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# Robert Wood Johnson MEDICINE

FALL • 2016

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# LETTER FROM THE DEAN

Dear Colleague,

**T**his fall, Robert Wood Johnson Medical School welcomed its 50th entering class, 160 students strong. Like the students in our very first class and all who followed, these future physicians are already making their own mark in our missions in education, research, patient care, and community health.

The articles in this issue of *Robert Wood Johnson Medicine* take you into several areas where our faculty have defined and undertaken new challenges, initiating and growing programs that are models of excellence.

Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital are regional leaders in the development and use of the ventricular assist device. The two patient stories in “Breakthrough Mechanical Devices Are Helping People with Failing Hearts to Survive, and Thrive” demonstrate how these extraordinary devices save lives by supporting heart function and blood flow in patients with end-stage heart disease.

“Targeting Parkinson’s Disease” discusses two patents secured this year by M. Maral Mouradian, MD, William Dow Lovett Professor of Neurology and director, Center for Neurodegenerative and Neuroimmunologic Diseases. The patents will accelerate the pace of Dr. Mouradian’s research and attract collaborations, bringing new promise to Parkinson’s patients awaiting effective treatment.

“Developing a Blueprint to Fight HIV” describes the key role of the Department of Pathology and Laboratory Medicine in the Rapid HIV Testing initiative. In its 12-year partnership with the State of New Jersey, the department has expanded the number of testing sites from one to more than 100, screening almost one million people, accelerating the turnaround of test results, improving links to care, and lowering the risk of disease transmission.

“The Affirmation Journey: Support and Well-Being for Transgender Youth” describes a growing program in the Robert Wood Johnson Medical Group. Here, in an academic setting, transgender adolescents and their families find empathy, clinical care, and multidisciplinary support.

“Like Manna from Heaven” explores the Veterans Total Care Initiative, a collaboration among our Department of Family Medicine and Community Health, Rutgers University Behavioral Health Care, and Rutgers New Jersey Medical School. Through this pioneering program, New Brunswick-area veterans receive exceptional care and peer support at our Family Medicine practice at Monument Square.

“New Antibiotic Effective against MRSA” shares the wonderful news that a team of Rutgers University scientists has developed a drug, TXA709, that successfully combats methicillin-resistant *Staphylococcus aureus* (MRSA) infections in animals when used in combination with the common antibiotic cefdinir.

In “Leader on Blood Transfusion Standards Starts Clinical Trial to Help Heart Attack Patients,” we learn that a Rutgers University-led team has published high-quality evidence recommending new blood transfusion guidelines that propose a restrictive transfusion strategy for most patients.

I hope that you will enjoy this issue of *Robert Wood Johnson Medicine* and the close look it provides at the work we do today and our vision for the future.

Sincerely,



Sherine E. Gabriel, MD, MSc  
Dean







# GROW

THE **R**EVOLUTION

*Robert Wood Johnson Medical School is advancing research in the use of blood transfusions. Their work has led to the creation of national guidelines that care givers across the country use for their patients to save lives.*

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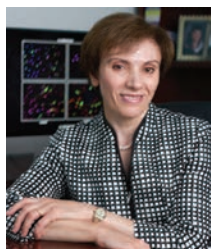
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## 4 Breakthrough Mechanical Devices Are Helping People with Failing Hearts to Survive, and Thrive

Patients make remarkable recoveries from life-threatening heart issues thanks to ventricular assist device (VAD) technology and cardiac surgeon George Batsides, MD, and his team.

By Lynda Rudolph



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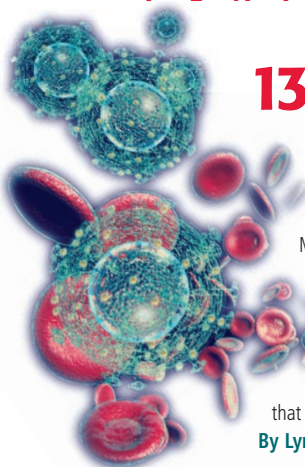
Two patents recently secured by M. Maral Mouradian, MD, William Dow Lovett Professor of Neurology, are helping advance her research into promising new treatments.

By Kate O'Neill

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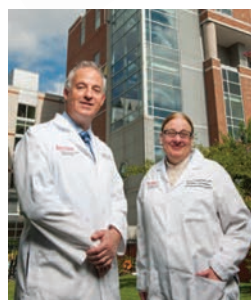


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### Transgender Youth

Multidisciplinary expertise, in a clinical academic setting, ensures that transgender youth receive comprehensive, high-level care.

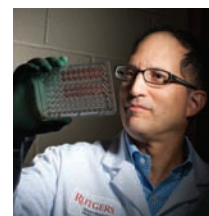
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## Robert Wood Johnson MEDICINE

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# Breakthrough



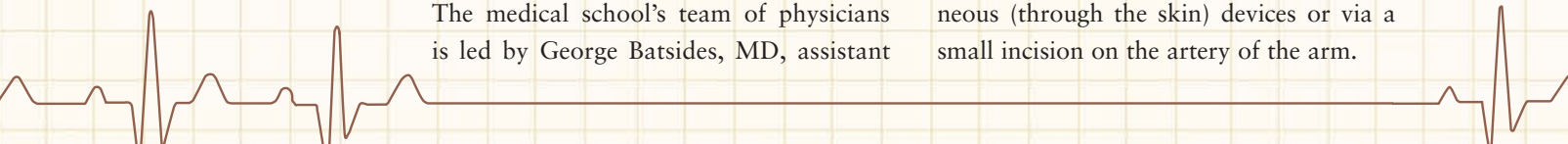
## Mechanical Devices Are Helping People with Failing Hearts to Survive, and Thrive

A little over three years ago, Carlos Mora was at his son's wrestling match when—at age 48—his heart failed. One month after a checkup with his cardiologist, 50-year-old marathon runner Saul Baez had a massive heart attack. Both men survived because of remarkable ventricular assist devices (VADs) and a heart surgeon who has dedicated his career to putting them to use to save lives.

VAD technology is fast becoming the new hope for people with end-stage heart failure. The size, efficiency, and even implantability of these devices are continually improving, advancing their potential uses. Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital are considered regional leaders in VAD innovation. The medical school's team of physicians is led by George Batsides, MD, assistant

professor of surgery and chief, section of cardiac surgery, and includes Leonard Y. Lee, MD '92, professor and chief, division of cardiothoracic surgery, and the James W. Mackenzie, MD, Endowed Chair in Surgery; Anthony Lemaire, MD, assistant professor of surgery; and Aziz S. Ghaly, MD, assistant professor of surgery.

Some VAD heart pumps are little more than the size of a pencil or hockey puck. All of them are used to support heart function and blood flow, taking blood from a lower chamber of the heart and helping to pump it to the body. VAD technology has grown to become, most recently, capable of implantation through an artery in the catheterization laboratory using percutaneous (through the skin) devices or via a small incision on the artery of the arm.





BY LYNDY RUDOLPH ♥ PORTRAITS BY JOHN EMERSON



"We've come a long way in the past 10 years," says George Batsides, MD, assistant professor of surgery and chief, section of cardiac surgery, of the future of VADs and their impact on heart surgery. "Not only are these devices implantable, but people can live for many months, possibly years, outside of the hospital." ♥





Dr. Batsides believes that the high-risk cases represented by Carlos Mora and Saul Baez are good examples of the way VAD technology is unquestionably saving lives. “Both were different situations. Both were interesting and complex,” says Dr. Batsides. “Mr. Mora needed two heart valves—and we put the machines in to bridge him to recovery. For Mr. Baez, multiple VADs kept him alive and stable while he awaited a heart transplant.”

Ask both men to tell their stories, and you will hear about what they consider to be the miracle that kept them alive.

## Carlos Mora’s Heart Failed Two Days Before Valve Surgery in 2013

**C**arlos Mora had long-standing aortic valve insufficiency. Born with an ailing heart, he remembers his parents telling him that the doctors said he wouldn’t live a week. But he defied the odds, getting strong enough to have surgery as a 5-year-old and, when he got older, running and playing baseball, football, and basketball. “I was very athletically inclined,” says Mora.



**In Carlos Mora’s case, a VAD machine was used to help him recover over a period of five months. ♥**

During a physical three years ago, a doctor told Mora that he heard something while he was examining his patient’s heart. Mora, an active athlete at the time, refused to believe there was anything wrong. But echocardiography and cardiac catheterization confirmed his valve problems, and then cardiac valve replacement surgery was recommended. Mora begrudgingly decided to have the surgery—and was two days away from the procedure when he was rushed to the ER. That was in February 2013. “I don’t remember anything until April,” says Mora.

“A leaky valve is an indolent killer,” emphasizes Dr. Batsides. A young person may not know it’s there. The valve can slowly become worse over time, causing the heart to enlarge and weaken. People can then become almost too sick for heart surgery. In Mora’s case, a VAD machine was used to help him recover

over a period of five months. “These are extracorporeal VADs,” says Dr. Batsides. “The AB5000 was used on the right side and left side, sitting outside of the body.”

Dr. Batsides and his team repaired Mora’s valves, and the machines helped relieve the pressure on his heart so that it could regain strength.

Ultimately Mora’s heart recovered enough function for him to live a relatively normal life. “I’m the dad of a 15-year-old boy and an 18-year-old girl who I’m just getting ready to drive to college in Ithaca,” he says. When asked how he feels about his future, Mora says, “I always feel the glass is half full.”

## Marathoner Saul Baez Couldn’t Run Away from His Heart Risk

**F**or Saul Baez, his clean lifestyle wasn’t paying it forward. He was a marathon runner. He didn’t smoke or drink. But at 42, he had a mild heart attack. The culprit was high cholesterol. After he had a second heart attack a few years later, the stent total in his heart was up to five. In 2015, one month after he got a clean bill of health from his cardiologist, Baez had a massive heart attack that sent him first to the Raritan Bay Medical Center and later to Robert Wood Johnson University Hospital and Dr. Batsides.

“Mr. Baez was in shock,” says Dr. Batsides. “His heart function was 5 percent.” Emergency bypass surgery was performed to see if there was any live muscle in the heart. Dr. Batsides also installed the Impella, another type of VAD, in the ascending aorta. “The machine can be removed easily when the heart recovers,” he says.

After Baez recovered from shock, his heart was temporarily transitioned from the Impella device to the AB5000 until he



was strong enough to have an implantable VAD—which bridged the time until a heart donor could be located and a transplant could be performed.

**Saul Baez had multiple VADs that kept him alive until a heart donor could be located and a transplant could be performed. ♥**





Baez was in the hospital for five months, and he went home living with the implantable VAD. He had the heart transplant in March 2016. When it was all over—after the transplant and cardiac rehab—Baez put on the theme song from the movie *Rocky III*: “Eye of the Tiger.”

“It was a very emotional moment,” says his wife, Lucy. “It was his way of saying good-bye to all the people who cared for him and to show his determination to keep on going—to live his life.”

## Leading the Way in VAD Technology Use

**T**he newest addition to the field of VAD technology, the Impella RP, is the only right-sided percutaneous assist device on the market used specifically to treat right-sided heart failure. The first implantation in New Jersey was performed by Dr. Batsides and his team, and Robert Wood Johnson Medical School was one of only eight sites in the country to participate in the Impella RP post-approval study.


Dr. Batsides speaks and presents internationally about the Impella device and the future of VADs and their impact on heart surgery. “We’ve come a long way in the past 10 years,” he says. “Not only are these devices implantable, but

people can live for many months, possibly years, outside of the hospital.”

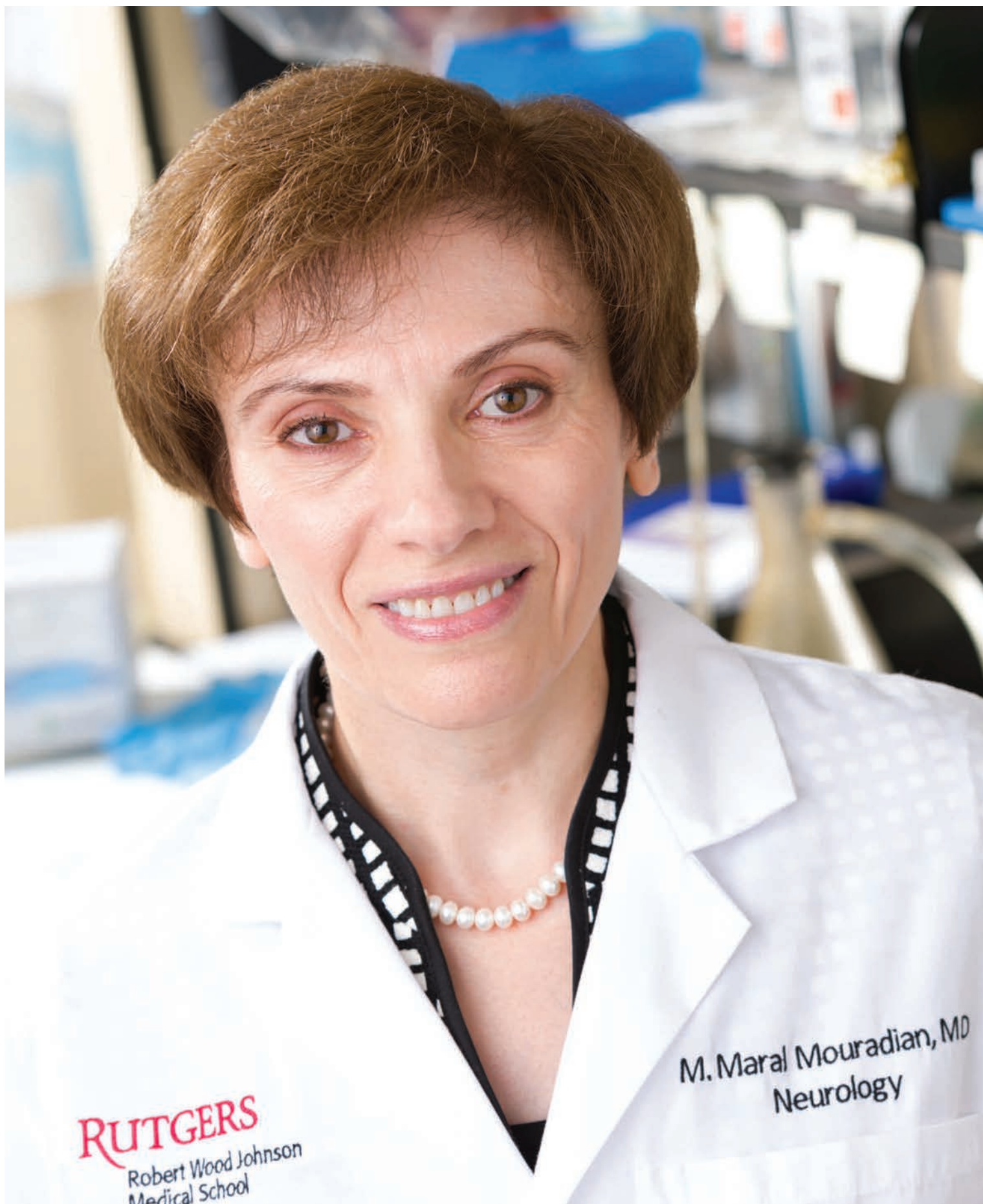
Most important—and critical to the recovery of patients such as Carlos Mora and Saul Baez—is the work of an entire team of skilled and talented people. “Cardiac anesthetists, the OR nursing team, physician assistants and nurse practitioners, the ICU and floor nursing staffs, physical, occupational, and respiratory therapists, perfusionists, and social workers all play a huge role in the process of getting people back to their lives,” says Dr. Batsides, adding, “Their coordinated efforts make these kinds of cases success stories.”

## What the Future Holds

**V**AD technology has changed cardiac surgery, and it may continue to change how the heart can be treated, through the use of even smaller mechanical devices capable of being incorporated into the body in newer and more innovative ways. “These technologies allow us to operate on the sickest of hearts and give them a chance for survival,” says Dr. Batsides. There is no question that people survive what would have been considered devastating heart failure because this technology exists.

As medical science moves forward, so do the opportunities for more lives to be saved. 









Targeting  
**Parkinson's** Disease:

**Dr. Mouradian**

Secures Two New Patents,

Promoting

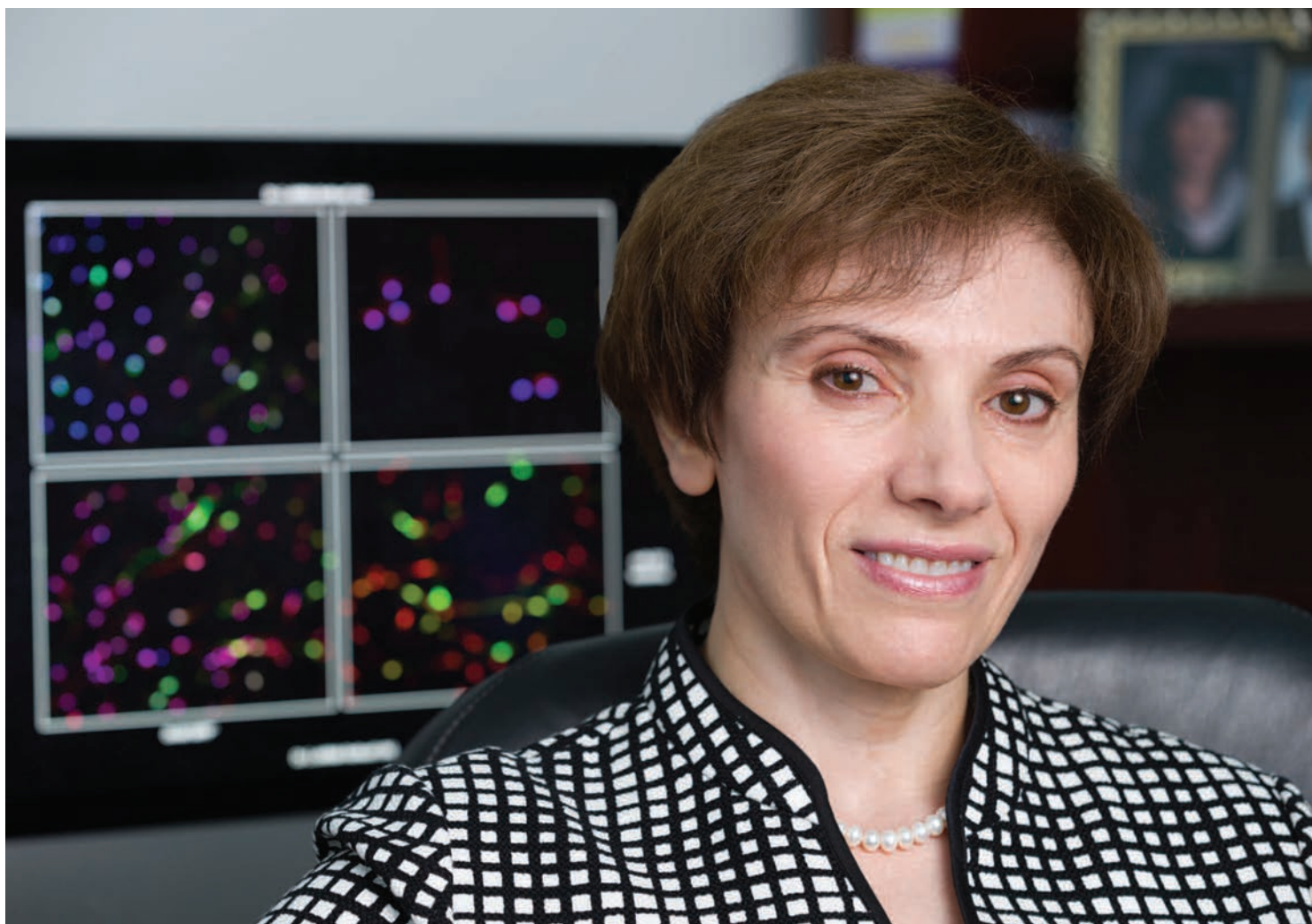
# Research and **HOPE**

**M**ore than one million people in the United States suffer from Parkinson's disease. Worldwide, the total is estimated to be at least seven million. As life spans grow longer, this devastating disease with an average onset age of 60 will increase its toll on patients, families, and society. The case is clear for developing novel therapies, free of adverse effects, to alleviate symptoms and to slow or halt the otherwise inevitable progression of the disease.

"This is my life's work," says M. Maral Mouradian, MD, William Dow Lovett Professor of Neurology and director, Center for Neurodegenerative and Neuroimmunologic Diseases.

Dr. Mouradian's research took a large step forward in early 2016, when she secured patents in support of two distinct projects. They will protect her right to develop and commercialize novel forms of therapy for patients with Parkinson's disease.

By **Kate O'Neill** • Photos by Steve Hockstein



**T**he first of Dr. Mouradian's two patents, grants her the exclusive right to repurpose the analgesic drug nalbuphine as a treatment for L-dopa-induced dyskinesia, the disabling, involuntary movements associated with prolonged L-dopa therapy. The second will enhance a separate area of research: Dr. Mouradian's finding that microRNA-7 can be developed as a targeted therapy to protect the brain cells of people with Parkinson's.

"Patents are an important part of the translational research process," says Dr. Mouradian. "Discoveries with national and international patent protection are more likely to attract investors. And when you have partners, you have a better chance to accelerate the pace of translating scientific knowledge for the good of public health."

"It was a long wait—seven years in one case and five in the other," says Dr. Mouradian. "Still, it's tremendously rewarding to know that the results of our research are closer to directly benefiting millions of people who ask the same question that our clinic patients always ask me: 'When will you find a cure?' For them and for us, this is the Holy Grail of Parkinson's research."

## A Career in Parkinson's Disease Research

**F**rom her first months in medical school at the American University of Beirut, Lebanon, Dr. Mouradian has been intrigued by the mysteries of the human brain. She completed her neurology training at the University of Cincinnati and went on to the National Institutes of Health (NIH), where she did postdoctoral training in clinical pharmacological research in Parkinson's disease and other neurodegenerative disorders.

Dr. Mouradian completed additional training in molecular biology at the NIH under the tutelage of Nobel laureate Marshall Nirenberg, PhD. Prior to joining the Robert Wood Johnson Medical School faculty in 2003, she spent 18 years at the National Institute of Neurological Disorders and Stroke, much of that time as chief of its Genetic Pharmacology group.

In her wide-ranging research, funded by multiple NIH grants since 1992, Dr. Mouradian has focused on finding a way to slow brain cell degeneration in Parkinson's patients and alleviate the disabilities—physical, cognitive, and psychological—that accompany the disease. "Keeping the patient



productive for a few more years would be a tremendous gain,” she says.

## L-dopa-Induced Dyskinesia Creates a Huge Unmet Need

“Many people mistake the involuntary movements of people with Parkinson’s as a symptom of the disease,” says Dr. Mouradian. “You can see an example of these movements in footage of Michael J. Fox, who appears to be fidgeting as he speaks. But the movements, known as L-dopa-induced dyskinesia (LID), are actually an adverse effect of years of treatment with L-dopa.”

Introduced for human use in 1969, L-dopa remains the gold standard drug for treating the motor symptoms of Parkinson’s disease, including bradykinesia (slow movement), tremor, and rigidity. “Without L-dopa,” adds Dr. Mouradian, “patients with advanced Parkinson’s disease would have difficulty moving and attending to their daily activities.”

Symptoms of Parkinson’s disease result from depletion of the neurotransmitter dopamine in a part of the brain called the striatum, interrupting communication between the cells. Administration of L-dopa restores the production of dopamine; communication between nerve synapses resumes, and symptoms are alleviated. But not forever.

L-dopa-induced dyskinesia is caused by dysregulation of genes, proteins, and neurotransmitter systems and their receptors in the striatum. Dr. Mouradian compares this process to a perfect storm. Signs of LID generally begin after four to six years of treatment, resulting from long-term L-dopa administration along with ongoing neurodegeneration that leads to further dysregulation of striatal systems. This creates a vexing challenge: how to prevent LID while continuing to provide patients with the benefits of L-dopa.

## Focusing on Nalbuphine

While deep brain stimulation is an option for some patients with LID, it is an invasive procedure and carries risks.

Knowing that opioid transmission is one of the systems

dysregulated in Parkinson’s disease and LID, Dr. Mouradian’s group decided to concentrate on pharmacological approaches to modulate the opioid system. Based on their knowledge about two different opioid receptor subtypes that contribute to the manifestation of LID in opposing ways, they focused on simultaneously blocking  $\mu$  (mu) opioid receptors and stimulating  $\kappa$  (kappa) opioid receptors to provide the greatest benefit and the fewest negative consequences.

“Putting two and two together,” Dr. Mouradian says, “we realized that the analgesic drug nalbuphine has these same dual actions.” Often used for perioperative pain management and labor pain, nalbuphine has a known safety profile and is approved by the U.S. Food and Drug Administration (FDA). “Research advances much more quickly when you are able to start out with a drug that is already proven to be safe in humans,” says Dr. Mouradian, who received a grant from the Michael J. Fox Foundation for Parkinson’s Research to begin research on repurposing nalbuphine to alleviate LID.

Subsequently, Dr. Mouradian cofounded MentiNova Inc., a start-up biotechnology company dedicated to finding a treatment for LID. She serves as the company’s president and oversees its scientific and clinical development efforts.

She was supported by an investment from Foundation Venture Capital Group (FVCG), an affiliate of the New Jersey Health Foundation (NSHF), which makes private investments in life science start-up companies headed toward commercialization. Though independent of Rutgers, The State University of New Jersey, both groups work closely with Rutgers, including its Office of Research Commercialization, to provide scientists with strategic support in areas

including financing, licensing, intellectual properties, and the securing of patents.

“We were attracted by the opportunity to invest in this research because it appeared to have promising results,” says George F. Heinrich, MD, vice chair and CEO, FVCG. “Since the drug already had FDA approval for another indication, we anticipated a faster IND [Investigational New Drug] filing and clinical trial process testing the efficacy of the treatment.

“Dr. Mouradian is an international expert, very involved,

“Patents are an important part of the translational research process,” says Dr. Mouradian. “Discoveries with national and international patent protection are more likely to attract investors. And when you have partners, you have a better chance to accelerate the pace of translating scientific knowledge for the good of public health.”

very focused, and passionate about her work,” adds Dr. Heinrich. “We knew it would be a partnership with the potential to do good for millions.”

The MentiNova team has now tested the anti-LID potential of nalbuphine in the nonhuman primate model of Parkinson’s disease treated with L-dopa, and, says Dr. Mouradian, “It works!”

The newly granted patent will allow MentiNova to proceed to clinical trials of nalbuphine in Parkinson’s disease patients with the hope of developing it into a reformulated, marketable medication for LID. “We also hope to be able to test it for expanded usage in patients with other conditions that are characterized by involuntary movements, such as Tourette’s syndrome, Huntington’s disease, and tardive dyskinesia,” says Dr. Mouradian.

### Alpha-Synuclein: A Key to the Parkinsonian Brain

**A**nother focus of Dr. Mouradian’s research is the protein alphasynuclein ( $\alpha$ -synuclein). Although its normal role in brain function is not yet fully understood,  $\alpha$ -synuclein is believed to regulate transmission of signals between synapses, the connections between nerve cells. In the diseased brain, however, it acquires neurotoxic properties, playing a key role in the degenerative process that leads to the deficits of Parkinson’s disease.

Under certain conditions,  $\alpha$ -synuclein tends to misfold and aggregate, forming abnormal clumps. The more  $\alpha$ -synuclein is expressed in the brain, the more extensive is the aggregation and the more accelerated the demise of brain cells. In patients with familial (inherited) Parkinson’s disease due to extra copies of the gene that produces  $\alpha$ -synuclein, greater accumulation of misfolded  $\alpha$ -synuclein is seen at autopsy. These patients develop the disease at a younger age than usual and are more likely to develop dementia as the aggregates spread to other parts of the brain. Detected in hallmark microscopic structures known as Lewy bodies, the aggregates are found not only in the brains of patients with Parkinson’s disease, but in other related diseases as well. Finding a way to decrease  $\alpha$ -synuclein, then, would help develop treatments for an expanded spectrum of conditions.

In 2009, Dr. Mouradian and her team, including Eunsung Junn, PhD, associate professor of neurology, started a project that she describes as innovative for its time. They studied the mechanisms that control the amount of  $\alpha$ -synuclein produced in the brain, focusing on tiny RNA molecules known as microRNA. The goal was to identify a particular microRNA that has the ability to decrease  $\alpha$ -synuclein production—and they found that, indeed, microRNA-7 (miRNA-7) has this property.

Recognizing the therapeutic value of the discovery, Dr. Mouradian promptly initiated the patent process: to develop miRNA-7 as a target therapy that would protect brain cells from injury. “Currently, progression of the disease is inevitable, so we must focus on means to prevent the formation of these aggregates, with the hope of slowing down or stopping progression of neuronal damage and advancing symptoms,” she says.

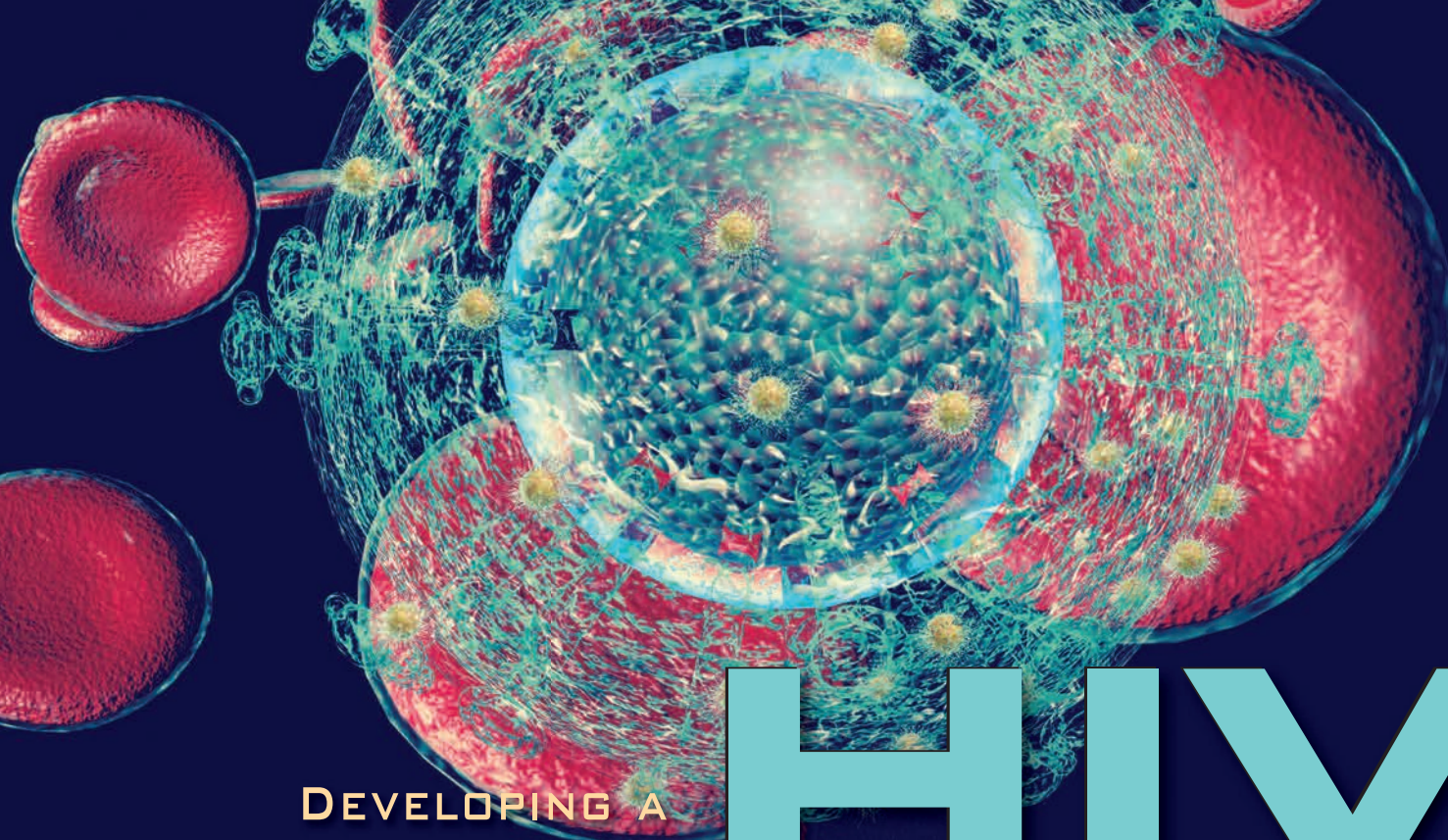
That means, Dr. Mouradian hopes, the development of viral vectors to achieve targeted delivery of miRNA-7 to the brain region that is most vulnerable to  $\alpha$ -synuclein-driven degeneration and responsible for the main motor symptoms of the disease. Viral vector-mediated gene therapy in the brain has been shown to be safe in humans. “We are optimistic about the future of this therapy, which targets the pathogenesis of Parkinson’s disease by decreasing the amount of  $\alpha$ -synuclein, the root cause of the disease,” Dr. Mouradian says.

NJHF offers Innovation Grants, described by Dr. Heinrich as “created specifically to support inventive, outside-the-box projects.” In 2015, Dr. Mouradian received an Innovation Grant, awarded jointly by the NJHF and The Nicholson Foundation. The grant supported the final steps in her research needed to secure her patent to study the value of therapeutic miRNA-7 targeting for Parkinson’s disease.

“I am grateful for their financial support and very excited about these patents,” says Dr. Mouradian, adding, “Rutgers University provides encouragement and practical support to scientists. It’s evident in the names Office of Research and Economic Development and Office of Research Commercialization. They know the value of translatable research to the scientist, the school, and society, and of taking your ideas and discoveries to the next step.” **M**

“Rutgers  
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next step.”





## DEVELOPING A BLUEPRINT TO FIGHT

# HIV

**SOME** consider HIV and AIDS old news—a forgotten disease. But even though current treatments have made the disease less deadly, the lack of significant progress in reducing the number of new HIV infections has led the Centers for Disease Control and Prevention (CDC) to broadly encourage more people to get tested regularly.

HIV is still a global health threat.

According to recent CDC statistics, in the United States there are more than one million people living with HIV, and of those, about one in eight don't know they are infected. Undiagnosed HIV infections are responsible for nearly one-third of all HIV transmissions in this country. Reducing the spread of HIV depends on getting more people tested—and for those most at risk, getting them tested on a regular basis.

To make it possible for individuals to be tested in their home communities throughout New Jersey, the New Jersey Department of Health, Division of HIV, STD and TB Services (DHSTS), established a Rapid HIV Testing initiative 12 years ago by funding an initial grant with Robert Wood Johnson Medical School's Department of Pathology and Laboratory Medicine. Two associate professors in the department at the time—Evan Cadoff, MD, later professor and department chair, and Eugene Martin, PhD, now professor of pathology and laboratory medicine—served as codirectors of the program and together expanded it from a single location in New Brunswick to more than 70 throughout New Jersey.

BY LYND A RUDDOLPH



**T**oday, Dr. Martin and Gratian Salaru, MD, associate professor of pathology and laboratory medicine, serve as codirectors of the New Jersey HIV program, with a goal to move New Jersey's rapid HIV testing forward. Their work has made a significant impact.

"We screen between 70,000 and 80,000 people every year," says Dr. Martin. "That's getting close to a million people we've screened since we started this program 12 years ago." Over that time, he says, the program has identified 700 to 800 people per year who are HIV infected. "But the thing that makes such a difference is that we now have treatments that effectively keep people from the ravages of AIDS," says Dr. Salaru. As a result, HIV-infected people can live an almost normal life.

### A MODEL FOR CHANGE

**O**fficials in other states are now looking to the New Jersey Rapid HIV Testing Program as a model of HIV screening. "We hear from Michigan, Minnesota, California, Arizona, and even St. Thomas and St. Croix in the Caribbean," says Dr. Martin. "Our algorithm approach is especially valuable to low-resource communities."

The program has earned national honors. The Association of State and Territorial Health Officials recognized the Rapid HIV Testing Program with two Vision Awards—one in 2006 for the model itself and one in 2013 for the HIV Prevention Patient Navigator Program associated with it.

### THE STATE AND MEDICAL SCHOOL PARTNERSHIP

**E**stablished in 2004, the partnership between the state and Robert Wood Johnson Medical School was a natural one. New Jersey requires laboratory licensure for many tests, including HIV. All rapid HIV tests require a quality assurance program. Initially, the state Department of Health reached out to Dr. Cadoff, looking for a collaborative partner who could assist with the original CDC initiative and provide quality assurance oversight to a community-based rapid HIV testing program. Because the medical school had a multi-facility testing capability, the partnership made sense.

It started with one site, then grew to four, then six. It now includes more than 100 licensed facilities offering rapid HIV testing—all of which are overseen by a quality assurance program.

### THE INITIATIVE AND ITS CHALLENGES

**S**ome roadblocks involved logistics and materials. Some continue to surround motivating and educating the target audience. When the state offered the medical school



STEVE HOCKSTEIN

"THE THING THAT MAKES SUCH A DIFFERENCE IS THAT WE NOW HAVE TREATMENTS THAT EFFECTIVELY KEEP PEOPLE FROM THE RAVAGES OF AIDS," SAYS GRATIAN SALARU, MD, ASSOCIATE PROFESSOR OF PATHOLOGY AND LABORATORY MEDICINE (ABOVE), WHO CODIRECTS THE NEW JERSEY HIV PROGRAM WITH EUGENE MARTIN, PHD, PROFESSOR OF PATHOLOGY AND LABORATORY MEDICINE (RIGHT).

an opportunity to get involved, only one test kit, the OraSure OraQuick Rapid HIV Test, was approved for use in the United States. "Worldwide, rapid HIV testing was well under way in locations with high HIV prevalence and limited resources—the World Health Organization had been doing rapid HIV testing with a number of rapid HIV tests for nearly 10 years," says Dr. Salaru. The cost of licensing a test in the United States was a source of frustration and viewed as a prohibitive barrier to many manufacturers until the CDC recognized the need to provide alternative pathways for HIV testing, particularly within the public health community.

Reaching the right population was and continues to be another stumbling block. The program targets mostly low-income people—all those who are medically underserved. Educating those who don't think they are at risk isn't easy. "We want to test as many people as we can—you can't treat unless you know," says Dr. Martin.

### LINKING PEOPLE TO CARE WITHIN TWO DAYS

**T**he team has approached testing by pairing it hand in hand with clinical service providers, overlapping sup-





site also do counseling, incorporating prevention.

In December 2014, the CDC issued guidelines for the use of HIV Pre-exposure Prophylaxis (PrEP) to assist HIV-negative individuals at very high risk of HIV infection in remaining uninfected. In the simplest of terms, PrEP involves taking a single anti-HIV pill once a day. With the advent of this newest form of HIV prevention, HIV test counselors now are not only able to link HIV-positive clients to HIV care, but they can also connect very high risk HIV-negative individuals to a PrEP counselor. At present, there are 17 PrEP counselors located across New Jersey. To find out where to obtain both free HIV testing and free access to PrEP counselors for your patients, call the NJ AIDS/STD Hotline at 800-624-2377.

JOHN EMERSON

port with testing, and preestablishing a pathway into care. The process has been consistently improved, resulting in a model that has become increasingly successful at overcoming noncompliance and procrastination, and eliminating intrinsic barriers, along the way. “For example, initially people had to return a week after testing to get a final, confirmed result—30 percent didn’t come back,” says Dr. Martin. That moved the HIV team to tie the process more tightly together. “Now, when the results are in, and you are presumptively positive, you get linked into care within two days,” says Dr. Salaru. In other states, it can take as long as two months. The sooner people get into treatment, the less likely they are to infect others as well.

Rapid HIV testing is very simple and is based on evidence-based research for maximum effectiveness. “It’s a finger stick,” says Dr. Martin. Blood is collected into a loop and then goes into a device. About 20 minutes later, there’s a result. If that initial test proves positive, a second rapid HIV screen is done using a different manufacturer’s rapid immunoassay test. If HIV antibodies are confirmed in the second rapid test, then the person is considered “presumptive positive” and is linked immediately into care. Testers at the

## THE FUTURE

**T**he program’s goals for 2020 are ambitious. They include increasing the number of people who know their HIV status to 90 percent, increasing the number of new diagnoses by at least 25 percent, increasing the linkage to HIV care within one month to 85 percent, retaining the number of people in HIV care to at least 90 percent, and increasing the number of people who are virally suppressed to at least 80 percent. Are they achievable?

“This is going to be a challenge to deal with the back end of the care continuum,” says Dr. Martin. Getting people into care is one thing. Holding them there for the long run is another. “If you go off the care continuum, you allow your viral load to go up, posing a risk of transmission. It’s a challenge point,” he says.

Turning the tide is not just a global effort but a local one as well. Having the tools to identify the earliest stages of HIV infection is the first line of defense. It’s one that Robert Wood Johnson Medical School, the New Jersey Department of Health, and two professors of pathology and laboratory medicine are taking on with persistence and passion that can ultimately save lives. **M**



# THE Affirmation Journey:

SUPPORT  
AND WELL-BEING FOR  
TRANSGENDER  
YOUTH

BY KATE O'NEILL

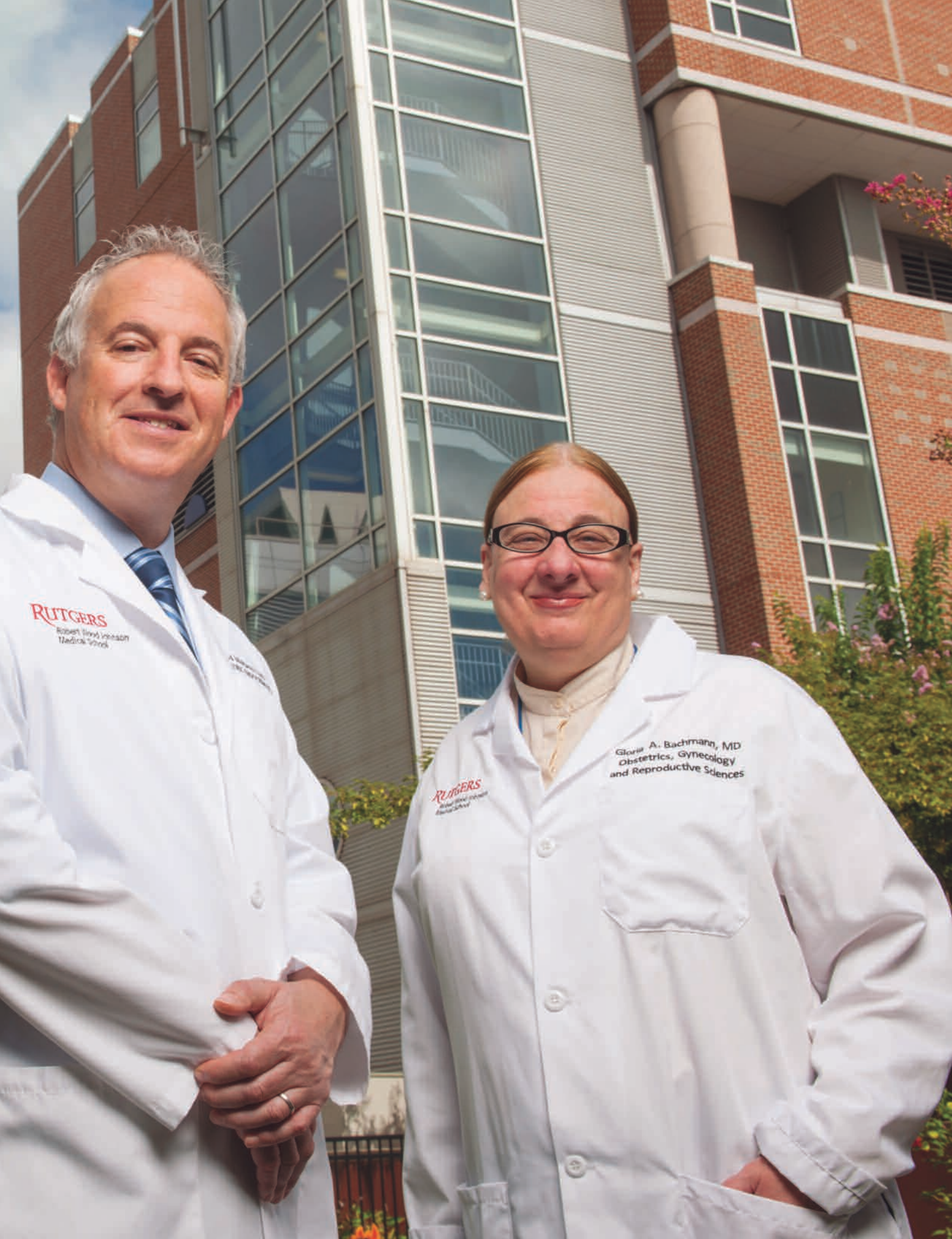
PORTRAITS BY  
JOHN EMERSON

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*"Our goal is to move the health care of transgender individuals away from the perspective that they are atypical to one that speaks of the harmony they have achieved with their gender identity by embarking on their affirmation journey..."*

*We are proud that we, as their health care team, can assist them in realizing this personal wellness," says Gloria Bachmann, MMS '72, MD, professor and interim chair, Department of Obstetrics, Gynecology, and Reproductive Sciences (right), with Ian Marshall, MD, associate professor of pediatrics.*





**RUTGERS**  
Robert Wood Johnson  
Medical School

A. Williams  
OB-GYN

**RUTGERS**  
Robert Wood Johnson  
Medical School

Glenn A. Bachmann, MD  
Obstetrics, Gynecology  
and Reproductive Sciences



# LGBTQ is a broad umbrella, cover-

ing a diverse community of people including those who are transgender. Unfortunately, acceptance and understanding for individual gender preferences have been slow to come. Among the wider population, transgenderism was barely discussed until 10 to 15 years ago.

Now, thanks in part to celebrities like Caitlyn Jenner who have made their gender identification and transition public, the transgender topic is no longer a closeted issue. “Today’s more relaxed attitudes make it easier for transgender people to come out and seek the assistance and support they need,” says Ian Marshall, MD, associate professor of pediatrics. In his practice in the Robert Wood Johnson Medical Group, Dr. Marshall cares for transgender adolescents at different stages of gender affirmation treatment.

## Transgender Defined

Orientations associated with LGBTQ individuals may overlap, says Dr. Marshall, but gender identification is distinct from sexual orientation. “Gender defines how we see ourselves—as women or men—and is not necessarily the same as the biological sex we were first assigned, whereas sexual orientation defines the sex, male or female, we are attracted to.”

For many reasons, some transgender individuals may never transition—either through hormone replacement treatment or, far less commonly, surgically—to the gender they identify with, continuing to live in a body that they often feel does not belong to them. From earliest child-



*Ian Marshall, MD, associate professor of pediatrics, cares for transgender adolescents at different stages of gender affirmation treatment.*

hood, this can create a state of mind known as gender dysphoria—distress and doubt caused by the sense of mismatch between one’s sex and gender.

Gender dysphoria is a disturbing but common condition for transgender children. They often describe themselves as living inside someone else’s skin. They feel that they are referred to by the wrong pronouns (“he” or “she,” “his” or “hers”), given the wrong toys, and expected by their families to dress in the

wrong clothes. To them, even their given names may seem wrong.

Peers perceive that transgender children at any age feel—and sometimes look—nonconforming; transgender girls may prefer short-cropped hair or more traditional boys’ activities. Transgender boys who prefer feminine clothing, as well as games and interests traditionally associated with girls, may have an even more difficult time. Both groups are the frequent victims of bullies.

## Empathy and Expertise

At home, transgender children’s relations with parents and other family members can be strained, but in Dr. Marshall’s practice and through his referrals, his patients and their families find empathy and care. Initially, his patients come to him for medical care in their transition—whether male-to-female (MtF) or female-to-male (FtM). For those who embark on the transition journey, Dr. Marshall prescribes hormonal affirmation treatment and provides additional referrals for services such as sociopsychological counseling.

To ensure that transgender adolescents receive the extra emotional support they need, he works closely with the family to determine the level of parental acceptance. He also discourages the par-



ents from moving down the extremely risky road of “conversion therapy,” which can cause children profound distress by seeking to dissuade them from their engrained transgender identity.

The prospect of puberty can provoke extreme anxiety and depression in transgender youth. On the threshold of womanhood, transgender girls who identify as boys face unwanted physical changes. Similarly, transgender boys who identify as girls know they will soon develop male characteristics that contradict their gender identification. Consequently, compared to their non-transgender peers, transgender youth have an elevated incidence of suicide attempts and self-harm. Their well-being is additionally at risk because they may try to avoid doctors’ appointments, sensing that they may be uncomfortable or unwelcome.

Prior to puberty, care for the transgender child is limited to individual and family counseling, since there are no physical changes to suppress. “You can’t stop what hasn’t started,” says Dr. Marshall. When he meets his patients, a first step is to make sure they are clear in their gender identification. Only when that has been confirmed can affirmation treatment be initiated.

If this is the path the patient and family select, medications are administered at the start of puberty to block the emergence of male- or female-related body changes. Based on the current guidelines, hormonal affirmation treatment begins at about 16 years of age: estrogen for MtF transitioning and testosterone for FtM.

The goal of treatment is not only to give the patient the physical characteristics that match with her or his gender identity, but also to reduce the anxiety the child may have lived with up to that

time. To emphasize the positive aspects of the process, Dr. Marshall and his colleagues refer to hormonal affirmation as “treatment,” not “therapy.”

### Delivering Optimal Care to Transgender Youth

**D**r. Marshall has been working with Gloria Bachmann, MMS ’72, MD, professor and interim chair, Department of Obstetrics, Gynecology, and Repro-



*“It is my hope that maintaining the well-being of transgender patients will soon be as familiar and accepted in the medical community as prescribing insulin for patients with diabetes,” says Gloria Bachmann, MMS ’72, MD, professor and interim chair, Department of Obstetrics, Gynecology, and Reproductive Sciences.*

ductive Sciences (OB/GYN), to establish the groundwork for a collaborative program that also includes RWJBarnabas Health. Several additional collaborations with other Rutgers University schools and departments are emerging or already exist.

Under the supervision of Dr. Bachmann

and Dr. Marshall, medical students and attending physicians in OB/GYN developed two videos, one MtF and one FtM, that explain the effects of hormonal affirmation treatment to young transgender patients and their families. Over the summer, two medical students devoted their research time to projects that involved moving transgender medicine to the next level.

“Many physicians have not been fully trained in how to care for transgender individuals, but most want to learn,” says Dr. Bachmann. “It is my hope that maintaining the well-being of transgender patients will soon be as familiar and accepted in the medical community as prescribing insulin for patients with diabetes.”

“A program offering patients comprehensive, multidisciplinary care in an academic setting has a definite place in the mission of the medical school,” says Patricia Whitley-Williams, MD, professor and chair, Department of Pediatrics. “Professionalism—described in its two-part definition as respect, compassion, and integrity, and sensitivity to diverse patient populations—is one of our six core competencies required for graduation,” she adds.

“Our goal is to move the health care of transgender individuals away from the perspective that they are atypical to one that speaks of the harmony they have achieved with their gender identity by embarking on their affirmation journey,” says Dr. Bachmann. “Only in this way will all transgender individuals be able to embrace the physical and mental wellness they achieve by living as their self-identified gender. We are proud that we, as their health care team, can assist them in realizing this personal wellness.” **M**



**T**he Veterans Total Care Initiative program (VTCI) provides services for anyone who ever served in the military—including those in the National Guard and the Reserves who might not be eligible for VA services. “Our goal is to provide care when it’s needed, and to do that, everyone in the practice is involved,” says Barbara Jo McGarry, MD, associate professor of family medicine and community health, Robert Wood Johnson Medical School (far right), with peer veteran Miriam Soto-Quinones (center), and George Wilson, LPN, patient care coordinator for VTCI.







# Like “Manna from Heaven:”

**How a Rutgers Program Is Bridging Gaps and  
Improving Health Care Access for N.J. Veterans**

BY BETH-ANN KERBER 🌟 PHOTOS BY JOHN EMERSON

**A** U.S. Army veteran who served in Vietnam from 1966 to 1968, Richard Gola has had his fair share of dealings with the U.S. Department of Veterans Affairs (VA) and the challenges that obtaining health care services can present. So when, at a meeting early this year with other Vietnam War veterans, someone spoke about an upcoming program that promised shorter waits for appointments, integrated care, and no impact on his VA benefits—all at no cost—he was intrigued ... and a bit skeptical.

“Free health care? It didn’t sound like something that could be true,” recalls Gola. “But I decided to give it a shot, and I can’t be more pleased. They cared, were considerate, treated you with respect. It was a big difference. I look back at my experience and can’t say enough good things about this program.”

Dubbed the Veterans Total Care Initiative (VTCI), the program—a joint effort by Robert Wood Johnson Medical School’s Department of Family Medicine and Community Health, Rutgers University Behavioral Health Care (UBHC), and Rutgers New Jersey Medical School—is the first of its kind to provide expedited, integrated medical and behavioral health care and peer support to veterans, regardless of branch or type of military service.

VTCI debuted in January 2016, less than one month after Robert Wood Johnson Medical School received word that \$1.5 million in state funding had been approved for a six-month pilot program, says Barbara Jo McGarry, MD, associate professor of family medicine and community health, Robert Wood Johnson Medical School. Family Medicine at Monument Square provides the clinical services for New Brunswick-based health care, while UBHC

**“T**he veteran experience is very different from the civilian experience, and that needs to be recognized and reflected in the medical care and services provided. ... Being involved with a program like this one feels like we’re on the right side somehow,” says Barbara Jo McGarry, MD, associate professor of family medicine and community health. 🌟



administers the program, and New Jersey Medical School provides clinical care for veterans in the Newark area.

“There’s no long waiting period. You call on Monday and by the end of the week, you’ll have seen somebody—sometimes even the same day,” Gola says, noting that it could take months for him to get an appointment with the VA, only to “waste half a day” to learn the doctor was not available and the visit needed to be rescheduled, with another lengthy wait. “This is a much more convenient and easy program to deal with. I tell everybody how great it is.”

In fact, in the months since his first visit, the Manville resident—and VTCI’s first patient at Monument Square—has become one of the most outspoken advocates for the program, spreading the word about its benefits to fellow veterans and encouraging them to give the program a try. It’s not



unusual for a new patient to come in and tell George Wilson, LPN, patient care coordinator for VTCI at the Monument Square site, “Rich sent me here!”

Wilson, whom Gola emphatically calls “a great guy,” is one of the program’s major assets, says Dr. McGarry: “Because of his own background, it makes it so much better for the patients. He’s very knowledgeable and is a veteran who knows and understands their issues.”

A retired staff sergeant with the U.S. Army, Wilson served for 22½ years on active duty, 11½ of which were spent in nursing. Today, that experience has proven invaluable in his new role. “We speak the same language,” he says.

## A Perfect Fit

**W**hen the program was being developed, the Monument Square practice was a natural for several reasons, Dr. McGarry says, not the least of which was its experience providing coordinated care for patients who have complex conditions, a common issue for veterans.

“In looking at the veteran population, we knew we needed to do more than just provide services, so we adapted our model of care coordinators to the VTCI program,” Dr. McGarry explains, noting that care coordinators help look at the bigger picture when it comes to patients’ needs. For example, if patients require a prescription but won’t be able to afford the cost, their care and subsequent health suffer. “The care coordinators and physicians will look at that to say, ‘How can we make sure that if we give the patient a prescription, they will actually be able to get it filled?’ Follow-through is a huge part of the program’s advantages. Our patients get exceptional care because they’re being followed aggressively.”

The program also is a good fit because of the capabilities of the family medicine practitioners in general, Dr. McGarry adds: “In addition to primary care, within the office there are physicians who specialize in women’s health, geriatrics, sports medicine, and acupuncture, which has become very popular with the veterans participating in the program.”

As part of Robert Wood Johnson Medical Group, the Monument Square practice also offers access to the vast scope of services that can be provided by other specialists, although that is not part of the grant funding, she adds. VTCI program patients also can take advantage of other grant-funded programs in which the practice is involved, including one for individuals who are at risk of substance abuse.



**S**erving as a staff sergeant with the U.S. Army for 22½ years, has given George Wilson, LPN, invaluable experience in his role as patient coordinator for the Veterans Total Care Initiative program at Monument Square. ⭐

Moreover, the medical school’s focus on improved care for veterans is reflected in the practice’s services, with faculty members from Monument Square participating in school-sponsored interprofessional training designed to help improve the provision of culturally sensitive care to veterans.

## Accessing Services

**P**rogram participants get involved initially through a call to the helpline at 866-838-7654, which goes to one of the individuals at the New Jersey Vet2Vet—or Vets4Warriors, if the NJ Vet2Vet operators are occupied; both helplines are administered by UBHC. If the individual needs health care services in the New Brunswick area, the helpline staffers stay on the line while they transfer the individual to Wilson, who provides more details about the program. If the individual is seeking medical and behavioral help, Wilson works to coordinate the times of both appointments at Monument Square—primary care needs with family medicine physicians and behavioral health needs with a UBHC specialist—so that it's most convenient for the patient, he says.

During the patient's first visit, he or she receives a packet with additional information about the program, giveaways with veteran-related helpline numbers, and brochures about veteran-specific programs and resources in the area, Wilson says, noting that each patient in the program also is paired with a peer veteran who helps the patient through the process and handles the exterior support services essential to that person's needs.

One of those peers is Miriam Soto-Quinones, who served in the U.S. Army for 26 years before retiring in 2001. She has worked as a peer veteran for Vets4Warriors for the past four years and is also pleased to be able to provide peer-to-peer support in person in her role with VTCL.

As the “first and last person they see,” the peer greets VTCL patients at the front desk, helps them with paperwork—a process Wilson says can take about a half hour—and assists with their transition to clinical services, Soto-Quinones explains. When the appointment is over, the peer makes sure the veteran has everything needed before leaving the office.

“There's a bigger comfort level for patients,” she says. “When I introduce myself and say, ‘I'm here to help you,’ right away it reduces their anxiety, and you can see the sense of relief. Having a fellow veteran here to speak with them and assist, the patient can relate. That's the real connection—

they feel at home, special.”

But the involvement doesn't stop there, Soto-Quinones stresses.

“What makes this program unique is that we follow up, not just as a representative of the clinic but as a peer,” she says. “We talk to each patient about a week after the appointment to find



**M**iriam Soto-Quinones, who served in the U.S. Army for 26 years before retiring in 2001, is pleased to be able to provide peer-to-peer support in person in her role with the Veterans Total Care Initiative. ★

out how it went, if they have any questions, if there's any other issue they need to discuss or take care of. A lot are in need of housing, of jobs. We've helped quite a few with those issues.”

## Building Relationships

**I**t's that type of personal touch that several program patients say make a significant difference in the care, notes Douglas J. Boyle, JD, PhD, program director and clinical psychologist at UBHC, who is the evaluator for the VTCL program. Dr. Boyle moderated focus group discussions with the patients, designed to assess their overall experience with the program; their level of satis-



faction with access, clinical services, and staff; any barriers to using services; and recommendations for improvements.

“They said they felt respected and that the care was excellent. The doctors and staff took the time to get to know them and learn about their problems. Some individuals even said it was the best care they ever received,” Dr. Boyle says. In fact, one focus group participant stated that the program was like “manna from heaven.”

Overall, Dr. Boyle says, veterans in the focus groups gave the program the highest rankings in all areas on a five-point scale. “In every case, it was unanimous. It’s rather unique that there was such positivity and unanimity among all the focus group participants,” he says.

“The personal aspects of this one-on-one, the human contact, is amazing,” one focus group participant reports. “These people here are personable. From day one, they make you feel like they know you and they care.” Another veteran agrees: “The staff actually has a connection with the patients, greeting them as they come in, saying things like, ‘I remember when I saw you so long ago, and your hair has grown.’... It’s a personal touch. People need that personal touch with their doctors. It’s very important, especially if you want to keep that vet coming.”

## Bridging Gaps with VA Services

**W**hile many of the veterans served through VTCI are already established patients with the VA, the program can be a boon for individuals who have had difficulties navigating the VA system, says Wilson.

For years, the VA has been plagued with significant backlogs, lost records, and red tape. Despite a concerted effort to overhaul the system, problems remain. More than a half-million individuals nationally are unable to get an appointment scheduled with a physician within 30 days, while an additional 34,656 veterans are on the “electronic wait list” (EWL) and cannot get an appointment in fewer than 90 days, according to an August 2016 report by the VA. And while the average wait times for appointments are significantly shorter in New Jersey than national averages, it can still be a challenge for veterans in the state to get services. The August report showed that more than two-thirds of New Jersey veterans on the EWL had been waiting for more than 120 days to be scheduled for an appointment.

“The VA is overwhelmed. It can be so hard to get an appointment, and they can’t do same-day visits. Veterans call here, and they can get an appointment right away. It’s better for

the veterans, and access to care is much faster,” says Wilson.

In addition, VTCI provides services for anyone who ever served in the military—including those in the National Guard and the Reserves who might not be eligible for VA services, Wilson says.

“We want to provide the broadest reach possible,” Dr. McGarry explains, adding that all physicians in the practice participate in the initiative. “Our goal is to provide care when it’s needed, and to do that, everyone in the practice is involved.”

## Looking at the Future

**I**nitially, the practice’s mission was to have 125 VTCI patient encounters, including initial visits for new patients and any follow-up visits—a goal it has surpassed easily. By the end of August, practitioners at the Monument Square site had recorded a total of 275 office visits through the program, with as many as 13 appointments per week, and had 41 future appointments already scheduled.

Most of the growth has been because of word of mouth from the veterans who participate, as well as Wilson’s unflagging efforts to help spread the word via avenues such as social media, posting on Facebook pages for veterans groups and more.

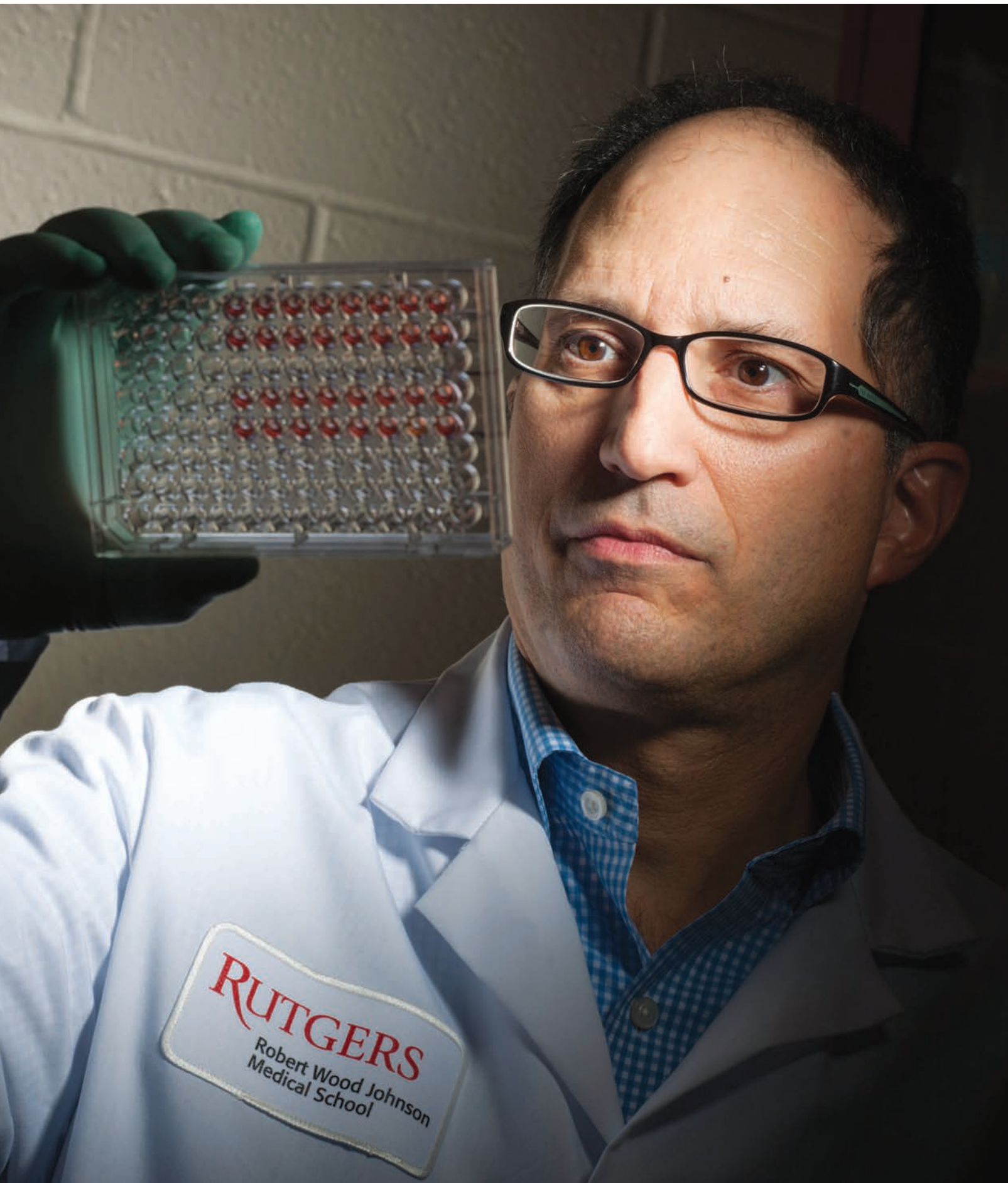
Though initially slated to end its run in June, VTCI did so well, coming in under budget and benefiting so many individuals, that the state extended funding through Spring 2017. Program advocates—providers as well as patients—say more time is needed to continue what has become an essential service for area veterans.

“I’ve become a big believer in this program,” says Dr. Boyle. “It will be a huge disappointment to the veterans if the state does not continue funding it. All focus group participants expressed concern that the program would soon be ending.”

In the meantime, the practice is laying the groundwork for future physicians to become more aware of the needs of the veteran population, educating residents and medical students who are exposed to this type of culturally sensitive care, Dr. McGarry says.

“Understanding the cultural differences that exist for a veteran population is a blind spot for most doctors,” she says. “The veteran experience is very different from the civilian experience, and that needs to be recognized and reflected in the medical care and services provided.

“That all people who serve [in the military] don’t have access to health care doesn’t seem right,” Dr. McGarry continues. “Being involved with a program like this one feels like we’re on the right side somehow.” **M**





New > Antibiotic

Effective > Against

# MRSA

A

new experimental antibiotic developed by a team of scientists at Rutgers University successfully treats the deadly MRSA infection and restores the efficacy of a commonly prescribed antibiotic that has become ineffective against MRSA.

Daniel Pilch, PhD, associate professor of pharmacology, and fellow scientists are racing to develop a new class of antibiotics to treat methicillin-resistant *Staphylococcus aureus* (MRSA) infections, which are responsible for 19,000 deaths annually and represent \$3 billion in annual health care costs.

In research published in the July issue of *Antimicrobial Agents and Chemotherapy*, Rutgers scientists say the combination of their newly developed antibiotic, TXA709, with cefdinir, an antibiotic that has been on the market

for almost two decades, successfully treated the MRSA infection in animals.

“This is important because even though TXA709 is effective on its own in treating MRSA, combining it with cefdinir—used

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BY > ROBIN LALLY • PORTRAITS BY > JOHN EMERSON

to treat a wide range of bacterial infections like strep throat, pneumonia, bronchitis, and middle ear and sinus infections—makes it even more efficacious, while also significantly reducing the potential for the MRSA bacteria to become resistant in the future,” says Daniel Pilch, PhD, associate professor of pharmacology, Robert Wood Johnson Medical School.

manner, unlike any other antibiotic in current clinical use, by inhibiting the function of a protein, FtsZ, essential for the bacteria to divide and survive. By combining TXA709 with cefdinir, a cephalosporin antibiotic that acts much like penicillin, scientists have been able to lower the dosage of the new antibiotic required to eradicate the MRSA infection.

“This is significant,” Dr. Pilch says, “because it decreases

the potential for any drug-induced toxicity and side effects that might occur from a higher dosage.

“What is also good about this experimental treatment is that both drugs can be taken orally, which means they can be administered on an outpatient basis,” says Dr. Pilch, who collaborated with Edmond LaVoie, PhD, professor and chair, Department of Medicinal Chemistry, Rutgers’ Ernest Mario School of Pharmacy. “All but two of the current antibiotics being used clinically to treat MRSA need to be administered intravenously,” he adds.

In September 2016, the U.S. Food and Drug Administration granted TXA709 a Qualified Infectious Disease Product (QIDP) designation for the treatment of acute

bacterial skin and skin structure infections caused by MRSA. Part of the Generating Antibiotics Incentives Now (GAIN) Act of 2012, the QIDP designation encourages the development of new antimicrobial drugs to combat the global threat posed by multidrug-resistant microbes, and it confers TXA709 with eligibility for fast-track status. Researchers say that clinical trials on the new antibiotic, which will assess and evaluate its safety and effectiveness in humans, are expected to begin next spring. **M**



Dr. Pilch and fellow scientists are racing to develop a new class of antibiotics to treat methicillin-resistant *Staphylococcus aureus* (MRSA) infections, which are responsible for 19,000 deaths annually and represent \$3 billion in annual health care costs.

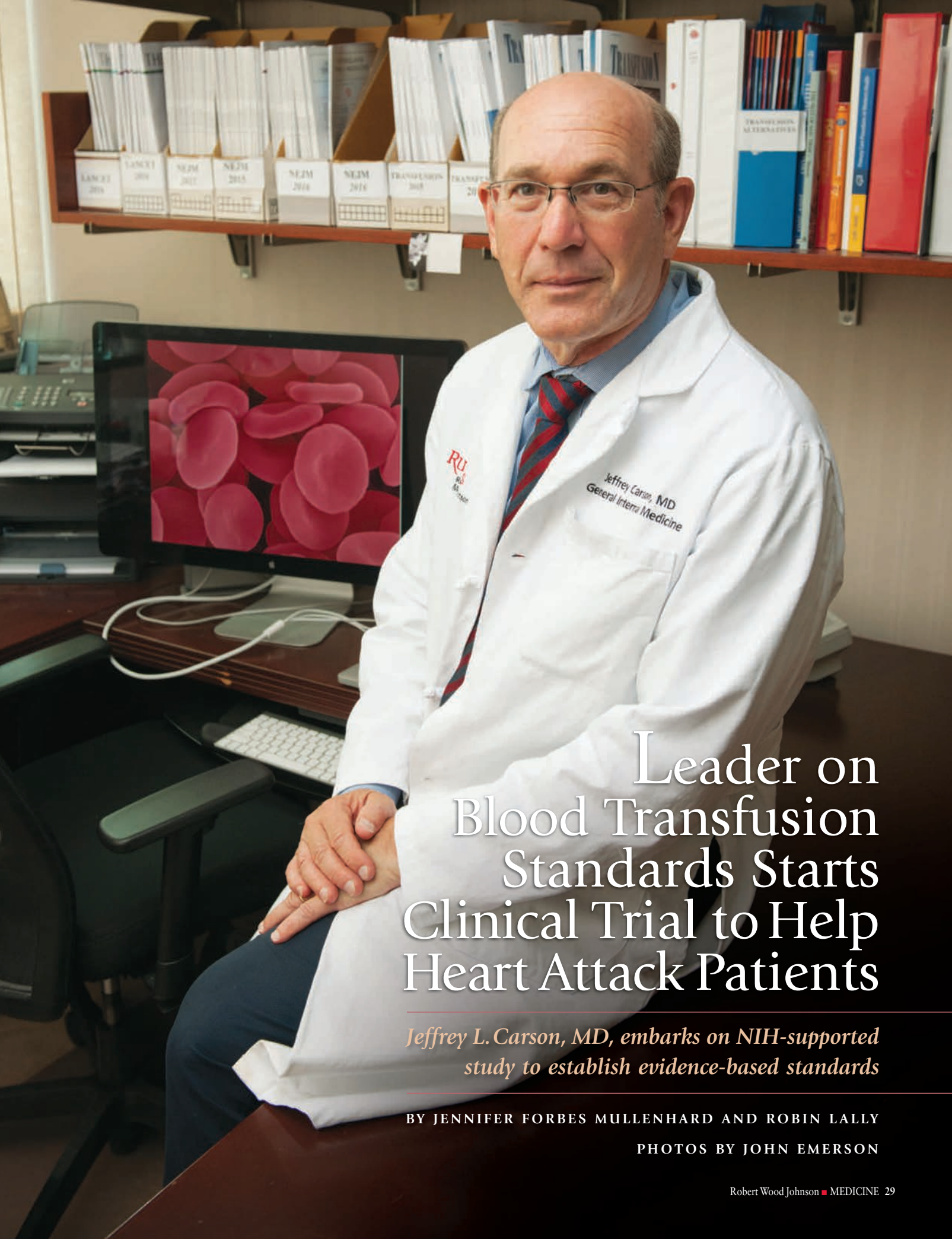
The threat of MRSA and other antibiotic-resistant infections has become so severe that the World Health Organization predicts common infections and minor injuries could become life-threatening because of a lack of drug treatments available to destroy these bacterial infections. Last month, the first case in the United States of a patient with an infection resistant to all known antibiotics was reported by the U.S. Centers for Disease Control and Prevention.

“Current standard-of-care drugs for the treatment of MRSA infections are limited,” says Dr. Pilch. “Furthermore, resistance to these drugs is on the rise, and their clinical effectiveness is likely to diminish in the future.”

Dr. Pilch says TXA709 kills MRSA bacteria in a unique

**“What is also good about this experimental treatment is that both drugs can be taken orally, which means they can be administered on an outpatient basis,” says Dr. Pilch (above), with Malvika Kaul, instructor, Department of Pharmacology.**





# Leader on Blood Transfusion Standards Starts Clinical Trial to Help Heart Attack Patients

*Jeffrey L. Carson, MD, embarks on NIH-supported study to establish evidence-based standards*

BY JENNIFER FORBES MULLENHARD AND ROBIN LALLY

PHOTOS BY JOHN EMERSON

**J**effrey L. Carson, MD, began his mission to examine the efficacy of blood transfusions after a patient declined a transfusion based on religious beliefs. The experience prompted him to research the health outcomes of patients who purposely abstain from the treatment, which in turn led him to study when it is medically necessary to initiate a transfusion.

Transfusions are a common medical procedure to supplement blood or parts of blood lost due to disease, injury, or surgery. According to the Centers for Disease Control and Prevention, an estimated five million people receive transfusions in the United States each year.

For more than two decades, Dr. Carson, the Richard C. Reynolds Professor of Medicine at Robert Wood Johnson Medical School and provost at Rutgers Biomedical Health Sciences in New Brunswick, has researched blood transfusion strategies. Dr. Carson became a champion of the movement to use the evidence showing it is safe to use less blood in transfusions. The numerous trials he has directed and his reviews of relevant literature provided the foundation for guidelines issued by the AABB (formally known as the American Association of Blood Banks) that endorse a conservative approach when initiating blood transfusions for most patients.

Dr. Carson's work focuses on transfusions to correct low levels of hemoglobin, the protein that utilizes red blood cells to carry oxygen throughout the body. Through analysis of multiple studies, he found that a restrictive transfusion threshold—meaning that patients receive a transfusion only when their hemoglobin concentration is lower than 7 to 8 grams per deciliter (g/dL) rather than the more liberal threshold of 10 g/dL—is safe for most patients. His work led to the creation of national guidelines in 2012 that recommended a restrictive transfusion strategy for most patients.

Most recently, Dr. Carson led an international team of scientists and physicians in comprehensive research examining more than 60 years of data on red blood cell transfusions and 31 clinical trials that evaluated outcomes for more than 12,500 individuals who received transfusions at the restrictive rather than liberal threshold. The study provided evidence needed to update the original transfusion guidelines, prompting the AABB to recommend that most patients who need blood transfusions—including those who are critically ill—need not be given blood before their hemoglobin drops to a lower level than the practice followed traditionally. The guidelines were published online in October by the *Journal of the American Medical Association (JAMA)*.

“Clinically, the results of our work show that no harm will come from waiting to transfuse a patient until the hemoglo-

bin level reaches a lower point,” says Dr. Carson, first author of the *JAMA* paper and co-chair of the AABB guideline panel. “The restrictive approach is associated with reductions in blood use, blood conservation, and lower expenses.”

The recommendations to utilize the lower transfusion threshold—7 to 8 g/dL for most patients—apply to surgery patients, and others whose blood counts reach low enough levels to threaten their lives.

The AABB said that based on the new evidence, transfusions at a lower level are also recommended for critical care patients, as well as those undergoing orthopedic and cardiac surgery, and those with preexisting cardiovascular disease.

But according to Dr. Carson, further clinical trials are needed to determine whether heart attack patients who also have anemia, as well as those with a bone marrow disorder, benefit from a transfusion at higher hemoglobin levels. His knowledge is based on preliminary evidence from several small studies, including a pilot study that he oversaw, which found that patients who have had a heart attack and have anemia, which restricts the body's ability to carry oxygen, may have an increased risk of mortality with a restrictive transfusion approach.

Even before the study in *JAMA* was published, Dr. Carson began to establish evidence that can be used to set transfusion standards for this population of patients, to improve their survival rates and reduce the risk of recurrence. A further study has generous backing from the National Institutes of Health (NIH).

“We are about to embark on a large international clinical trial supported by the NIH that will provide the evidence needed to determine the best course of action for patients who have had a heart attack,” says Dr. Carson. “It's important to establish evidence-based standards to improve patient safety and outcomes.”

Awarded more than \$16.1 million by the NIH's National Heart, Lung, and Blood Institute in September, Dr. Carson will oversee the Myocardial Ischemia and Transfusion (MINT) clinical trial, which will be conducted in up to 80 centers in the United States and Canada. The trial will include 3,500 patients, who will be randomly allocated to be treated according to either a liberal or a restrictive transfusion strategy. The study will evaluate the differences in outcomes between the two transfusion approaches. Patients who qualify for the trial will be recommended by participating physicians.

Dr. Carson, who is the study chair and principal investigator of the clinical coordinating center, will work with Maria Mori Brooks, PhD, professor and vice chair of education, Department of Epidemiology, codirector, Epidemiology





“We are about to embark on a large international clinical trial supported by the NIH that will provide the evidence needed to determine the best course of action for patients who have had a heart attack,” says Dr. Carson.

Data Center, and professor of biostatistics at the University of Pittsburgh Graduate School of Public Health, who is the principal investigator of the data coordinating center for the study.

Assisting Dr. Carson will be a steering committee composed of authorities from participating clinical sites, among them the Centre Hospitalier de l'Université de Montréal, Duke Clinical Research Institute, Saint Louis University, University of Pittsburgh Medical Center, Rhode Island Hospital, Westchester Medical Center, Ottawa Hospital Research Institute, and University of Toronto Faculty of Medicine.

The updated guidelines issued in *JAMA* also were a collaborative effort and included a second recommendation,

resulting from evidence that blood stored under standard conditions for up to 42 days is just as safe as new blood that is less than 10 days old.

“One of the biggest controversies in transfusion medicine is whether blood that is stored longer is harmful,” says Dr. Carson’s co-chair on the AABB guidelines panel, Aaron Tobian, MD, PhD, associate professor of pathology at the Johns Hopkins University School of Medicine.

Dr. Carson, Dr. Tobian, and colleagues from throughout the United States and Canada were involved in the guideline development, reflecting the fact that the science of transfusion medicine has significantly advanced in recent years, providing high-quality evidence to support the new recommendations.

Physicians performing surgeries and other procedures use these guidelines in deciding when a transfusion is needed and how much blood to give, based on how much the patient has lost, as well as close observation of vital signs such as low blood pressure.

“It is important for physicians and patients to know that these recommendations are based on high-quality clinical evidence,” says Dr. Carson. “We need to promote guidelines based on what science reveals.” **M**

# R W J M S NEWS

## Dr. Kaufman Honored

**K**enneth R. Kaufman, AM, MD, FRCPSych, DFAPA, professor of psychiatry, neurology, and anesthesiology and deputy editor, *BJPsych Open*, was recently inducted as a Fellow of the Royal College of Psychiatrists. The college is the professional body in the United Kingdom that is responsible for education and training, as well as setting and raising standards in psychiatry. Both nationally and internationally, the college plays a vital role in representing the expertise of



Professor Kaufman receiving RCPsych Fellowship from the president, Professor Sir Simon Wessely.

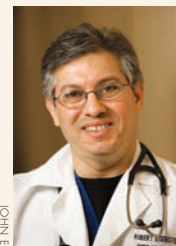
the psychiatric profession to governments and other agencies. ■

## Department of Emergency Medicine Chair

**R**obert M. Eisenstein, MD, FACEP, associate professor of emergency medicine, has been appointed chair, Department of Emergency Medicine.

Dr. Eisenstein had served as interim chair of the department since November 2011, after a six-year role as vice chair. He is also chief, ambulatory service, division of emergency care, at Robert Wood Johnson University Hospital (RWJ). A member of the Robert Wood Johnson Medical School faculty for the past 13 years, Dr. Eisenstein was integral in the creation

of the Department of Emergency Medicine on the New Brunswick campus. Since its inception, the department has seen tremendous growth, from three to more than 30 full-time and per diem faculty. Dr. Eisenstein has recruited faculty with expertise



Robert M. Eisenstein, MD, FACEP

in emergency medical services (EMS), critical care, research, education, toxicology, and emergency ultrasound.

The department has instituted a required fourth-year medical student clerkship, EMS/disaster medicine and emergency ultrasound fellowships, and an Emergency Medicine Residency Program. It also created the division of emergency and critical care ultrasound and developed a clinical toxicology service.

An instructor and mentor for residents as well as for medical and physician assistant students, Dr. Eisenstein is a researcher who is published in several peer-reviewed journals, books, and abstracts. He is an ad hoc reviewer in the *Journal of Emergency Medicine* and *Annals of Emergency Medicine*. ■

## New Study ID's Protein's Role in Cell Stability

**L**ed by **Estela Jacinto, PhD**, associate professor of biochemistry and molecular



Estela Jacinto, PhD

biology at Robert Wood Johnson Medical School, as principal investigator, a team of researchers has been studying how the protein mTOR helps to regulate cell machinery, which drives the growth of every cell in the body. As cells break down nutrients during metabolism, they create

metabolic products called metabolites, which serve as fuel and building blocks to make more cells. Previous studies found that when there are sufficient nutrients, mTOR promotes cell growth. In this new study, published online in *Molecular Cell*, the researchers discovered that mTOR also responds to decreasing levels of nutrients, acting as “traffic control” to help stabilize cells as nutrient intake fluctuates.

Specifically, Dr. Jacinto's laboratory discovered that when glucose availability is

limited, mTOR responds by mobilizing the amino acid glutamine, which serves as an alternative to glucose. Metabolism of glutamine enables the cells to survive under glucose starvation. Although it is known that disruption in glucose and glutamine metabolism plays a role in diabetes, cancer, osteoarthritis, and aging, this is the first study to indicate that mTOR actively participates in the process to restore cell stability when there are not enough nutrients to fuel cell growth. ■



## Medical School Appointments



COURTESY OF THOMAS HECKER, PhD

Thomas Hecker, PhD

**T**his summer, **Thomas Hecker, PhD**, was appointed executive vice dean, Robert

Wood Johnson Medical School. Dr. Hecker will provide senior administrative leadership and be responsible for developing, implementing, and evaluating the school's strategic plan across all mission areas. He will have oversight of the organizational structure and will work to expand partnerships across the continuum, including Rutgers Biomedical and Health Sciences, Rutgers University, and the State of New Jersey.

Previously, Dr. Hecker served

as associate dean and chief of staff to J. Larry Jameson, MD, PhD, executive vice president, University of Pennsylvania for the Health System, and, since 2011, dean, Perelman School of Medicine.

A magna cum laude graduate of Elizabethtown College, Dr. Hecker earned his PhD in clinical psychology from Temple University. He was recruited to the University of Pennsylvania in 2005, first serving as special assistant to then EVP/Dean Arthur Rubenstein, MBBCh, and then as assistant dean for administration. Prior to his arrival at Penn, he served as assistant dean for administration and planning in the College of Liberal Arts at Temple University. ■



STEVE HOCKSTEIN

Jillian Prior

**J**illian Prior joined the Department of Communications and Public Affairs as manager

of alumni affairs. Her primary responsibility is to oversee and grow alumni involvement. Her first project was the alumni phone-a-thon.

Prior is the editor of *Robert Wood Johnson Medicine* and *From the Dean's Desk*, and she helps produce the medical school's e-newsletter, the *Weekly View*. "I am eager to work with faculty and staff and learn more about the

great research and patient care taking place at the medical school and medical group," she says.

Prior is pursuing a master's degree in public administration with a concentration in nonprofit management at Rutgers' School of Public Affairs and Administration. A passionate traveler, she visited South Africa earlier this year and is planning a trip to Machu Picchu in 2017. ■

*Interested in becoming involved as an Alumni? Reach out to Jillian at [jillian.prior@rwjms.rutgers.edu](mailto:jillian.prior@rwjms.rutgers.edu) or 732-235-6310.*

# Research News

By Kate O'Neill



## Research Grants

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

- **Jeffrey L. Carson, MD**, Richard C. Reynolds Professor of Medicine and provost, Rutgers Biomedical and Health Sciences, a five-year, \$16.1 million U01 grant for the Myocardial Ischemia and Transfusion study, which Dr. Carson will oversee at up to 80 clinical centers in the United States and Canada.
- **Jerome Langer, PhD**, associate professor of pharmacology, and **Beatrice Haimovich, PhD**, associate professor of surgery, a five-year, \$2,365,247 R25 multi-principal investigator (PI) research education program grant for the Rutgers Initiative for Maximizing Student Development (IMSD) Pipeline Program for undergraduate and graduate students.
- **Smita Patel, PhD**, professor of biochemistry and molecular biology, a five-year, \$3,615,232 R35 Maximizing Investigators' Research Award (MIRA) for "Mechanistic Studies of Nucleic Acid Enzymes Involved in DNA Replication, Transcription, and Innate Immunity."
- **Daniel Pilch, PhD**, associate professor of pharmacology, a five-year, \$1,956,391 R01 grant for development of new antibiotics against Methicillin-resistant *Staphylococcus Aureus* (MRSA).
- **Monica Roth, PhD**, professor of pharmacology, a new four-year, \$1,507,320 R01 grant to study "Interactions of MuLV IN with Host Proteins and DNA."

—Continued on page 34



# Research News

By Kate O'Neill

## Published Research

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

—Continued from page 33

- **Derek Sant'Angelo, PhD**, Harold L. Paz, MD, Endowed Professor of Developmental Biology, professor of pediatrics, and chief, division of developmental biology, Child Health Institute of New Jersey, a five-year, \$1,987,500 R01 grant for "Contribution of Innate-like Tregs for Preventing Tissue Inflammation." **Lisa Denzin, PhD**, associate professor of pediatrics, is a coinvestigator.
- **Clifford Weisel, PhD**, professor of environmental and occupational medicine, a five-year, \$1,558,265 competitive renewal training grant for the Joint Graduate Program in Exposure Science.
- **Donald Winkelmann, PhD**, professor of pathology and laboratory medicine, a four-year \$2,024,151 multi-PI R01 grant to study "Structural, Biochemical, and Mechanical Effects of Myosin Cardiomyopathy Mutations."

### Grants of \$1 million or more from other funding sources including:

**Deborah M. Spitalnik, PhD**, professor of pediatrics and executive director, Boggs Center on Developmental Disabilities:

- a five-year, \$2.2 million Leadership Education in Neurodevelopmental and Related Disorders (LEND) Training Program grant from the U.S. Health Resources and Services Administration.
- **Jeffrey Carson, MD**, the Richard C. Reynolds professor of medicine, and provost, Rutgers Biomedical and Health Sciences, was first author of "Clinical Practice Guidelines from the AABB Red Blood Cell Transfusion Thresholds and Storage," published online in the *Journal of the American Medical Association* October 12, 2016.
- **Matthew P. Deek, MD '16**, was first author of "Prognostic Impact of Missed Chemotherapy Doses during Chemoradiation Therapy for Non-Small Cell Lung Cancer," published in the *American Journal of Clinical Oncology* June 17, 2016. (Epub ahead of print.) **Salma K. Jabbour, MD**, associate professor of radiation oncology, was senior author.
- **Justin M. Drake, MD**, assistant professor of medicine, Rutgers Cancer Institute of New Jersey, was first author of "Phosphoproteome Integration Reveals Patient-Specific Networks in Prostate Cancer," published in *Cell* August 3, 2016:pii:S0092-8674(16)30913-30918. (Epub ahead of print.)
- **Javier Escobar, MD**, professor of psychiatry and family medicine and associate dean for global health, was senior author of "Personality Disorders in the Basque Region of Spain: Applicability of DSM-5's Alternative Criteria for Personality Disorders," published in the *American Journal of Psychiatry* August 1, 2016:173(8):769-770.
- **Jyoti Malhotra, MD, MPH**, assistant professor of medicine, Rutgers Cancer Institute of New Jersey, was first author of "Association of Increased Cancer Risk with Heart Failure," published in the *Journal of the American College of Cardiology* July 19, 2016:68(3):272-273.
- **Vikas Nanda, PhD**, associate professor of biochemistry and molecular biology and resident member, Center for Advanced Biotechnology and Medicine, was senior author of "Dissecting Electrostatic Contributions to Folding and Self-Assembly Using Designed Multicomponent Peptide Systems," published in the *Journal of the American Chemical Society* April 6, 2016:138(13):4362-4367.
- **Kathleen W. Scotto, PhD**, professor of pharmacology and resident member, Rutgers Cancer Institute of New Jersey, was senior author of "A Role for Abcg2 Beyond Drug Transport: Regulation of Autophagy," published in *Autophagy* May 3, 2016:12(5):737-751.
- **Mark N. Stein, MD**, associate professor of medicine, Rutgers Cancer Institute of New Jersey, and **Thomas L. Jang, MD, MPH**, assistant professor of surgery, Rutgers Cancer Institute of New Jersey, were coauthors of "Striving toward a Cure for Prostate Cancer," published in the *Journal of Clinical Oncology* June 20, 2016:34(18):2075-2078.



# LETTER FROM THE ALUMNI ASSOCIATION PRESIDENT

Dear Alumni and Friends:

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

This summer we welcomed Jillian Prior as our new manager of alumni affairs. Jillian brings expertise and enthusiasm and I am delighted that she will be developing new ways to reach a greater alumni base.

In the upcoming weeks we will begin planning for our 29th **Annual Career Night** in the Great Hall which will take place on **March 7, 2017**. I hope you will come out to meet our current students, represent your specialty, and provide insight into your career choices and daily lives. We are interested in expanding the scope of represented specialties and welcome new participants.

For those of you who would like to reconnect by mentoring medical students, **The Day in the Life Program** is a great opportunity. It is a goal of mine to offer our students the opportunity to meet and network with alumni during their clinical years while they are on away rotations or on the interview trail. If you are interested in being part of our Day in the Life Program or Career Night, please reach out to Jillian at [jillian.prior@rwjms.rutgers.edu](mailto:jillian.prior@rwjms.rutgers.edu).

The **7th Annual Scholarship Gala** will take place Saturday evening, April 8, 2017 at The Heldrich in New Brunswick. We will celebrate the anniversaries of the following classes: 45th: 1972, 40th: 1977, 35th: 1982, 30th: 1987, 25th: 1992, 20th: 1997, 15th: 2001, 10th: 2007, and 5th: 2012.

Through our other fundraising efforts, the Alumni Association provides additional scholarships and low interest loans to students. Thank you for your continued dedication to helping students defray the ever-rising costs of medical education. Without your steadfast support, the dream of becoming a physician may not have been possible for many of our students.

Your education has provided you with great opportunities and you have accomplished much. Please share your career, practice, and family updates for our “class notes” with Jillian and also join our Facebook group, “Robert Wood Johnson Medical School Alumni Association.”

I am happy to have served as the Alumni Association President for these past two years, and I am looking forward to staying involved as a board member. I want to thank my fellow Board of Trustees members for all the work 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 in 2017.

Sincerely,



Sonia Garcia Laumbach, MD '99



STEVE HOCKSTEIN

P.S. Please visit our website at <http://support.rutgers.edu/RWJMSAlumni> to support student scholarships and loans, or mail your gift in the enclosed envelope. Please also make sure to provide us with your updated contact information so we can stay in touch with you at <http://rwjms.rutgers.edu/alumni/update.php>

## Antonia Chen, MD '08, MBA: A Young Leader for a New Generation in Health Care

**T**his past spring, Antonia F. Chen, MD '08, MBA, was named to *Philadelphia Business Journal's* "40 under 40." The select group represents a new generation of leaders from a variety of fields who are changing the face of business in Philadelphia.

"Antonia is a young superstar," says Richard H. Rothman, MD, PhD, founder of the Rothman Institute in Philadelphia, where Dr. Chen serves on the orthopedic surgery team. More than that, she's a superstar in at least four constellations: orthopedic surgery, research, health care economics, and medical education.

A physician-scientist, Dr. Chen is the associate director of research at the Rothman Institute, an international leader in musculoskeletal clinical care, teaching, and research. In addition, she is an assistant professor of orthopedic surgery at Sidney Kimmel Medical College at Thomas Jefferson University Hospital, where

she serves as orthopedic surgical site infection chair. Dr. Chen's specialty is hip and knee replacement surgery—primary replacements as well as revisions of previous ones.

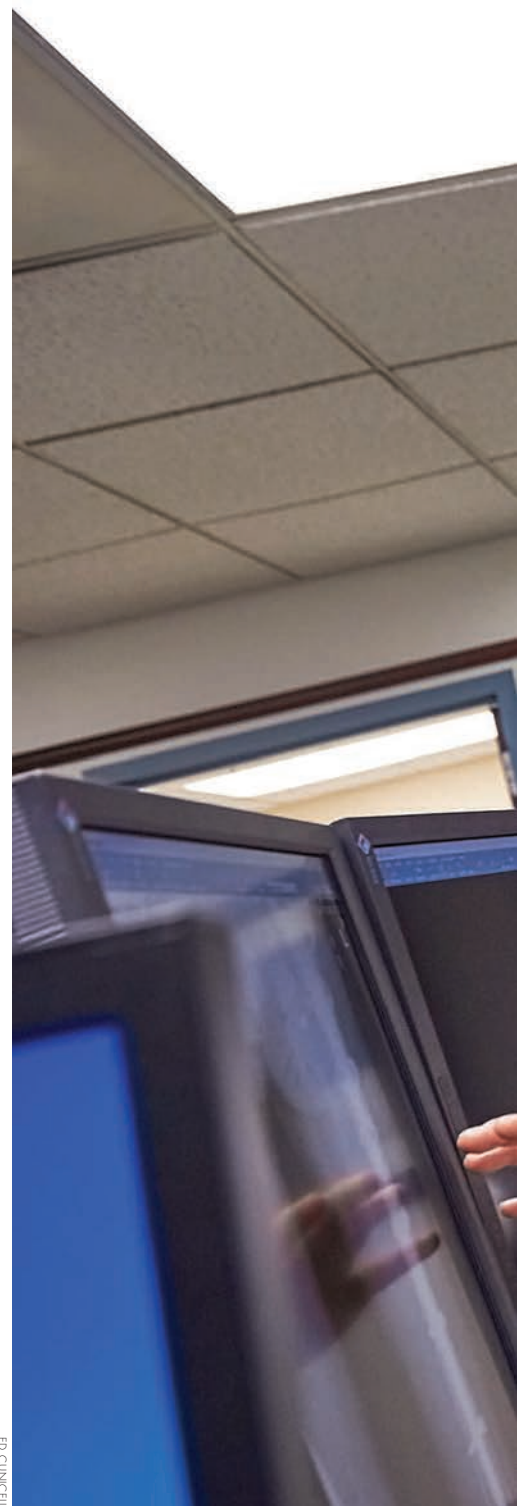
### Orthopedic Surgery: The Potential to Restore Quality of Life

**D**r. Chen, who completed her undergraduate studies at Yale University in molecular, cellular, and developmental biology, initially had no intention of becoming a surgeon. But within a year of her arrival at Robert Wood Johnson Medical School, two faculty members had piqued her interest in orthopedic surgery. The first was Joseph P. Leddy, MD, former professor and chair, Department of

ED CUNCELI

Orthopaedic Surgery. "His class on the anatomy of the hand captivated me," she says. "He was so excited about his specialty; he genuinely loved it. He was engaging and funny and told stories illustrating the many functions of the hand."

BY KATE O'NEILL







Dr. Chen spent the following summer working with her mentor, Alfred J. Tria, MD, at St. Peter's University Hospital, conducting research on knee arthroplasty and observing total knee replacement procedures. "I loved seeing

—Continued on page 46

"I had thoughtful teachers who provided me with a fantastic education and mentors who supported my career. I enjoy teaching, and I want to give back."

—Antonia F. Chen, MD '08, MBA

# My Experiences as a Member of the First Graduating Class of Rutgers Medical School

BY LUIS VILLA JR., MMS '68, MD

Editor's Note:

*Robert Wood Johnson Medical School (RWJMS) is celebrating the 50th anniversary of its founding. To mark the event, the RWJMS Retired Faculty Association invited Luis Villa Jr., MMS '68, MD, who graduated in the first class at Rutgers Medical School, to recollect his experiences as a student here. At its founding, the medical school offered a two-year program, and its graduates then completed their clinical studies at other medical schools. After graduating from Rutgers Medical School, he attended Harvard Medical School, where he received his MD degree.*

It was 1965 and I had to make a decision whether to go to law school or apply for admission to medical school. This was colored by the previous four years, which had seen my parents and me arrive from Cuba with a total of \$15 and 40 pounds of luggage, the maximum allowed by the Castro government. My parents had made the difficult choice to face poverty and uncertainty in order to give me the opportunity to benefit from liberty and education in what they considered to be the best country in the world. A medical career offered economic security, intellectual challenge, and permanent employment.

After I interviewed at Rutgers Medical School, the choice was easy: only 16 students, a relatively large and distinguished faculty, brand-new facilities, scholarship aid, proximity to friends and family already in New Jersey, and very likely an interesting choice of schools to finish the clinical years.

I was definitely not disappointed. Dr. Stevens, who actually interviewed me, functioned not only as a microbiologist but as a friend, adviser, and part-time psychiatrist. Biochemistry with Dr. Plout opened for me new frontiers in the understanding of cellular function and

energy creation and transfer, while his partner, Dr. Shiga, exposed us to the Oriental philosophy regarding the ultimate purpose of molecular chemistry: "Most of your patients will live or die regardless of what you do." Dr. Schlesinger ("you don't know what a Dalton is?") and his team exposed us in detail to the marvels of molecular genetics. Dr. Morrison brought his famous autopsy buckets, which were pungent with the smell of formaldehyde but also invaluable in exposing us to the basics of pathology.

And then there was Dr. Stetten. He





COURTESY OF JUS VILA, JR. MD

was, of course, the dean, but at least for me, he was also the father figure, the mentor. He was always available. He shared with us his meals, his family, his great stories about his years teaching biochemistry (“I thought Jimmy did not have it”), and his vision of what he thought the medical school should be and where we should follow up our studies.

Naturally, in the two years dedicated to the basic sciences, the emphasis was on the nonclinical aspects of medicine, and, although not enforced, it was clearly the expectation that at least some of

us would eventually pursue a career in academic medicine. Dr. Cross (“Shorty”) introduced us to actual patients in hospital settings and successfully provided the bridge from basic science to clinical medicine.

The student environment was very pleasant. As could be expected from a bunch of high achievers, there was some degree of competition, particularly when, even though we were assured of a successful transfer to a four-year school, it was not clear initially where we would eventually go and how the selection of students would take place.

There was mutual respect and acceptance of the inevitable peculiarities that became evident in such a small group of students: yes, liberals, progressives, Vietnam controversies, hard-liners. . . . I wonder how the others have changed.

We were all close, not only with one another but also with the faculty. There were frequent social events in which we mingled freely with the professors.

I fondly remember the prediction of the faculty that I would become a gynecologist. Well, that prediction was erroneous! I became a board-certified pathologist, a board-certified internist, and a board-certified hematologist and oncologist. I practiced both pathology and oncology/hematology until three years ago, at which time I decided to eliminate pathology and proceed with my hematology/oncology practice. At age 70, I still do that full time, while dedicating every Wednesday to charity care.

I am forever grateful for the great education and happy, fulfilling years that I spent at Rutgers. My only regret is that with the passage of time, I have lost contact with most of my classmates and mentors.

I thank you for the opportunity to briefly revisit those wonderful years. **M**

## Adam B. Landman, MD '04:

### Advancing Patient Care through Health Information Technology

**A**s a child, Adam Landman, MD '04, played for hours with his toy fire trucks, dreaming of growing up to be a firefighter. Fast-forward to May 2016, when Dr. Landman was named chief information officer of Brigham and Women's Hospital (BWH) in Boston. An emergency physician, he also serves as assistant professor of emergency medicine at Harvard Medical School. The story of his career journey, from an imaginative young would-be fire chief to a national leader in clinical and biomedical informatics, is one he loves to describe.

#### Merging Interests in Technology and Patient Care

**A**fter graduation from Cornell University, Dr. Landman worked for Andersen Consulting, now Accenture, specializing in large-system integration. In his off-hours, he was a volunteer emergency medical technician and firefighter, and he seriously considered becoming a full-time first responder. While weighing that decision, he earned two master's degrees at Carnegie Mellon University, one in

health care policy and one in information systems. His discovery of the growing field of clinical informatics ignited both an interest in health care technology and a desire to go to medical school.

Dr. Landman's visit to Robert Wood Johnson Medical School was conclusive. In his admissions interview, he found kindred spirits in David Seiden, PhD, then associate dean for admissions, and Carol Terregino, MD '86, then assistant

dean for admissions; both shared his vision for advancing health care by bringing together informatics and medicine.

The late Robert Trelstad, MD, then professor and chair, Department of Pathology, was another important mentor. A small-group leader in pathophysiology, Dr. Trelstad stayed in touch throughout Dr. Landman's clinical years and beyond. "He always gave me sage advice," says Dr. Landman, "and, although our clinical interests were very different, he enthusiastically supported my decision to become an emergency physician."

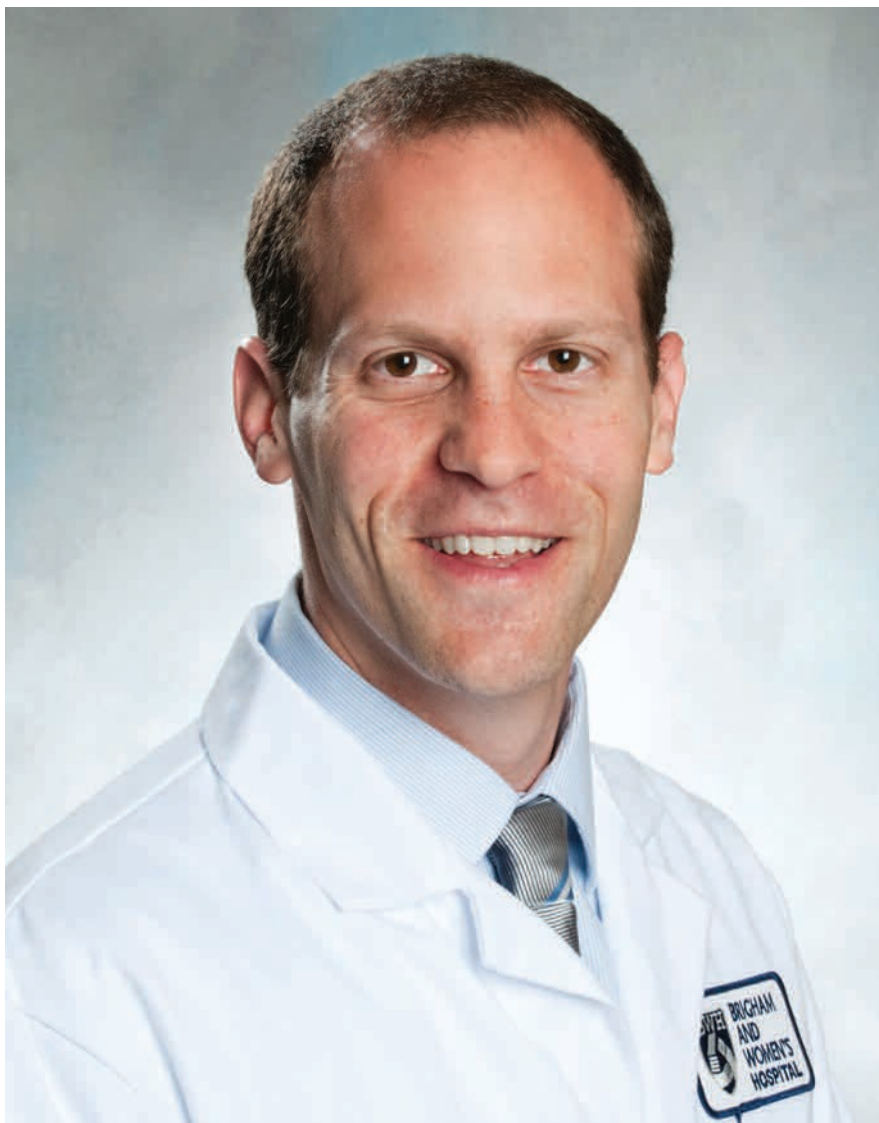
Dr. Landman's residency at UCLA Medical Center confirmed that emergency medicine would be a good fit. The excitement of emergency department work fulfilled his expectation of providing care in a fast-paced, collegial environment, working alongside specialists from different fields, and caring for all kinds of patients, regardless of their ability to pay.

Subsequently, as a Robert Wood Johnson Foundation Clinical Scholar, he completed a two-year fellowship in health services research at Yale University School of Medicine. It was his first full opportunity to merge his dual

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BY KATE O'NEILL





COURTESY OF ADAM B. LANDMAN, MD '04

interests in clinical informatics and health care, as he researched the adoption of health information technology (HIT) in the emergency department and prehospital settings.

### Expanding Clinical Informatics at Brigham and Women's Hospital

**I**n 2010, Dr. Landman joined the emergency department (ED) at BWH to serve as director of clinical informatics. He led a \$7 million custom software development project for the department, which moved its clinicians from a paper-based system to electronic documentation, including electronic discharge instructions for patients and documentation for providers.

"Information technology can help support everything a hospital tries to do," says Dr. Landman, "and the pace at 'The Brigham' was picking up." In 2013, after the rollout and implementation of the ED system, Dr. Landman was appointed to serve as the hospital's chief medical information officer for health information innovation and integration. While continuing to teach and work several shifts a month in the ED, he eagerly stepped into an expanded administrative role, developing larger and more specialized systems for the hospital.

"Our team does the whole life span of a system," says Dr. Landman, "from the initial concept to helping to evaluate the investment, developing a

"Information technology can help support everything a hospital tries to do."  
—Adam Landman, MD '04

proposal, finding partners, often building the system ourselves, implementing and advertising it, and training support staff." Over the past three years, his team's projects have included an integrated system for the hospital's laboratories and specialized systems for internal departments.

Working with a development partner, Dr. Landman's team recently built a new app for the Burn Center at BWH, one of two in Massachusetts. The center's leaders proposed the concept: to use the tools of HIT to make it easier for outside hospitals to refer burn patients promptly. The completed system allows doctors in the area to download an iOS or Android app, page a Burn Center doctor 24–7, and determine both the patient's immediate need and the best course of treatment.

Dr. Landman also works closely with the hospital's information security

—Continued on page 45

## From Cancer to Ebola— Lori A. Pollack, MD '99, MPH, is Making Her Mark in Public Health

**L**ori A. (Loria) Pollack, MD '99, MPH, freely admits Rutgers and Robert Wood Johnson Medical School are a family tradition. “I’m a New Jersey girl and still drive around with a big ‘R’ on the back of my car,” she says. Her father, Edmund Heilmeyer, attended pharmacy school at Rutgers in the 1950s. Dr. Pollack also met her husband, Brian, while he was enrolled in Rutgers’ MD/PhD program.

**F**amily ties aside, Dr. Pollack decided on Robert Wood Johnson Medical School because of the unique MD/MPH dual degree. Public health was her choice because she believes that although clinical doctors can affect the health of a panel of patients, public health physicians can impact the health of entire populations. She serves as a medical epidemiologist and has a rank of captain in the U.S. Public Health Service, a unique uniform service with a history going back more than 200 years. Dr. Pollack is currently assigned to the Division of Cancer

Prevention and Control at the Centers for Disease Control and Prevention (CDC) headquarters in Atlanta.

Since she joined the Public Health Service, her career has been nothing short of remarkable. Dr. Pollack has spearheaded federally funded research, provided scientific oversight for high-profile projects, helped train hundreds of health professionals, led an international task force, and conducted high-impact research. She has also authored or co-authored more than 50 publications and 50 national presentations and received dozens of recognitions and awards—including a Presidential Citation.

Most recently, Dr. Pollack was responsible for the scientific oversight of analyses resulting from a National Program of Cancer Registries study that obtained detailed information on biomarkers and treatment of more than 75,000 new breast, colorectal, and leukemia cases. This special study will enable researchers to compare effectiveness in the diagnosis and treatment of cancer.

Cancer prevention and screening are two of her top priorities. “In cancer prevention and control, we look at communities that need care and determine the evidence-based practices to reach them,” Dr. Pollack says. “For example, we support a national program for breast and cervical cancer screenings for women who are underinsured and use our cancer registry information to target screening and HPV immunization.” For Dr. Pollack, these kinds of public health initiatives reflect a higher level of caring that affects an entire community.

She also has a special interest: cancer survivorship. “There is a basic education and messaging out there about screening—but it’s also important to

BY LYND A RUDOLPH





COURTESY OF IORI A. POLLACK, MD '99, MPH

encourage the medical community to look at the needs of people after cancer.” Dr. Pollack has been involved in helping define the role of public health for cancer survivors.

Dual-board-certified in internal medicine and general preventive medicine, Dr. Pollack has additional training in the CDC’s Epidemic Intelligence Service (EIS), on policy, management, and program evaluation. Although she has a desk job regarding cancer, Dr. Pollack can also be called to work when there’s a disease outbreak or after a natural disaster. “Everyone’s on alert now for Zika,” she says, adding, “I had a role in Ebola for preparing U.S. hospitals in

“Because Rutgers is very skills-based and offers quality public education in a state that’s diverse racially, linguistically, and economically, I received an educational experience that isn’t available at most private schools.”

the event of domestic outbreak.” She has also been deployed after hurricanes to monitor special-needs shelters, provided expertise at CDC’s call center to assist doctors around the United States in identifying the SARS

virus and acquiring cultures, and was part of the preparedness team when the West Nile virus was first identified in Louisiana.

Dr. Pollack emphasizes the fact that the CDC is the scientifically sound organization that makes decisions and recommendations affecting everyone. Since she first arrived to work for the CDC in Atlanta, she’s seen the organization grow in its ability to meet responses with public health preparedness. “They have to monitor, mobilize, and evaluate, always keeping a finger on the pulse of modern medicine and policies—and provide timely, sound information for Congress to make decisions,” she explains.

Looking back on her decision to attend Rutgers, Dr. Pollack feels that diversity was one of the biggest benefits. “Because Rutgers is very skills-based and offers quality public education in a state that’s diverse racially, linguistically, and economically, I received an educational experience that isn’t available at most private schools.” You could make the case that her decision contributed to the work she does to improve the health of millions. **M**



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**Adam B. Landman, MD '04:****Advancing Patient Care through Health Information Technology***—Continued from page 41*

team, ensuring privacy for business and research data as well as patient information. He coordinates with enterprise teams running the hospital's computer systems serving more than 20,000 employees. Over the past three years, Dr. Landman also helped implement Partners eCare, an electronic health records system that links all administrative and patient information for Partners HealthCare, the multispecialty, multiple-site, clinical care group cofounded by BWH and Massachusetts General Hospital.

Clinical informatics is now an American Board of Preventive Medicine subspecialty, says Dr. Landman, who created and serves as program director of the two-year Partners Clinical Informatics and Innovation Fellowship. The program is open to physicians from all medical specialties, accepting one fellow each year and attracting many more. "One of the best things about clinical and biomedical informatics is working with colleagues in all fields, with a common goal: HIT innovation," says Dr. Landman, adding, "The program's first fellow is from palliative care, and the second is from internal medicine."

**"The Fun Stuff":  
The Innovation Hub and Hackathons**

**A**nd that brings us to the fun stuff," says Dr. Landman. "Brigham and Women's has always been a leader in information technology. We want to be the digital hospital of the future." In 2013, he helped

establish the Brigham Innovation Hub (iHub) group, with a mission to "disrupt traditional medicine and reinvent health care."

The hugely successful initiative explores, nurtures, and supports ideas proposed by clinicians, scientists, and staff of the hospital and Partners HealthCare. With the goal of disseminating ideas that match the dual mission of disruption and

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innovation, iHub helps inventors find tangible ways develop their ideas, from software creation, to finding partners and collaborators, to converting their ideas into new products and services that improve patient experiences and health outcomes.

Dr. Landman has “a careful, conservative edge,” says Lesley K. Solomon, executive director, Brigham Innovation Hub. Dr. Landman's approach works well for iHub, which constantly proposes ideas that are beyond a hospital's normal comfort zone. “While we have great top-down support from the administration,”

says Solomon, “they know that when Adam suggests something, he has thought it out carefully, and he and the inventor have looked at the idea from every possible vantage point.”

Within two months of its establishment, iHub had sponsored the first “Hackathon,” a public event focused on brainstorming, innovating, and building solutions. Starting with raw ideas, interdisciplinary teams spent a creative weekend “hacking,” devising, and even naming products or services that would address current clinical challenges. Projects that have been supported by iHub include Volaytix, which builds on airport bomb-detection technology to create a breathalyzer device that can detect aspergillosis, a common but potentially fatal fungus.

“One of my favorites,” says Dr. Landman, “evolved from a surgeon's need for a hands-free paging system that would permit two-way communication from the OR.” The product that evolved is modeled on the Amazon Echo, a voice-controlled device that can be set for cross-room voice recognition, responds to orders, and answers questions.

“Adam is a really good, thoughtful soul, and he's a great connector,” says Solomon. “He's the best-qualified person I can imagine for this job—one of the smartest people I've ever worked with—and has an amazing breadth of abilities.” The spirit of Adam Landman's full-time firefighter is alive and well at BWH, saving lives, devising solutions, and helping to lead health care into the future. **M**

**Antonia Chen, MD '08, MBA:****A Young Leader for a New Generation in Health Care***—Continued from page 37*

As an applicant to Robert Wood Johnson Medical School, Dr. Chen was attracted by the opportunity to earn a dual degree: a master's in business administration in addition to a medical degree. "Health care was going in new directions at the time—including . . . a shift toward an increasing number of physician leaders on the administrative side of hospitals and health care systems," she says.

our patients get up and walk on the same day as their surgery," says Dr. Chen. She found this subspecialty particularly rewarding and realized that Dr. Tria had inspired her to pursue a career in academic orthopedics.

An outstanding medical student, Dr. Chen was elected to the Alpha Omega Alpha Honor Medical Society and received numerous awards at graduation. She completed her residency in orthopedic surgery under Freddie H. Fu, MD, David Silver Professor and chair, Department of Orthopaedic Surgery, University of Pittsburgh School of Medicine, where she pursued her interest in hip and knee replacement.

During her residency, she also developed an interest in researching periprosthetic joint infections (infections around a prosthetic joint), which she further explored in a one-year fellowship in adult reconstruction at the Rothman Institute. After graduation, Dr. Chen was invited to stay on as faculty and is now in her second year as an attending physician.

Only 4 percent of practicing orthopedic surgeons are women, and the percentage of women in academic orthopedic surgery is even smaller. "When I meet

patients in clinic, some don't believe that I'm the surgeon," Dr. Chen says. Always an athlete—tennis and swimming in high school, tae kwon do in college—she maintains the physical strength required in her specialty and has learned to use leverage to provide the force needed to perform her surgeries.

### **Independent Research: Combating Periprosthetic Infection**

As a third-year medical student, Dr. Chen was accepted into the Distinction in Research (DIR) program at Robert Wood Johnson Medical School, then in its pilot phase. To complete her self-designed research project, she spent a year that she describes as "enlightening," studying DNA damage in cartilage at Duke University School of Medicine.

Today at the Rothman Institute, Dr. Chen devotes half her time to her original research. She spends part of her time studying tissue stiffness (arthrofibrosis) after surgery with a collaborative group at Sidney Kimmel Medical College called the Scientific Consortium for Arthrofibrosis Research (SCAR). Her other work focuses on the diagnosis and treatment of periprosthetic joint

infections (PJI). Although PJI is a relatively uncommon occurrence, it can be devastating, as it often necessitates additional surgery and can even result in the loss of a limb.

The rate of PJI at Rothman has been reduced to 0.5 percent, but the goal is to improve treatment when infection does occur and, ultimately, to prevent it entirely. Postoperative diagnosis of PJI relies on multiple tests, including the identification of serum biomarkers found in most inflammatory conditions. Dr. Chen intends to provide a more accurate means of recognizing or ruling out infection by identifying biomarkers that are specific to PJI.

In addition, she seeks to identify conditions that raise the risk of PJI—including obesity, a history of smoking, malnutrition, and diabetes. This knowledge would alert surgeons to their patient's heightened risk and allow them to take preventive steps, when possible. In recognition of Dr. Chen's research and her leadership in the field, her colleagues in the Musculoskeletal Infection Society have elected her to serve as president from 2017 to 2018.

"Dr. Chen's broad intellect and original research quickly earned international recognition," says Dr. Rothman. She is the author of more than 85 peer-reviewed research publications, two books, and 24 textbook chapters. In addition, she has presented more than 200 podium and poster presentations and earned multiple awards for her research, beginning in her years as a medical student.

Her published work includes *The Little Ortho Book: The Bare Bones of Orthopedics*, a pocket-size introduction to the world of orthopedics.



Written with the nonphysician in mind, the book is designed as a resource for residents, medical students, front office staff, and patients.

### An MBA Provides Valuable Insights into 21st-Century Medical Practice

As an applicant to Robert Wood Johnson Medical School, Dr. Chen was attracted by the opportunity to earn a dual degree: a master's in business administration in addition to a medical degree. "Health care was going in new directions at the time—including better regulation of drug prices and a shift toward an increasing number of physician leaders on the administrative side of hospitals and health care systems," she says.

She was accepted into the MBA program during her first year, and the following summer, she began taking courses at the Rutgers School of Business, the first phase of the 15-month program. "By the end of the program, we definitely returned to our medical training with a more balanced appreciation for the field," says Dr. Chen, who was elected to Beta Gamma Sigma, the leading honor society in business education.

### A Humanist in Academic Medicine

At the Rothman Institute, Dr. Chen teaches medical students, residents, and fellows, doing half of the instruction hands-on in the operating room. "I had thoughtful teachers who provided me with a fantastic education and mentors who support-

ed my career," she says. "I enjoy teaching, and I want to give back."

Dr. Chen has been active in Jefferson's comprehensive curriculum redesign, which currently focuses on the Year-4 musculoskeletal track. It will allow fourth-year students interested in musculoskeletal medicine to do specific rotations that provide more relevant exposure to the field. The new curriculum may make some students eligible to graduate in December, begin their internships immediately, and shorten their medical training by a year.

Through the University of Delaware-based Perry Initiative, Dr. Chen also works with women undergraduates and medical students who are interested in a career in engineering and/or orthopedics. In addition to offering hands-on experience, this innovative program provides a professional network in areas of science where women role models can be difficult to find.

While still a resident in orthopedics, Dr. Chen received the Arnold P. Gold Foundation Humanism and Excellence in Teaching Award, recognizing her commitment to teaching and compassionate treatment of patients and their families, as well as students and colleagues. These same qualities inspired Dr. Chen to seek her MBA, says Dr. Rothman, and they continue to energize her today. "Not only does she have a spectacular intellect," he says. "She is also a humanitarian leader, who is devoted to people of all social strata and wants to improve health care access for everyone." **M**

### What's New? Your fellow alumni want to know!

Please send your professional and personal news and photos to: Jillian Prior, *manager of alumni affairs*, at [jillian.prior@rwjms.rutgers.edu](mailto:jillian.prior@rwjms.rutgers.edu). In addition to updates we receive from alumni, we also use public news information and stories to share in our class notes section.

#### 1974

**Robert Eidus**, founding president of the Vanguard Medical Group in Cranford, was presented with the New Jersey Academy of Family Physicians Chair Award. The Chair Award is presented to a person who has dedicated a lifetime of service to both the academy and the specialty of family medicine.

#### 1982

**Richard Friedman** is the director of psychopharmacology and a professor of clinical psychiatry at New York Weill Cornell Medical Center. Dr. Friedman has also served as a writer for the Science Times section of the *New York Times* since 2002 and recently became a contributing opinion writer.

#### 1986

**Joseph Costabile**, a general and vascular surgeon at the Virtua Surgical Group, was elected as the 224th president of the Medical Society of New Jersey (MSNJ). He has served as a member of MSNJ's Board of Trustees since 2009.

#### 1987

General and vascular surgeon **Peter Pappas** will oversee the newest office, in Union, of the Center for Vein Restoration, the nation's largest physician-led medical organization for vein treatment. He also oversees the Basking Ridge office.

—Continued on page 48

# C L A S S NOTES

—Continued from page 47

**1989**

**Robert Mancuso** practices otolaryngology at the Tahoe Forest MultiSpecialty Clinic in Truckee, Calif.

**1990**

**Peter Sayre** is the executive director of the Immune Tolerance Network's Clinical Trials Group in Seattle. He oversees a medical and operations staff dedicated to protocol development and clinical aspects of trial implementation.

**1991**

**Bryan Massoud**, an orthopedic surgeon in New Jersey, founded Spine Centers of America. He was selected as one of the Top 100 Spine Surgeons and Specialists in America by *Becker's Orthopedic & Spine Review*.

**James Shenko**, a surgeon, joined the team at Nashoba Valley Medical Center's newly opened Center for Hand and Plastic Surgery in Ayer, Mass.

**1993**

**Steven Ludwig** received a 2016 Spine Surgeon Leadership Award from Becker's Healthcare. He is the head of the spine surgery division in the orthopedics department at the University of Maryland Medical Center and a professor of orthopedics at the University of Maryland School of Medicine in Baltimore.

**1995**

**Albert DeNittis**, medical director of radiation oncology at Cape Regional Medical Center in Cape May Court House, was named 2016 Top Doctor by *Philadelphia* magazine for the fifth consecutive year.

**1998**

**Ronny Drapkin** was elected in 2016 to the American Society for Clinical Investigation, an honor society of more than 3,000 interdisciplinary physician-scientists. Dr. Drapkin is the Franklin Payne Associate Professor of

Pathology in Obstetrics and Gynecology and director of the Penn Ovarian Cancer Research Center in Philadelphia.

**2002**

**Seth Bokser** of the University of California, San Francisco, has been appointed chief medical officer and chairman of Oneview Healthcare's International Advisory Board.

**Anthony Caterina** practices at Orchard Park Pediatrics in Orchard Park, N.Y.

**2004**

**Michael Gillespie** is a general surgeon at MedStar Southern Maryland Hospital Center.

**2005**

**Jeff Leary** is an orthopedic surgeon at the North Jersey Orthopaedic Group in Milburn. He shares, "I love being able to restore patients' mobility and independence; to give patients, who are truly incapacitated by joint pain, their life back," (*Vicinity Magazine*, February 2016).

**2006**

**Heather Ann Wasserstrom**, pediatric oncologist at Eli Lilly in Bridgewater, married Gregory Livshitz in Newport, R.I., in July.

**2007**

**Esi Rhett**, anesthesiologist at the McGovern Medical School, University of Texas, Houston, is featured in an upcoming photo-essay book, *Against All Odds: Celebrating Black Women in Medicine*.

**2008**

**Abhishek Aphale** has been appointed assistant professor of dermatology at the Fox Chase Cancer Center in Philadelphia. He specializes in Mohs surgery and reconstruction, as well as cutaneous oncology.

**Jennifer Vazquez-Bryan** opened the Altucare Primary Medical Care practice in Middletown, N.Y.

**2009**

**Adam Strohl** has joined the team at the Philadelphia Hand Center as its first plastic surgery-trained hand and upper extremity surgeon.

**2010**

**Bradford Jan Chi** completed his residency at New York University School of Medicine and will be practicing pediatric cardiology at the Children's Heart Clinic in Minneapolis. He was recently married to April Kristine Reiersen in New York.

**2012**

**Thomas Cudjoe**, a postdoctoral fellow at Johns Hopkins University School of Medicine, was selected to join Culture of Health Leaders, a new program jointly led by the National Collaborative for Health Equity and CommonHealth ACTION.

**2013**

**Steven San Filippo** graduated from the Hunterdon Medical Center Family Medicine Residency Program in May and has entered family practice at Raritan Family Health Care in New Jersey.

**2016**

Recent graduate, **Caroline Na**, started her residency in the family medicine program at JPS Health Network in Tarrant County, Texas. She is interested in working with underserved communities in developing a culture of health to encourage healthy lifestyles and practices.

## In Memoriam

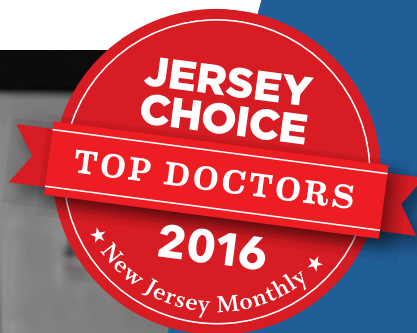
**Joseph Zawadsky**, founder of the orthopedic surgery residency at Rober Wood Johnson Medical School, passed away in June 2016 in Princeton, N.J.





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