary appointment at UCI as associate clinical professor in the Department of Physical Medicine & Rehabilitation, with a secondary appointment in neurosurgery.

As a student at Robert Wood Johnson Medical School, Dr. Perret weighed her interests in psychiatry, musculoskeletal medicine, spinal and brain injury, and palliative care. She wanted to commit to a field where there was broad clinical need and where her skills and empathy would be valuable to people at their most difficult moments. When she discovered PM&R on a clin-

ical rotation at the JFK Johnson Rehabilitation Institute at JFK Medical Center, in Edison, she realized that by training in the specialty, as an interventional physiatrist, she would be able to combine her clinical goals.

During the rotation, she met Sara Cuccurullo, MD, now clinical professor, medical director, and chair, Department of Physical Medicine and Rehabilitation, Robert Wood Johnson Medical School. Dr. Cuccurullo has become a valued mentor, colleague, and

close friend. "It's the most intimate specialty," says Dr. Perret. "We all know and support each other."

After her residency at Mount Sinai Medical Center, in Manhattan, where she served as chief resident, Dr. Perret completed a fellowship in the pain medicine program at UCI. A subsequent faculty appointment would include teaching in the very fellowship program she had just completed. "I'd planned on staying in academics, but when this opportunity came along, I couldn't resist the challenge," she says. Fortunately, she has a gift not only for patient care but also for curriculum and competency development, because Dr. Perret was almost immediately appointed fellowship director, amid infrastructure problems and faculty attrition.

By 2013, she had reorganized and invigorated the program. A year later, it received full accreditation, earning "good or better" assessments in all required competencies of the Accreditation Council for Graduate Medical Education (ACGME). Having similarly assisted with program development for UCI's PM&R residency program, Dr. Perret was garnering success in improvement strategy for the graduate medical education program. Dr. Perret's

BY KATE O'NEILL



COURTESY OF DANIELLE PERRET-KAPLAN, MD '03

appointment as an associate dean came shortly later.

“I guess people noticed,” she says—and indeed they did: in addition to her appointment, she received the Picker Institute/Gold Foundation Award for graduate medical education curriculum development in the humanities, by developing a curriculum in anesthesiology to teach humanism in the perioperative setting, as well as a UCI Graduate Medical Education Outstanding Service Award. She has also worked with PM&R colleagues to develop a novel online curriculum focused on developing competency in research

skills. It is now widely used by the national PM&R graduate medical education community.

Dr. Perret was the third in her family to graduate from Rutgers, The State University of New Jersey, where she majored in English, biological sciences, and molecular biology and biochemistry. She put her love of writing and her strong communication skills to work as lead author of *The Pain Center Manual*, completed while she was rebuilding the pain management program at UCI. The manual, a concise reference guide originally destined for UCI trainees, proved so successful at all

levels that it was published a year later and is now used nationwide.

Throughout her tenure as fellowship director, Dr. Perret was UCI’s assistant dean for resident affairs, with responsibilities including service as the school’s liaison to the ACGME’s Clinical Learning Environment Review (CLER) program, preparing the institution and its graduate medical education programs for a CLER assessment. To achieve this goal, she had a dual charge: to engage residents in quality and safety at both the program level and the institutional level, and to interact on resident affairs

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Carole Sampson-Landers, MMS '74, MD:**A Leader in Clinical Research Comes "Back to the Banks" as a Rutgers University Trustee**

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to transfer to Temple University School of Medicine. She looked forward to working in a large, inner-city hospital—a single, principal clinical training site that could assign each student to as many as five patients.

On clinical rotations, she discovered her love for obstetrics and gynecology, what she calls “the happy specialty,” and women’s health, but life in Philadelphia overwhelmed her. “It was a clear case of culture shock,” she says. So, although Temple’s residency director encouraged her to stay, she made the family medicine program at Howard University College of Medicine, in Washington, D.C., her first choice. When she

matched with Howard, she moved on, seeking a less intense urban setting, with the support of extended family and longtime friends nearby.

After a year at Howard, Dr. Sampson-Landers was considering accepting an available slot in a smaller residency program when she learned that Ortho Pharmaceuticals was looking for someone with a background in biological sciences. She applied and was selected.

In her new position, Dr. Sampson-Landers was the only physician in the lab. She found herself engaged in two of the skills she most enjoyed: laboratory research and surgery—a favorite part of her OB/GYN training. She subsequently

“I loved using my scientific background and clinical training to benefit women around the world—many more than I could have served in private practice.”

—Carole Sampson-Landers,
MMS '74, MD

accepted an opportunity to do clinical research for prescription products in OB/GYN, Ortho’s flagship line, and later served as the division’s medical director. “I hadn’t been exposed to clinical research as a medical student or intern, but I took to it immediately,” she says. “I

Danielle Perret Karimi, MD '03: A Star with a Heart

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with the school’s top leaders. “It was perfect for me,” she says.

Dr. Perret often works with Douglas G. Merrill, MD, chief medical officer and senior associate dean for quality and safety, UCI. “She devised a very helpful checklist that helps residents manage ‘handoffs,’ where they pass patients on to the next shift,” he says. “She made it applicable to many situations—the OR, the ward, the floor—and she gives a great lecture to residents on how to give and receive feedback.

“Dani is tireless, but she’s also calm and collected—an excellent role model for young house staff,” says Dr. Merrill. “She’s young, plugged in, and knows what the residents are going through—how they don’t know what to worry about first. But she makes herself just as

available to them as she does to program directors and chairs; she wants them to celebrate their work at an exciting time in their lives.

“Obviously,” he adds, “Dani got a great education.”

Another colleague is Manuel M. Porto, MD '75, senior associate dean for clinical affairs, UCI, and president and chief executive officer, University Physicians & Surgeons, the UCI faculty practice group. Dr. Porto, who previously served as professor and chair, Department of Obstetrics and Gynecology, UCI, was already familiar with Dr. Perret’s skills in pain management when he learned she had been appointed to the faculty. “She’s a breath of fresh air—a great speaker and teacher, and she’s been a wonderful addition to the faculty,” he says. “She energizes

others, and she’s energized GME with her youthful, contagious enthusiasm. She has a passion for ensuring the educational mission of our school and medical center.”

Dr. Perret’s success comes as no surprise to her mentor and friend, Dr. Cuccurullo. “She’s not just a highly organized administrator,” says Dr. Cuccurullo. “She’s also thoughtful, compassionate, and wants things done well and fairly.” While handling the nuts and bolts of the graduate programs, Dr. Cuccurullo says, Dr. Perret remains focused on the trainees themselves.

“UCI has undergone a lot of changes as a result of the value she has brought to the graduate programs and to the school as a whole,” adds Dr. Cuccurullo. “She’s a well-known RWJMS graduate, and we all can be very proud of her.” 

loved using my scientific background and clinical training to benefit women around the world—many more than I could have served in private practice.”

A Leader in Clinical Research

Mergers and acquisitions within the industry have given Dr. Sampson-Landers the opportunity to share her leadership skills and knowledge of product development, including the key role of clinical trials, at most of New Jersey’s pharmaceutical giants: from Johnson & Johnson/Ortho, where she got her start, and J&J’s Advanced Care Products, to Bristol-Myers Squibb, where she was executive medical director of the women’s health care division and clinical research. When Bristol-Myers Squibb reorganized, it broke up the women’s health division, reassigning topics such as cardiology, anti-infectives, and antifungals to other primary care divisions. Dr. Sampson-Landers decided to move on, saying, “I thought I might get an extended vacation, but Berlex called within two weeks, and I found myself in a wonderful new job.”

Berlex, the U.S. subsidiary of Berlin-based Schering AG, was interested in her years of experience in clinical trial conduct and management in the area of women’s health. A few years later, Bayer HealthCare Pharmaceuticals acquired Schering, including Berlex, and she has been there ever since, continuing to focus on the development of women’s health care products and anti-infective preparations.

Dr. Sampson-Landers worked on a large multisite clinical trial in 2004, studying the efficacy and safety of a low-dose contraceptive. A fellow investigator was

Gloria A. Bachmann, MMS ’72, MD, professor and interim chair, Department of Obstetrics, Gynecology, and Reproductive Sciences. Dr. Bachmann was struck by the team-building skills Dr. Sampson-Landers demonstrated in investigators’ meetings. “In the discussion, she brought out individual talents and viewpoints, but by the end of the meeting, she had achieved consensus and a unified sense of direction,” Dr. Bachmann says. “We all benefited from the civilized interface of different points of view: hers being the highly informed perspective of the private sector and mine the standpoint of a clinical/academic institution.”

For a pharmaceutical company, recruitment can be one of the most challenging aspects of running a good trial, says Dr. Sampson-Landers, noting one instance when it took almost 18 months to assemble an appropriate pool of participants. In an “aha” moment, she was able to solve the recruitment problem by proposing a new approach modeled on Bayer’s marketing model. Instead of relying on physicians to suggest a trial to their patients, Bayer went directly to the public, as it would in publicizing a new product, using popular media such

as local newspapers and cable television to reach potential participants.

Circles, Connections, and Family

Like her pleasure in coming “back to the Banks,” the circles and patterns of life are important to Dr. Sampson-Landers—above all, friends, family, and family traditions. “They are my retreat, my solace,” she says. So, while pursuing a career that could have taken her far afield, she has chosen to remain close to home.

“I love flower gardening,” she says. “I got this from my grandmother, who could grow anything. I just love getting



PHOTOS COURTESY OF CAROLE SAMPSON-LANDERS, MMS '74, MD



my hands in the dirt and making things grow.” And the family traditions continue: last year, Dr. Sampson-Landers introduced her 2-year-old granddaughter to flowers. A year later, she is delighted to find herself answering a 3-year-old’s unsolicited requests to help in the garden. **M**

Robert Burke, MD '75, MPH: A Special Love for Children with Special Needs

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years, CAMcare's pediatric program was recognized as being among the best in the Northeast in terms of immunization rates and overall quality of care. Subsequently, Dr. Burke was reassigned to Cape May and then to Hampton, Virginia, where he assisted the U.S. Air Force Exceptional Family Member Program with the care of military dependent children with special needs. He completed his 20-year uniformed service career as chief of health services at the U.S. Coast Guard Academy in New London, Connecticut. At the same time, he served as a consultant to care for children and to support families enrolled in the navy's Exceptional Family Member Program at what was then Naval Hospital Groton, in Connecticut.

Dr. Burke received a master of public health degree at the University of Connecticut. His thesis, based on research done in cooperation with Lawrence Kaplan, MD, at Newington Children's Hospital, addressed the care of children with special needs in the pediatric primary care setting.

Moving to Rhode Island, Dr. Burke joined the faculty of Brown Medical School and the pediatric staff of Memorial Hospital of Rhode Island in Pawtucket, to develop the Pediatric Primary Care Center; later he added the Primary Care Center for Children with Special Needs, using a primary care medical home model. The special-needs program grew to care for more than 250 children with a wide range of physical and developmental disorders and disabilities.

Ten years later, Dr. Burke was recruited by Hasbro Children's Hospital, in Providence, to develop a primary care program similar to the one he had creat-

ed at Memorial. In addition, he joined the staff in Women and Infants Hospital's neonatal follow-up program for prematurely born infants and those with genetic disorders, birth defects, and developmental risk or disability. Over time, the Hasbro program grew from 40 patients to 400. This program also was based on a medical home approach, providing care

the American Academy of Pediatrics, health care insurers, and community support organizations. The Spina Crew, the support group for patients with spina bifida and their families, was created to focus on general issues of wellness and health, the introduction of early mobility and physical activity, social inclusion, and recreational activities. These non-



Kenny Perez's 5-year-old face lights up whenever he sees Dr. Burke. "I love Dr. Burke," says Kenny. "He gave me a big tricycle. It's going to make me stronger." Adaptive hand tricycles (right) are designed to build strength and coordination, provide mobility and recreation for children with limited lower-body strength, and allow them to do something that other children do, even if in a different way.



PHOTOS BY SCOTT FARUE

for children with special needs and including their healthy siblings. It offered family support and care coordination as well.

Also included was involvement with Hasbro's spina bifida program and its VIP program for infants and children with complex medical conditions and those who were dependent on medical technology. Both of these programs grew in numbers of patients served and their quality of care, and they received recognition from the Rhode Island Chapter of

medical activities were intended to improve overall health and social and personal development, ensure improved overall personal development, and provide mutual support by other families facing similar challenges related to spina bifida and physical disability.

"Bob Burke takes the patients other people are afraid to take," says his colleague Angela Anderson, MD, director of pediatric pain and palliative care, Hasbro Children's Hospital, and associate professor of pediatrics and emergency medi-

cine, Warren Alpert Medical School at Brown University. Describing the home care program, Dr. Anderson says, “Advancements in medical technology have made it possible for more families of children with disabilities to provide care at home.” Home care has many benefits, but challenges as well. “Kids are resilient, but Bob realizes that, for the parents, the weight of home care is tremendous—both medically and emotionally—and he tries to make a difficult job easier for them,” she says. “So Bob’s an old-time guy: he gives the parents his phone number and makes lots of house calls.”

“I’m a huge Bob Burke fan,” says Randal Rockney, MD, professor of pediatrics, family medicine, and medical education, Warren Alpert Medical School of Brown University. “The work he does is very demanding and challenging. Not too many people choose to do it, but he does it happily and is extra-committed to his patients.” Dr. Burke works in the ambulatory division and could turn his hospitalized patients over to hospitalists, adds Dr. Rockney, “but he knows his patients best and the families know him best, and they *trust* him. When their children are hospitalized, they ask for him. They’re confident in him, so he sees them there.”

Dr. Burke’s approach to teaching reflects his commitment to his patients. “Bob knows his patients and teaches by example,” says Dr. Rockney. “Some young learners are intimidated by caring for special-needs patients,” he adds. “And they’re right: it’s a lot easier to examine a 4-month-old baby than a 16-year-old in a wheelchair.”

Families have also voiced their grat-

itude for the care and support Dr. Burke has provided to them and his dedication to the care of their children with special needs.

Kenia Perez was referred to Dr. Burke and other specialists for counseling in the fifth month of her pregnancy, when prenatal testing revealed that her baby had spina bifida. “Dr. Burke made my life easy,” says Mrs. Perez. “He said, ‘You are not alone. We are here to help you.’” He explained the condition and introduced her to other mothers at the Spina Bifida Clinic, where her son, Kenny, will be a patient until young adulthood. “It helps so much when you see that your child isn’t the only one.”

Now, 5-year-old Kenny’s face lights up when he sees his favorite doctor, Dr. Burke, at the Spina Bifida Clinic or in routine and special-needs visits. Dr. Burke returns Kenny’s bright smile. “I love Dr. Burke,” says Kenny. “He gave me a big tricycle. It’s going to make me stronger.” Adaptive hand tricycles like Kenny’s are designed to build strength and coordination, while providing mobility and recreation for children with limited lower-body strength. Most of all, it improves his abilities and lets him do something that other kids do, even if in a different way.

Dr. Burke regarded his medical school acceptance as a miracle. If so, then there are many who feel he has paid back for that miracle. Dr. Burke points out that he made a promise on the day he was accepted to Rutgers Medical School; he has been able to keep that promise over his 35-year pediatric career, and he looks forward to continuing to keep it for the foreseeable future. **M**

What’s New?

Please send your professional and personal news for **Class Notes** to: Roberta Ribner, Editor, Robert Wood Johnson Medicine, Coordinator, Alumni Affairs, Robert Wood Johnson Medical School Alumni Association
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 Email: ribnerrs@rwjms.rutgers.edu
<http://rwjms.rutgers.edu/alumni>

1974

Stephen Rabin writes: “First grandchild born on March 19, 2014.”

1978

Alan Schwartzstein, a family physician at Dean Clinic in Oregon, Wisconsin, is vice speaker of the American Academy of Family Physicians Congress of Delegates.

1983

Cardiologist **Robert Masci** is the managing partner of Cardiology Associates of Sussex County in Newton, Vernon, and Milford, Pennsylvania.

1984

Orthopedic surgeon **Peter Wernicki** practices in Vero Beach, Florida. He received the 2015 Paragon Award for Water Safety from the International Swimming Hall of Fame. The award is given annually to the one individual worldwide who has contributed the most to advance aquatics and water safety.

1986

Peter Chirico writes: “After finishing residency and fellowship in diagnostic radiology and CT/US/MRI at the

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C L A S S NOTES

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University of Maryland Hospital in Baltimore, I accepted a position with Radiology Inc. in Huntington, West Virginia, with a teaching appointment at Joan C. Edwards School of Medicine/Marshall University. Twenty-four years later, I am medical director of the Department of Diagnostic Radiology at Cabell Hospital and chair, Department of Diagnostic Radiology, Joan C. Edwards School of Medicine/Marshall University."

1987

Radiologist **William Millar** is section chief of system neuroradiology at the Geisinger Health System in Danville, Pennsylvania.

1989

Richard Szumel is president and CEO of Union Hospital in Elkton, Maryland. He has been a member of the Union Hospital staff since 1997.

1990

Kenneth Cooke is professor of oncology and director, division of pediatric oncology, bone marrow transplant program, at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins Hospital.

1991

Thomas Cummings is a professor of pathology and ophthalmology at Duke University Medical Center. He is the coauthor of a new book, *The Soul of Success: The World's Leading Entrepreneurs and Professionals Reveal Their Core Strategies for Getting to the Heart of Health, Wealth and Success*.

1992

Lewis Levine is an orthopedic surgeon with Mid Atlantic Orthopedic Associates in East Brunswick.

1995

Albert DeNittis is medical director of the Brodesser Cancer Center at Cape Regional Medical Center, Cape May Court House, and chief of radiation oncology at Lankenau Hospital in Wynnewood, Pennsylvania.

Surgeon **Dominick Eboli** practices at Capital Surgical Associates in Trenton.

James Metz is the Morton M. Kligerman Professor of Radiation Oncology and chair, Department of Radiation Oncology, at the Perelman School of Medicine at the University of Pennsylvania.

1997

Ravi Goel and Christina Chennat were married in September 2015. Dr. Goel is an ophthalmologist and clinical instructor at Regional Eye Associates in Cherry Hill, and he teaches at Wills Eye Hospital in Philadelphia.

Benjamin Greenblatt is chair, Department of Emergency Medicine, at Norwalk Hospital in Connecticut.

2000

Giang Nguyen is executive director of the Student Health Service at the University of Pennsylvania.

Sherloun Normil-Smith

writes: "I am currently a resident of California. I work as an urgent care provider and founder and CEO of Mamadoc on Call, a concierge/direct primary care practice."

2001

Anthony Spinnickie practices at Atlantic Orthopaedic Associates in Whippany.

2002

Christopher Langan is regional chief medical officer of Memorial Hermann The Woodlands Hospital in The Woodlands, Texas.

2003

Patrick Lee practices at Monmouth Hematology Oncology Associates. He completed a hematology and oncology fellowship at George Washington University Hospital.

Preeti Parikh is an assistant clinical professor of pediatrics at the Mount Sinai School of Medicine. She is chief medical editor of *HealthiNation*, a medical expert at the bump.com, and medical contributor to *Multiplicity* magazine.

2005

Sunit Jariwala is director of allergy/immunology research at the Albert Einstein College of Medicine and one of the founding physicians of the Montefiore Asthma Center.

2006

Courtney Bellomo is an oncologist at NYOH Albany Medical Center and clinical assistant professor at Albany Medical College.

Zev Davidovics practices at the division of digestive diseases, hepatology and nutrition at Connecticut Children's Medical Center in Hartford. He completed a fellowship in pediatric gastroenterology, hepatology, and nutrition at Baylor College of Medicine/Texas Children's Hospital.

Neurologist **Elena Frid** is in private practice in Manhattan. She completed a fellowship in clinical neurophysiology at North Shore LIJ University Hospital.

Scott Shaffer is an assistant professor in the Departments of Psychiatry and Behavioral Sciences and Pediatrics at Children's Hospital at Montefiore.

2007

Oncologist **Mitul Gandhi** practices at Virginia Cancer Specialists in Fairfax.

William Kostis is an assistant professor in the Department of Medicine at Robert Wood Johnson Medical School. He completed his residency in internal medicine at Johns Hopkins Hospital and clinical and research fellowships in cardiovascular disease and clinical cardiac electrophysiology at Massachusetts General Hospital and Harvard Medical School.

Soumen Samaddar is medical director at Hopewell Family Practice & Sports Medicine in Flemington.

2008

Orthopedist **V. Karthik Jonna** joined the Saint Peter's Orthopedic Institute in New Brunswick.

LAST P A G E

—Continued from Page 64

2010

Sebastian Lesniak practices at Matossian Eye Associates. He completed his fellowship in anterior segment and corneal surgery at Wills Eye Hospital.

2011

Nathaniel Hsu reports: "I started as the OB anesthesia fellow/instructor at the Hospital of the University of Pennsylvania in July 2015."

Suraj Parekh writes: "I am switching specialties from general surgery to radiology and eventually interventional radiology. I began new training program at Staten Island University Hospital in July 2015."

Family physician **Rashmi Srinivas** practices at Summit Medical Group Family Medicine in Bridgewater.

2012

Thomas Cudjoe began his geriatrics fellowship at Johns Hopkins University School of Medicine in July 2015.

Former Residents

Deborah Crabbe is associate professor of medicine at Temple Heart and Vascular Institute at Temple University School of Medicine.

In Memoriam

Lawrence Sirott, MMS '68, MD

M

Soon thereafter, I realized I was developing symptoms of the very disease I researched, and was forced to accept disability. This has led to yet another career: 10 years spent transitioning from an academic voice to a conversational one in order to tell this ironic story in my memoir, *Both Sides Now: A Journey from Researcher to Patient*.

It was hoped that our discovery of alpha-synuclein would quickly move us beyond symptomatic treatment for Parkinson's disease to being

“It was hoped that our discovery of alpha-synuclein would move us beyond symptomatic treatment for Parkinson's disease to being able to modify progression of the disease.”

able to modify progression of the disease. It has taken almost 20 years and millions of research dollars, but our breakthrough in identifying alpha-synuclein has come full circle. On July 31, 2014, the Austrian drug development company AFFiRiS conducted a webinar in which it announced results from the first successful clinical trial of a vaccine (PD01A) targeting alpha-synuclein (see <http://totalwebcasting.com/view/?id=affiris>). The trial, a four-month, Phase I safety and tolerability study, suggested some immunological and clinical efficacy for Parkinson's participants, and it has opened

the door to the planning of larger studies. Prothena, an American company, has also begun looking at targeting alpha-synuclein with a monoclonal antibody, PRX002. (I want to note that neither I nor any of my immediate family members have any financial connection or other conflicts of interest regarding this vaccine or monoclonal antibodies.)

The chance that either of these first-generation therapeutics will be the ultimate cure for Parkinson's is, perhaps, remote. However, it could not be more relevant for me personally. My story has been covered in several New Jersey newspapers, and *Psychology Today* has invited me to blog about my views from both sides of the white coat (<http://www.psychologytoday.com/blog/neurogenetic-journey>). If you decide to read my story, I hope you will enjoy the humor, celebrate the common bonds that sustained us at Robert Wood Johnson Medical School, and rejoice in Roger Duvoisin's considerable legacy.

Because the American Parkinson Disease Association (ADPA) funded some of my critical early research, I have pledged to donate 20 percent of the book's proceeds to the APDA. **M**

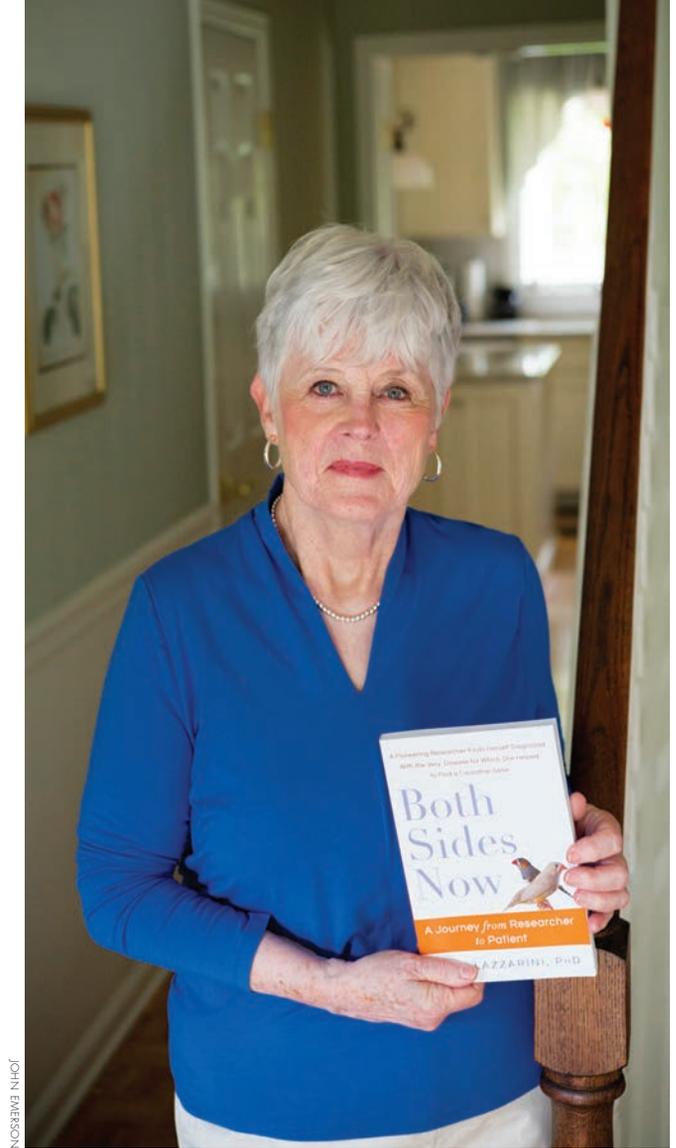
—Alice Lazzarini, PhD
Clinical Assistant Professor of Neurology

Both Sides Now: A Journey from Researcher to Patient

Approaching the 20th anniversary of seminal research that my colleagues and I did at Robert Wood Johnson Medical School, I contemplate just how far I have traveled.

In 1990, Roger C. Duvoisin, MD, then chair, Department of Neurology, recruited me to be part of his newly endowed William Dow Lovett Laboratory of Molecular Neurogenetics, to work on the genetics of ataxia. One didn't work very long in Roger's department, however, without getting pulled into his Parkinson's disease research. One day, "the Boss," as he was affectionately known by faculty and staff alike, said to me, "Alice, I want you to prove Parkinson's is genetic." Little did I realize just how this tall order would come to revolutionize research for Parkinson's.

Along with my medical school colleagues and Richard H. Myers, PhD, professor of medicine at Boston University School of Medicine, I published a family study of Parkinson's, in the journal *Neurology* in 1994, that helped to support Roger's vision. Then, in 1996—the same year I also completed my PhD—our team at Robert Wood Johnson Medical School, the National Institutes of Health, and the University of Naples reported in *Science* the location of the first Parkinson's-causing mutation in a kindred originating from Contursi, a small Italian village southeast of Naples. This was followed by our identification of the



JOHN EMERSON

mutation, named PARK1, in the protein alpha-synuclein, as we detailed in the same journal in 1997. Screening other laboratory samples from persons of Italian descent, I found no additional carriers of the mutation. While the mutation proved to be unique to this extended family, evidence of the protein's involvement in the classic pathology of Parkinson's followed almost immediately thereafter, with an article published in *Nature*.

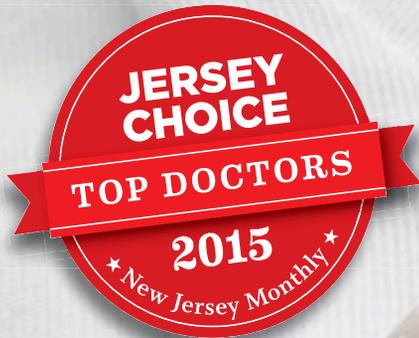
In 1999, I was invited to join the newly formed pharmacogenetics team at Novartis Pharmaceuticals, charged with integrating genetics into all clinical trials. My previous work ultimately lent itself to my working in the Department of Neurosciences on a drug to treat Parkinson's. By 2004, I was experiencing a fatigue so debilitating that it was interfering with my ability to maintain a full-time schedule.

—Continued on page 63

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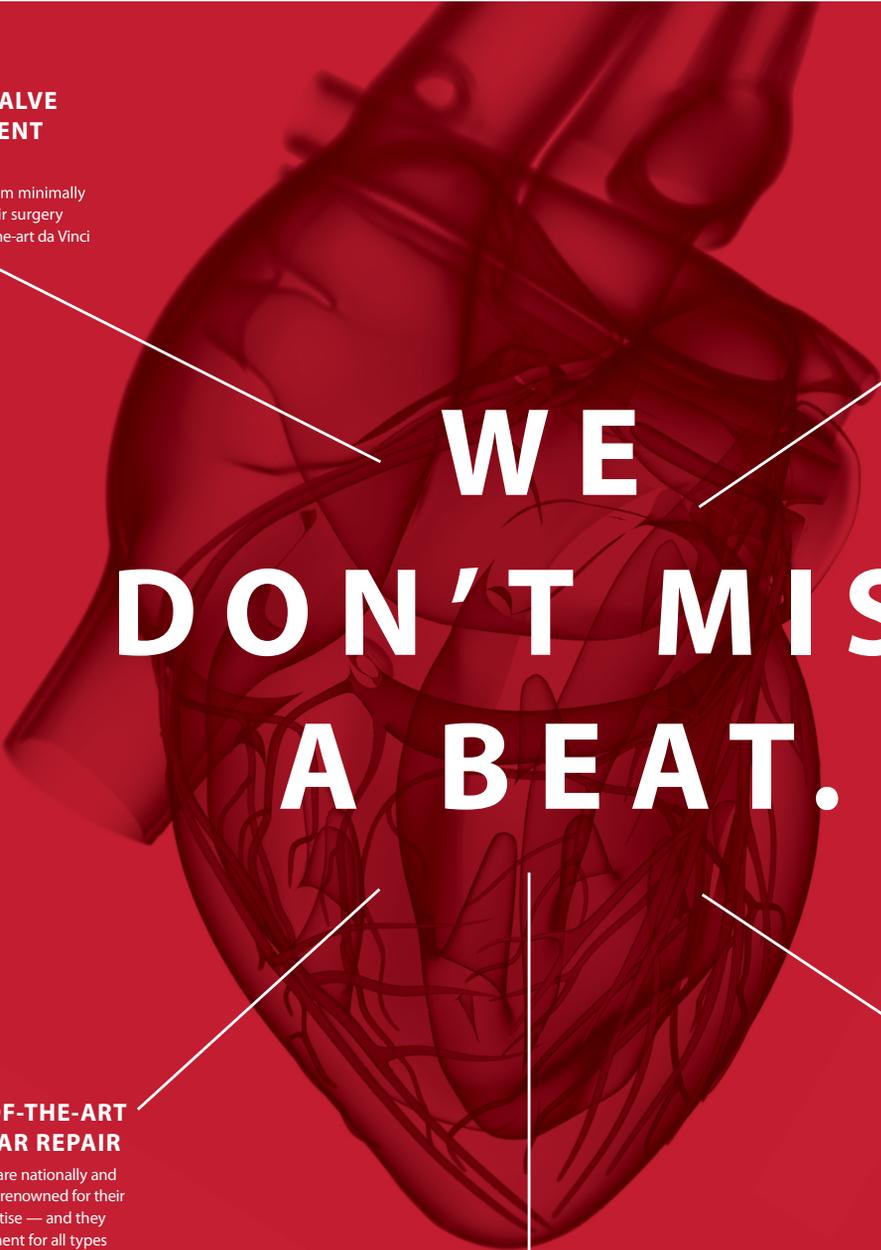
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