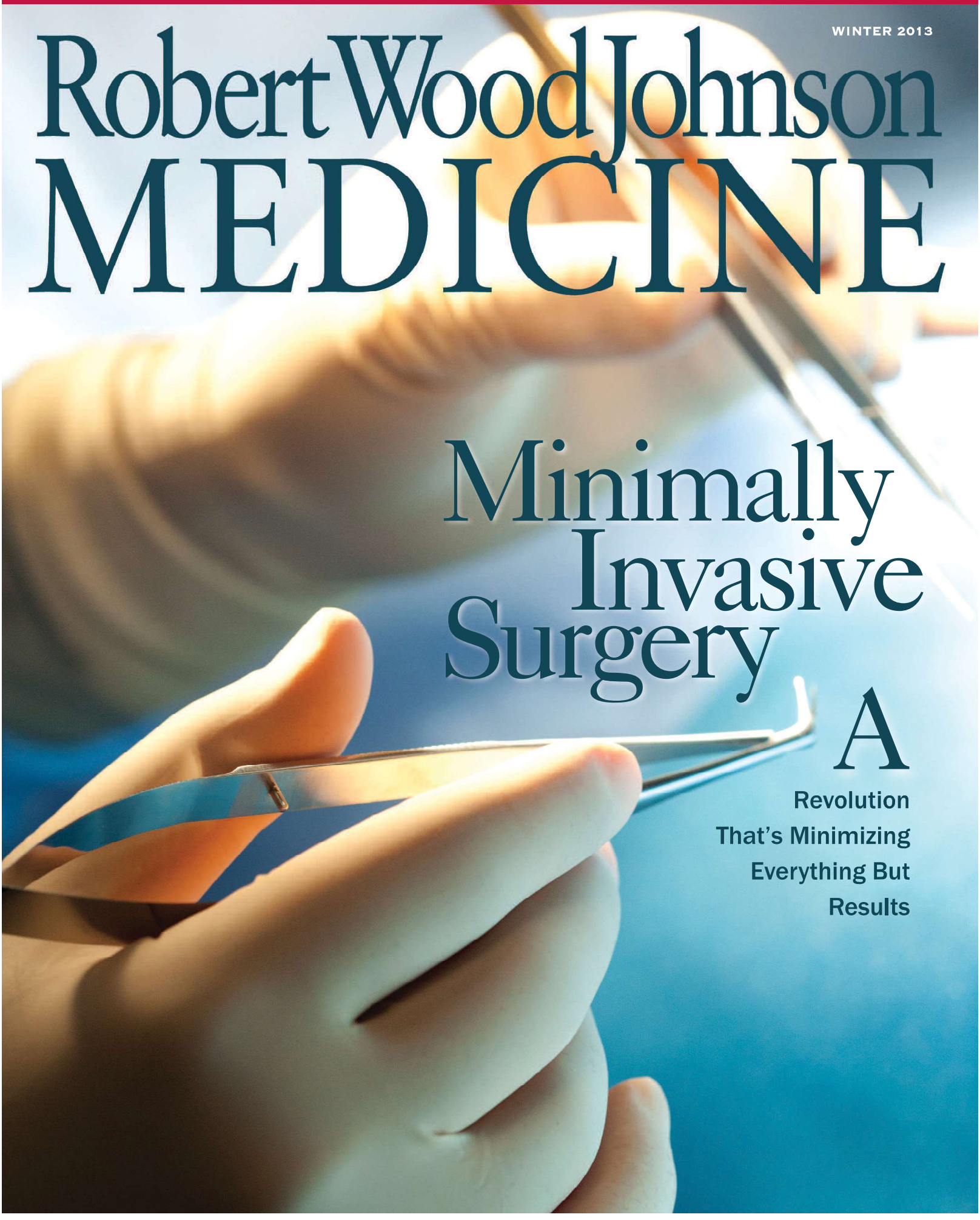
A PUBLICATION FOR ALUMNI & FRIENDS OF UMDNJ-ROBERT WOOD JOHNSON MEDICAL SCHOOL

WINTER 2013

Robert Wood Johnson MEDICINE



Minimally Invasive Surgery

A Revolution That's Minimizing Everything But Results



UMDNJ
ROBERT WOOD JOHNSON MEDICAL SCHOOL
University of Medicine & Dentistry of New Jersey

The Foundation for Healthcare Advancement
A New Jersey Health Affiliate

Save the Date!



Robert Wood Johnson Medical School and The Foundation for Healthcare Advancement Invite You to Attend the

3rd Annual Scholarship *Gala*

to Celebrate with Alumni and Friends



Saturday Evening ■ April 27, 2013 ■ 7:00 p.m.
The Heldrich ■ New Brunswick, NJ

Celebration of the following Anniversary Classes:

45th: 1968 30th: 1983 15th: 1998
40th: 1973 25th: 1988 10th: 2003
35th: 1978 20th: 1993 5th: 2008

All proceeds will support student scholarships.

For additional information, please call: 732-235-5810
or Email: evansje1@umdnj.edu

2013 Gala Honorees:

MERITORIOUS SERVICE AWARD
The Honorable Thomas H. Kean

DISTINGUISHED ALUMNI AWARD
Grace Chang, MD '82
Professor of Psychiatry
Harvard Medical School

HONORARY ALUMNI AWARD
John B. Kostis, MD
Professor of Medicine
Founding Director of the Cardiovascular Institute of New Jersey
Robert Wood Johnson Medical School

LETTER FROM THE DEAN

Dear Colleague,

This issue of *Robert Wood Johnson Medicine* spotlights several of our most important and innovative clinical programs. Our newest interdisciplinary collaborations are enriched by state-of-the-art technology that improves patient care and ensures the strength of our academic programs.

The cover story, *A Revolution in Surgery That's Minimizing Everything but Results,* introduces our readers to the superb clinicians who perform the latest minimally invasive procedures, across a broad, multi-departmental spectrum. We are proud that the Minimally Invasive Program at Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital (RWJUH) centralizes extensive resources, serving as a hub for our surgeons and their patients.

Interventional Oncologists Are Creating Fire and Ice to Improve Cancer Patients' Chances reports on a new treatment area led by the Department of Radiology. Multi-disciplinary teams lend specialized expertise to procedures using image-guided heat, cold, and internal radiation to treat certain types of cancer. Research at the interdepartmental Center for Biomedical Imaging and Informatics at RWJMS and The Cancer Institute of New Jersey indicates that this novel, minimally invasive approach is extending the lives of people with cancer.



JOHN EMERSON

The Institute for the Study of Child Development brings our readers up-to-date on this 30-year-old center. In pioneering research, the institute's scientists have studied children across the socio-economic spectrum, children from infancy through adolescence, children with developmental disabilities, healthy children, gifted children — all with the goal of better understanding the relationship between children's behavior and their brain function.

Transforming Transplant Care describes the Transplant Center at RWJMS and RWJUH. The center consolidates the administration, clinical operations, and transplant-related research of the Kidney and Pancreas Transplant Center and the Advanced Heart Failure and Transplant Cardiology Program. Thanks to a concerted effort by the center's staff, organ donation has increased, helping our programs to keep pace with growing demand for transplantation.

A new tradition at RWJMS, the annual Scholarship Gala, brings together alumni, faculty, staff, students, and friends from throughout the medical community to celebrate RWJMS. Its success is reported in *The Second Annual Gala Raises $213,000 in Scholarship Support.* The 2013 Gala is scheduled for Saturday evening, April 27, 2013.

Please enjoy this issue of *Robert Wood Johnson Medicine.*

Sincerely,

Peter S. Amenta, MD, PhD

Peter S. Amenta, MD, PhD
Dean

The Foundation for Healthcare Advancement

A New Jersey Health Affiliate

With change comes opportunity. And **now** is the perfect time…

Introducing the Foundation for Healthcare Advancement.

New Jersey Health Foundation is proud to introduce the **Foundation for Healthcare Advancement**, an independent, not-for-profit, 501(c)(3) organization that has been incorporated specifically to facilitate our continued ability to accept and distribute financial support for Robert Wood Johnson Medical School (RWJMS) and other UMDNJ entities.

Why a new foundation?

The bylaws of the Foundation of UMDNJ allow the Foundation to raise funds ONLY for UMDNJ. The **Foundation for Healthcare Advancement**, whose tax exempt status was effective February 2012, encompasses the same mission as the Foundation of UMDNJ—to solicit private sector support to enhance research, education and healthcare programs for specific schools and programs, including all those affiliated with RWJMS, regardless of where in New Jersey they reside.

And as in the past, 100 percent—every dollar—of every donor gift given to the **Foundation for Healthcare Advancement** will go directly to those areas specified by our donors.

For more information about the **Foundation for Healthcare Advancement** and how we might work with you to support programs and services offered through Robert Wood Johnson Medical School, please continue to contact Denise Gavala, vice president for development, at **(908) 731-6595** or **dgavala@njhf.org**.

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A New Jersey Health Affiliate

WINTER 2013

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Robert Wood Johnson MEDICINE

A PUBLICATION FOR ALUMNI & FRIENDS OF ROBERT WOOD JOHNSON MEDICAL SCHOOL

Winter 2013 • Volume 13, Number 2

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The Transplant Center is fast becoming a world-class hub for lifesaving transplant services and research. It consolidates the clinical operations and research of the Kidney and Pancreas Transplant Center and the Advanced Heart Failure and Transplant Cardiology Program.
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Minimally invasive procedures in virtually every specialty are reinventing how surgery is performed and inspiring an innovative new surgical program.
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The Institute for the Study of Child Development: Understanding Typical Children to Help Those Who Aren't 29



Studying the challenges that children face — physical, behavioral, emotional, and environmental — drives a dedicated group of scientists and clinicians to look for answers.
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Interventional Oncologists Are Creating Fire and Ice to Improve Cancer Patients' Chances 34

Using radiofrequency ablation, cryoablation, and radioembolization, interventional radiation oncologists are treating tumors in groundbreaking new ways.
By Lynda Rudolph

The Second Annual Gala Raises $213,000 in Scholarship Support 39

Alumni, faculty, students, and friends gathered for an elegant event that provided the ideal opportunity to celebrate the medical school's past, present, and future while raising significant new scholarship funds.
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Kathryn L. Holloway, MD '84: At the Forefront of Neurosurgery for Movement Disorders 46

An empathetic clinician and inventive scientist, Dr. Holloway helped initiate more effective therapies for movement disorders and recently led the development of NexFrame, a lightweight device used in deep brain stimulation.
By Kate O'Neill

Robert Eidus, MD '74: Pledged to the Reinvention of Family Practice 48

The multi-dimensional Dr. Eidus has served as a teacher, managed care executive, entrepreneur, and clinician — always seeking sound ways to reinvent family practice as patient-centered medicine.
By Kate O'Neill

RWJMS NEWS



NICK ROMANENKO

Governor Christie Signs Act Restructuring Medical and Health Sciences Education

On August 22, Governor Chris Christie signed into law the New Jersey Medical and Health Sciences Education Restructuring Act. Effective July 1, 2013, the act transfers the schools, institutes, centers, and facilities of the University of Medicine and Dentistry of New Jersey (UMDNJ), excluding the University Hospital in Newark and the School of Osteopathic Medicine, to Rutgers, The State University of New Jersey.

Transition activities are under way to accomplish the goals of the new act. Functional and operational teams, with leadership including Rutgers and UMDNJ faculty and administrators, have launched the yearlong transition process. Integration teams will identify issues and set forth work plans, goals, and objectives to ensure that operational integration is achieved by July 1, 2013.

— *K.O'N.*

Above: Governor Chris Christie (seated) signed the New Jersey Medical and Health Sciences Education Restructuring Act into law on August 22. Standing, left to right: James M. Cahill, mayor, New Brunswick; Denise V. Rodgers, MD, president (interim), UMDNJ; Robert S. DiPaola, MD, professor of medicine and associate dean for oncology programs, Robert Wood Johnson Medical School (RWJMS), and director, The Cancer Institute of New Jersey; Sheila Oliver, speaker, New Jersey State Assembly; Peter S. Amenta, MD, PhD, dean, RWJMS; Richard L. Edwards, PhD, executive vice president for academic affairs, Rutgers, The State University of New Jersey; Donald Norcross, assistant majority leader, New Jersey State Senate; and Stephen Sweeney, president, New Jersey State Senate.

White Coat Ceremony: Welcoming a New Class and Dedicating Colleges

The White Coat Ceremony is the grand finale of Orientation Week. This year's event, themed "Lighting the Way for a New Generation of Physicians," took on added significance with the dedication of the three colleges that make up the new College Advising Program.



STEVE HOCKSTEIN

The colleges, which interconnect the RWJMS community — students, faculty, and alumni — are named for three revered teachers who passed away in recent years: **Pamela Champe, PhD**; **Parvin Saidi, MD**; and **Robert Trelstad, MD**. Three current faculty members spoke at the event: **Pamela Brug, MD '89**, assistant professor of obstetrics, gynecology, and reproductive sciences, who was mentored by Dr. Champe; **Serena Wong, MD**, clinical assistant professor of medicine, a former hematology/oncology fellow whom Dr. Saidi mentored; and **Peter D. Yurchenco, MD, PhD**, professor of pathology and laboratory medicine and chief, division of experimental pathology, who was recruited to the department by Dr. Trelstad in 1984. Families of the honorees traveled, many from a great distance, to be present at the dedication.

Following tradition, the ceremony concluded with the new class being helped into their white coats by faculty members and then reciting the Hippocratic Oath, led this year by **Peter. S. Amenta, MD, PhD**, dean.

— *K.O'N.*

Appointments

By Kate O'Neill

Evan Cadoff, MD, professor of pathology and laboratory medicine, has been appointed chair of the Department of Pathology and Laboratory Medicine. Dr. Cadoff had served as interim chair since 2008. He was instrumental in the state's awarding of the HIV Rapid Testing Grant to the department and has served as the grant's principal investigator since 2003. He became laboratory director of the State of New Jersey Public Laboratory in 2008.



JOHN EMERSON

Evan Cadoff, MD

Dr. Cadoff is co-chief of service at Robert Wood Johnson University Hospital. He has also served as the laboratory director at University Diagnostic Laboratories, Children's Specialized Hospital, and University Behavioral HealthCare. He joined the RWJMS faculty in 1989 as assistant professor of clinical pathology in the Department of Pathology and Laboratory Medicine. He was appointed professor in 2006.

Dr. Cadoff received his bachelor of science degree from Yale University and his MD degree from the State University of New York at Stony Brook. He holds a master of science degree in computer science from Polytechnic University, in Brooklyn, and an MBA in finance from Rutgers, The State University of New Jersey. He completed his family medicine internship at Franklin Square Hospital, in Baltimore, and his residency in clinical pathology at University Hospital, Stony Brook, where he was chief resident.

Patricia Whitley-Williams, MD, professor of pediatrics, was appointed chair of the Department of Pediatrics. Dr. Whitley-Williams, who is physician-in-chief at The Bristol-Myers Squibb Children's Hospital at Robert Wood Johnson University Hospital, had served as interim chair since 2007 and was chief of the division on pediatric infectious diseases.

Dr. Whitley-Williams received her MD degree from the Johns Hopkins University School of Medicine and completed her residency training in pediatrics at the Children's Hospital Medical Center, University of Cincinnati School of Medicine. She completed a research fellowship in pediatric infectious diseases at the Boston University School of Medicine (BUSM), The Maxwell Finland Laboratory of Infectious Diseases, and Boston City Hospital. Prior to joining the RWJMS faculty, she held academic and clinical appointments at BUSM and Morehouse School of Medicine, in Atlanta, where she was interim chair of the Department of Pediatrics from 1990 to 1993.



JOHN EMERSON

Patricia Whitley-Williams, MD

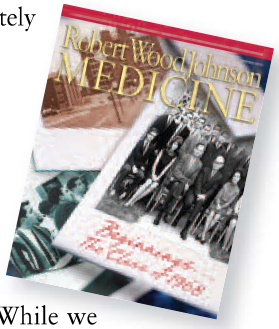
Dr. Whitley-Williams's interests include pediatric HIV infection and AIDS, tuberculosis in children, and childhood immunization. She participated in the development of the national guidelines for the reduction of perinatal HIV transmission, as a member of the Department of Health and Senior Services/Public Health Service Perinatal HIV Guidelines Working Group.

Among Dr. Whitley-Williams's numerous honors and awards is the Leonard Tow Humanism in Medicine Award, received in May 2006. She is chair of the National Board of Medical Examiners' United States Medical Licensing Examination Step 3 Computer-Based Case Simulation Test Material Development Committee. She also has editorial and review responsibilities for several journals, and she serves on multiple grant review and national committees and scientific advisory panels.

Letters

Dear Editor:

I just finished reading the Spring 2012 issue of *Robert Wood Johnson Medicine* and was immediately taken back to those wonderful four years I spent in our new facilities in Piscataway. While we were well aware of the two-year students who had been coming the previous four years, from 1966 to 1970, those of us who arrived at those brand new buildings in September of 1970 will always think of our class as the "first," most likely because we were the first MD graduates of Rutgers Medical School (RMS) in 1974. Three has always been my lucky number, and I have such fond memories of being the third person to ever receive an MD degree from RMS (after my classmates Davill Armstrong and Art Becan claimed the first two).



Now, as I contemplate my 40th anniversary coming in 2014, the article has brought back all of the wonder, joy, excitement, and stress of the first day I walked into the Great Hall, ascended the stairs, and walked into our new lecture halls, anatomy labs, and multi-purpose classrooms.

Thank you so much for that!

Best wishes,
Mark Bloomberg, MD
Class of 1974

R W J M S

NEWS

New York Ranks RWJMS Physicians among "Best Doctors"

The 2012 *New York* magazine list of "Best Doctors" includes the following full-time RWJMS faculty members:

- Joseph G. Barone, MD '87: *Urology*
- Richard A. Drachtman, MD: *Pediatric Hematology/ Oncology*
- Michael Gochfeld, MD, PhD: *Occupational Medicine*
- Alan M. Graham, MD: *Vascular Surgery*
- Bruce Haffty, MD: *Radiation Oncology*
- Howard M. Kipen, MD: *Occupational Medicine*
- Soula Koniaris, MD: *Pediatric Gastroenterology*
- Leonard Y. Lee, MD '92: *Thoracic and Cardiac Surgery*
- Ian Marshall, MD: *Pediatric Endocrinology*
- John Nosher, MD: *Vascular and Interventional Radiology*
- Michael Nosko, MD, PhD: *Neurological Surgery*
- Barbara K. Snyder, MD: *Adolescent Medicine*
- Lynne Weiss, MD: *Pediatric Nephrology*
- Robert E. Weiss, MD: *Urology*
- Jan Wollack, MD, PhD: *Child Neurology*

Basic Science Departments Reorganize Following Task Force Recommendations

Following a ballot of the RWJMS faculty, the UMDNJ Board of Trustees reviewed and approved the recommendations of the Laboratory Research Task Force. Restructuring, the core of the recommendations, produced five departments with a major basic science research component: three reorganized departments — Pharmacology, Neuroscience and Cell Biology, and Biochemistry and Molecular Biology — plus Pathology and Laboratory Science and Environmental and Occupational Medicine.

"Our chairs are meeting and working together to capitalize on the new opportunities provided by departmental reorganization," says Terri Goss Kinzy, PhD, interim senior associate dean for research, senior associate dean, UMDNJ-Graduate School of Biomedical Sciences at RWJMS, and professor of biochemistry and molecular biology.

"The reorganized departments align scientific foci while supporting graduate education and the new curriculum of the medical school, reflecting the move toward interdisciplinary research and education and an integrated curriculum," she says. "The reorganization will strengthen research at RWJMS by facilitating collaboration among our basic science departments, clinical departments, and institutes.

"We understand that reorganization means a major change but appreciate that everyone is committed to making it successful," adds Dr. Kinzy. "Interestingly, other medical schools have contacted us to learn more about our experience. Like us, they are looking at restructuring that supports new directions in research and education." — *K.O'N.*

EOHSI Celebrates 25 Years of Leadership in Environmental Health and Science

In celebration of its 25th anniversary, the Environmental and Occupational Health Sciences Institute (EOHSI) presented a daylong symposium, "Environment and Health: The Next 25 Years."

Keynote speakers included Ralph Izzo, president and CEO, PSE&G, and Anthony DePalma, scholar-in-residence, Seton Hall University, and former environmental reporter at *The New York Times*. Throughout the daylong event, experts in environmental health from Robert Wood Johnson Medical School and Rutgers, The State University of New Jersey, discussed the progress of environmental science during the past 25 years. Their comments highlighted the achievements at EOHSI that have led to healthier and safer communities throughout the tri-state area and across the country.

— *K.O'N.*



The Department of Environmental and Occupational Medicine at RWJMS, left to right: Michael Gallo, PhD, adjunct professor; Howard Kipen, MD, MPH, acting chair; Paul Lioy, PhD, professor; Bernard Goldstein, MD, clinical professor and former director; New Jersey Senator Bob Smith; Joanna Burger, PhD, professor of life sciences at Rutgers; Robert Snyder, PhD, associate dean for research, Ernest Mario School of Pharmacy at Rutgers; Michael Gochfeld, MD, PhD, professor; Michael Greenberg, PhD, professor and associate dean of the faculty, Edward J. Bloustein School of Planning and Public Policy at Rutgers; and Kenneth Reuhl, PhD, professor at Rutgers and interim director of EOHSI.

NEW Faculty MEMBER Profile

Leonard Y. Lee, MD '92: A New Chief of Cardiothoracic Surgery — A New Vision for the Future

By Lynda Rudolph



JOHN EMERSON

Leonard Y. Lee, MD '92

For **Leonard Y. Lee, MD '92**, recently named associate professor of surgery and chief, division of cardiothoracic surgery, at Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital, relocating to this area is somewhat of a homecoming. In addition to the medical degree that Dr. Lee received at RWJMS, his wife, Min Kwon, is an associate professor of music at Mason Gross School of the Arts at Rutgers, The State University of New Jersey.

Dr. Lee sees his move here as a sign of a new beginning both for him and for the surgical program. "We are a formidable force in the state and are poised to compete with the major institutions in both Manhattan and Philly," he says. "I came to build upon what's here and to compete within those major marketplaces."

The new division chief is no stranger to academic medicine. His research fellowship took place at New York-Presbyterian/Weill Cornell Medical Center. He pursued his clinical cardiothoracic fellowship there, as well as at the Memorial Sloan-Kettering Cancer Center. He also served as director of the Cardiac Surgery Program and chief, division of cardiothoracic surgery, at New York Methodist Hospital, part of New York-Presbyterian Hospital/Cornell Heart Center. Most recently, Dr. Lee was chief, division of cardiac surgery, and surgical director of the Heart and Vascular Hospital at Hackensack University Medical Center.

He is a fellow of the American College of Cardiology, American College of Chest Physicians, and the American College of Surgeons, as well as a member of all the major cardiothoracic and cardiological societies. He has been named one of America's Top Surgeons by the Consumer Research Council of America and Top Doctor–New York Metro Area by Castle Connolly.

Dr. Lee performs all aspects of adult cardiac surgery, including minimally invasive valve repair and replacement; thoracic aortic aneurysm repair, including stent grafting; percutaneous aortic valve replacement; and coronary artery bypass surgery.

His goal is to push the envelope. Along with continuing the current minimally invasive heart valve repairs and stents as well as treatments for thoracic aneurysms — including the new trans-catheter aortic valve repair, or TAVR — Dr. Lee is passionate about driving progress and change in all channels. "Sticking to tried methods yields proven results. But you can have excellent results with new procedures as well — particularly with less invasive techniques," he says.

Dr. Lee has also been involved in heart disease clinical research trials to produce what he calls a "biologic bypass" of the heart using gene therapy. "The idea is to engineer viruses to deliver DNA to cells to reprogram them," he says. His work has been published in peer-reviewed journals and included in contemporary medical textbooks.

Dr. Lee also feels that stem cell-related research has future applications in cardiology and cardiac surgery. "Potentially, stem cells could be used to assist in cardiac repair during cardiac surgery, to decrease the amount of heart muscle lost during an acute myocardial infarction, and to augment cardiac function in patients with severely weak hearts," he says.

Most of all, Dr. Lee is looking forward to being part of a large, renowned academic health center where there are so many advantages. "The cardiac surgery program with high volume and superior quality is already here," says Dr. Lee. "We have the opportunity to have a presence on a much larger stage. It's my goal to raise that public persona nationally."

What's next? The future of cardiothoracic surgery here has yet to be written. But Dr. Lee will most certainly have a hand in it.

Volunteer Profile

FACULTY MEMBER

J. Andrew Bowe, MD: Teaching Pediatric Orthopaedics with Dedication and Compassion

By Kate O'Neill

J. Andrew Bowe, MD, clinical assistant professor of orthopaedic surgery, has taught and mentored more than 100 residents in orthopaedic surgery as well as countless medical students, nurses, and colleagues in related fields. As a pediatric orthopaedist, he extends his teaching to his young patients and their families, whom he views as partners in treatment and healing.

After earning his medical degree at the Columbia College of Physicians and Surgeons, Dr. Bowe completed two years of general surgery and a year of neurosurgery training at the University of Virginia School of Medicine. Then, with a new focus, he transferred to the combined orthopaedic surgery residency program at Tufts University School of Medicine–New England Medical Center, where he served as chief resident.

"We operated on everything including fractures, growth disturbances, and congenital abnormalities," he says. "I loved it all and wanted to do it all." However, inspired by his mentor and role model at Tufts, Seymour Zimbler, MD, now at Harvard Medical School, he chose to sub-specialize in pediatric orthopaedics.

As a resident, Dr. Bowe taught Peter Waters, MD, who serves today as John E. Hall Professor of Orthopedic Surgery at Harvard Medical School and chief of clinical orthopedics at Boston Children's Hospital. "More than anyone, Dr. Bowe was an inspiration to me," says Dr. Waters. "He was always upbeat, extremely knowledgeable, and very talented surgically. He could manage it all with apparent, reassuring ease: the long hours, the intensity of level-1 trauma surgery care, and the relationships with attendings, patients, and nurses."



STEVE HOCKSTEIN

J. Andrew Bowe, MD

Following a year at Tufts–New England Medical Center as a Berg Pediatric Orthopaedic Fellow, Dr. Bowe joined the East Brunswick–based Pediatric Orthopedic Associates. "At first, it was just Dr. Laufer and me," says Dr. Bowe, speaking of his longtime friend and associate **Samuel J. Laufer, MD**, clinical associate professor of orthopaedic surgery and chief, pediatric orthopaedics, Robert Wood Johnson University Hospital (RWJUH). The group was the first pediatric orthopaedic practice in New Jersey; now, with seven partners and a second office, in Neptune, it is the state's largest.

In 1986, Dr. Bowe was appointed clinical assistant professor of surgery at RWJMS and began his career in the orthopaedic surgery residency program. Initially, residents did their pediatric orthopaedic rotations at the Children's Hospital of Philadelphia. But as patient volume grew at RWJUH, **Joseph Leddy, MD**, then chief, division of orthopaedic surgery, asked Dr. Bowe and Dr. Laufer to organize a pediatric orthopaedic curriculum at RWJMS.

For many years, Dr. Bowe did up to 75 percent of the teaching, maintaining the pace until the group grew large enough to share the teaching responsibilities. "Diversity is good for our residents. It gives them a broader perspective," says Dr. Bowe, who continues to lead pre-dawn case-based lectures before embarking on a day of surgery and office appointments.

Many RWJUH attendings are graduates of the RWJMS orthopaedic residency program. "It's nice to see them mature and become wonderful docs," says Dr. Bowe, whose group includes two RWJMS alumni: **Steven E. Adolfsen, MD '03**, and **Thomas G. McPartland, MD '01**.

"Dr. Bowe takes a personal interest in each future orthopaedist in this program," says Dr. McPartland. "Not only has he taught volumes of clinical material, he also sets an example as an excellent physician who lives his life and practices medicine with integrity and compassion."

In 1986, Dr. Bowe and Dr. Laufer cofounded the Scoliosis Clinic at RWJUH, which soon expanded to become the Pediatric Orthopaedic Clinic. "Children love Dr. Bowe," says **Colleen Donovan, APN**, clinic coordinator. "For some of them, treatments have been painful, but they always break out in a smile when they see him."

Every member of Dr. Bowe's group is 100 percent committed to the clinic, where, regardless of insurance, children with the whole spectrum of orthopaedic conditions, from metabolic deficiencies to congenital deformities, are seen, evaluated, and provided with expert care. In addition to teaching at the Bristol-Myers Squibb Children's Hospital at RWJUH, Dr. Bowe directs several specialized clinics in hospitals and special needs schools. They include the Matheny School in Peapack, for children with developmental disabilities and the Children's Center, in Edison, for children with cerebral palsy. He has been gratified to see the depth added to the residency program by the addition of each new venue.

Research Highlights

By Kate O'Neill

Beijing Olympics Study: Short-Term Air Pollution Reduction Can Improve Health

Using the 2008 Beijing Olympics as their laboratory, UMDNJ researchers and colleagues found biological evidence that even a short-term reduction in air pollution exposure improves one's cardiovascular health. The authors believe it is the first major study to clearly demonstrate that changes in air pollution exposure affect cardiovascular disease mechanisms in healthy, young people.



WILSON RODRIGUEZ

Howard M. Kipen, MD, MPH

The results of the study appeared in the May 16 issue of the *Journal of the American Medical Association*.

The Chinese government spent $17 billion on environmental cleanup before and during the 2008 Summer Olympics, shutting down factories and limiting automobile traffic, then relaxed the regulations.

During the Olympics, with healthy, young medical workers serving as subjects, the researchers examined biomarkers for systemic inflammation and blood clotting, as well as heart rate and blood pressure. They observed statistically significant reductions in Von Willebrand factor and soluble CD62P levels among the study participants. After the Olympics, as pollution increased, the subjects' soluble CD62P and systolic blood pressure levels increased significantly.

"This study demonstrated that mechanisms in blood are thought to underlie how air pollution could actually trigger clinical events such as heart attacks and strokes," said one of the study's co-authors, **Howard M. Kipen, MD, MPH**, professor and interim chair, Department of Environmental and Occupational Medicine. "While we did not observe actual heart attacks in our subjects, the fact that they were healthy and young and showed reversibility of the changes when pollution improved strengthens the evidence for taking primary public health actions to reduce air pollution."

Study Finds Increase in Stroke among New Jersey Children

A new study, published in the June 12 issue of *Neurology*, shows an increase in the incidence of ischemic stroke among children in New Jersey. The data show a decrease in the incidence of pediatric ischemic stroke from 1994 to 2001, with an increase thereafter.



JOHN EMERSON

James S. McKinney, MD



Sampada Gandhi, MBBS, MPH

"We believe that the initial decrease in ischemic stroke is the result of better stroke prevention in children at risk, particularly in children with sickle cell disease," says **James S. McKinney, MD**, assistant professor of neurology and medical director of the Comprehensive Stroke Center at Robert Wood Johnson University Hospital, who contributed to the study.

"This is the first statewide study that examined the incidence and long-term mortality from all types of stroke in New Jersey children from one month to 19 years of age," said **Sampada Gandhi, MBBS, MPH**, instructor of medicine and primary author of the study.

The research was conducted at the Cardiovascular Institute of New Jersey at RWJMS. The finding is consistent with national trends.

Study Shows Varenicline Safe and Effective for Smoking Cessation in Individuals with Schizophrenia/Schizoaffective Disorder

A research team led by **Jill M. Williams, PhD**, professor of psychiatry, has determined that the drug varenicline (Chantix) is an effective tool in helping schizophrenics to quit smoking without causing undue harm. The study was published May 25 in the *Journal of Clinical Psychiatry*.



PETER BYRON

Jill M. Williams, PhD

"Individuals with schizophrenia/schizoaffective disorder have a greater severity of nicotine dependence and therefore require a more potent treatment plan than the general population," says Dr. Williams. The study compared smokers, all with diagnosed but clinically stable schizophrenia/schizoaffective disorder, who were randomized into either a placebo- or varenicline-treated group. At the end of the 12-week treatment period, 19 percent of participants receiving varenicline had a significantly higher abstinence rate from smoking, compared to 4.7 percent in the placebo-controlled group.

At the end of the 24-week trial, participants in the varenicline-treated group continued to show a trend of reduced cigarette use, though at a smaller rate. Most important, the study showed that the varenicline-treated group did not experience any significant changes in schizophrenia symptoms throughout the trial period.

Research Highlights

Research Grants

The National Institutes of Health made the following grants exceeding $1 million to RWJMS faculty:

- **Marc R. Gartenberg, PhD**, professor of pharmacology, a four-year, $1,800,764 competitive renewal of 2R01GM051402-17A1: "Cohesin Chromosome Architecture and Transcriptional Control."
- **Estela Jacinto, PhD**, associate professor of biochemistry and molecular biology, a five-year, $1,653,204 grant for 1R01CA154674-01A1: "Cotranslational Functions of mTOR."
- **Xiaofeng Steven Zheng, PhD**, professor of pharmacology, a five-year, $1,647,204 grant for 1R01CA166575-01A1: "Mechanism of Action by mTOR Kinase Inhibitors in colorectal cancer."

Published Research

The following is a representative sample of articles by RWJMS faculty and graduate researchers published in leading biomedical journals:

- **John B. Kostis, MD**, The John G. Detwiler Professor of Cardiology, associate dean of cardiovascular research, and founding director, The Cardiovascular Institute of New Jersey, was first author of "Association between Chlorthalidone Treatment of Systolic Hypertension and Long-term Survival," published in the *Journal of the American Medical Association* 2011: 306(23):2588–2593.
- **Robert J. Laumbach, MD '97, MPH**, associate professor of environmental and occupational medicine, and **Howard M. Kipen, MD, MPH**, professor and interim chair, Department of Environmental and Occupational Medicine and acting associate director, Environmental and Health Sciences Institute, were co-authors of "Respiratory Health Effects of Air Pollution: Update on Biomass Smoke and Traffic Pollution," published in the *Journal of Allergy and Clinical Immunology* 2012: 129(1)3–11; quiz, 12–13.
- **Huijun Luo, PhD**, a research scientist in the Department of Pediatrics, was first author of "Forkhead Box N4 (Foxn4) Activates Dll4-Notch Signaling to Suppress Photoreceptor Cell Fates of Early Retinal Progenitors," published in the *Proceedings of the National Academy of Sciences of the United States of America* 2012:109(9)E553–562. **Mengqing Xiang, PhD**, professor of pediatrics and member, Center for Advanced Biotechnology and Medicine (CABM), was corresponding author.
- **Yanmei Qi, MD, PhD**, a research fellow in the Department of Surgery, was first author of "Bnip3 and AIF Cooperate to Induce Apoptosis and Cavitation during Epithelial Morphogenesis," published in the *Journal of Cell Biology* 2012: 198(1)103–114. **Shaohua Li, MD**, assistant professor of surgery, was corresponding author.
- **Agusta Rodriguez-Granillo, PhD**, and **Srinivas Annavarapu**, researchers in the laboratory of **Vikas Nanda, PhD**, associate professor of biochemistry and molecular biology and member, CABM, were co-first authors of "Computational Design of Thermostabilizing — D-Amino Acid Substitutions," published in the *Journal of the American Chemical Society* 2011: 133(46)18750–18759. Dr. Nanda was corresponding author.
- **William G. Wadsworth, PhD**, professor of pathology and laboratory medicine, and **Gauri Kulkarni, PhD**, a researcher in Dr. Wadsworth's laboratory, were co-authors of "Hitting the Sweet Spot," published in "News and Views" in *Nature Methods* 2012:9(5):451–453.
- **Eileen White, PhD**, professor of molecular biology and biochemistry, Rutgers, The State University of New Jersey, and associate director for basic science, The Cancer Institute of New Jersey, was the author of "Deconvoluting the Context-Dependent Role for Autophagy in Cancer," published in *Nature Reviews Cancer* 2012:12(6):401–410.

Blood Bank Association Issues New Transfusion Guidelines

The American Association of Blood Banks issued new guidelines, published in the March 2012 issue of the *Annals of Internal Medicine*, recommending that transfusion of red blood cells be considered at a hemoglobin threshold of 7 to 8 g/dL for stable adults and children. This approach saves blood and reduces costs related to unnecessary transfusions.



STEVE HOCKSTEIN

Jeffrey L. Carson, MD

The new guidelines are based, in part, on the research of **Jeffrey L. Carson, MD**, the Richard C. Reynolds Professor of Medicine and chief, division of general internal medicine. Dr. Carson chaired the guideline committee and is the first author of the guidelines. The 20-member committee included specialists in cardiology, pediatrics, critical care medicine, trauma, and anesthesia.

Dr. Carson was the study chair for the Transfusion Trigger Trial for Functional Outcomes in Cardiovascular Patients Undergoing Surgical Hip Fracture Repair (FOCUS), the results of which were published in December 2011 in the *New England Journal of Medicine*.

Research Profiles

By Lynda Rudolph

Portraits by John Emerson

Sunita Gupta Kramer Studies Fruit Flies to Understand Human Heart Development

Heart development is initiated by a genetic cascade that is conserved from fruit flies to humans. Understanding the process by which the initial heart tube is formed — called heart tube fusion — is part of the work of **Sunita Gupta Kramer, PhD**, associate professor of pathology and laboratory medicine. She began her postdoctoral research in 1998 at the University of California, Berkeley, came to RWJMS in 2002, and continued her research here, working in the Department of Pathology.

The embryonic heart tube of the fruit fly is a simple, elegant, *in vivo* model that includes groups of endothelial cells arranged into a linear tube with a central lumen. In her research, Dr. Kramer has learned that there is a set of genes required to keep the luminal space open: receptors called Roundabouts. These Roundabout molecules also function during the wiring of the nervous system. In this context, the same signals are reused but in different ways to trigger development of the heart.

In her investigation of these molecules, Dr. Kramer learned that Roundabouts, through interaction with the extra-cellular signal called Slit, prevents the membranes of heart cells from coming together in specific areas, allowing for the lumen to form. In this way, Slit acts as a "stop" signal, similar to how it functions in the nervous system.

To understand how cells come together in the heart — the "go" signal in heart development — Dr. Kramer studied the 104 cells that are aligned perfectly, with 52 cells on each side, in the fruit fly's heart. In humans, the heart cells are not organized in the same way, but they come together and "find" their proper mates on the opposite side in a similar fashion.

Studying how these groups of cells are matched led to another breakthrough: the identification of a signal called Netrin, which acts as a green light to the heart cells expressing the receptor called Frazzled/DCC. The Netrin signal is thought to form a gradient in the heart, allowing for the alignment of the two rows of cells. Together, these stop and go signals allow for generating the complexity of tissue architecture required for forming organs such as the heart.

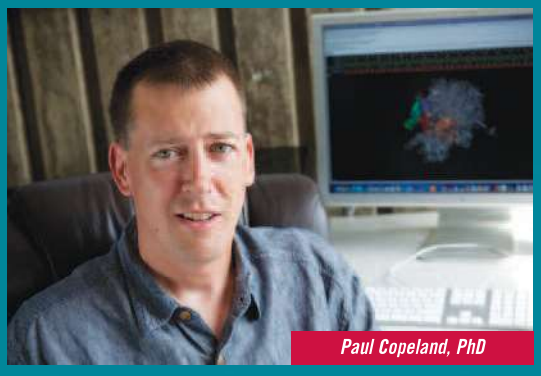


Sunita Gupta Kramer, PhD

Dr. Kramer's research is supported by grants totaling more than $2.5 million from the National Science Foundation, the National Institutes of Health, and the American Heart Association.

Paul Copeland Studies Selenium's Role in Preventing Oxidative Stress

Selenium — an essential trace element — is present in 25 different selenoproteins in humans. The presence of selenium has been credited with the prevention of oxidative stress; such stress has been associated with the increased incidence and mortality of many diseases, in particular cancer.



Paul Copeland, PhD

Paul Copeland, PhD, associate professor of biochemistry and molecular biology, is studying how selenium is incorporated into the selenoproteins in humans.

One goal of this research is to learn how to regulate the expression of potentially beneficial selenoproteins.

To understand the mechanism for the incorporation of selenium, Dr. Copeland is using basic science to discover how cells convert into selenocysteine amino acid codons. His work is designed to test hypotheses to determine potential factors involved in the synthesis of selenoproteins using mammalian, insect, and yeast systems. Currently, Dr. Copeland is studying selenoprotein synthesis in both normal and cancerous prostate cells as a potential model for the improper regulation of selenoprotein production.

The function of proteins possessing selenium plays a key role in preventing cancer. A multitude of studies have linked dietary selenium to cancer prevention. Applying research into how these anti-oxidative proteins are made may lead to insight into new treatments. Selenium research also has implications in male fertility — specific selenium antagonists may act as a male contraceptive.



HIGHlights

By Kate O'Neill

The Class of 2016 in Profile

The 134 students in the entering class of 2016 joined the RWJMS community with an exceptional record in academics and health care advocacy.

The students' MCAT scores and GPAs are equivalent to those of the past two entering classes, which were the highest in the history of the medical school. Their average age is 23, and 67 percent are women. They attended 60 different undergraduate institutions, including Rutgers, The State University of New Jersey (19 percent), and the Ivy League colleges (16 percent). Eight, the highest number to date, were admitted as candidates in the MD/PhD program. Eighty-seven percent majored in the sciences, with many double- and triple-majoring in science, social science, behavioral science, and the humanities.

Sixteen percent were born abroad, and their nationalities span 13 nations.



STEVE HOCKSTEIN

Members of the Class of 2016 recite the Hippocratic Oath at the White Coat Ceremony in August.

Seed Grants Awarded for Cancer Research





Vanessa Mewani '13 *(left)* and **Caitlin Abidin '13** *(right)* won individual $2,500 seed grants from the American Medical Association (AMA) Foundation. The Seed Grant Research Program provides young investigators with financial support for basic science or clinical research projects.

The students conducted research at The Cancer Institute of New Jersey. Working in the lab of **Bruce Haffty, MD**, professor and chair, Department of Radiation Oncology, Caitlin's research will provide data and rationale for the clinical application of autophagy inhibition in the treatment of locally advanced rectal cancer. Vanessa worked in the lab of **Shridar Ganesan, MD, PhD**, assistant professor of medicine, studying the role of TRIM24 in DNA damage response and the implication of this pathway for treatment of neoplastic disease.

Students Selected as HHMI Research Fellows

Soorin Kim '14 and **David McMullen '14** are immersing themselves in a year of intense laboratory research in the Howard Hughes Medical Institute's Medical Research Fellows Program, a $2.5 million annual initiative to increase the training of future physician-scientists. Soorin is pursuing her research at the University of Pennsylvania School of Medicine, while David is at the Johns Hopkins School of Medicine. In all, 70 students from 27 medical schools across the country were selected as fellows for the yearlong program.

ACGME Visit Leads to Renewed Accreditation

A recent visit by the Accreditation Council for Graduate Medical Education (ACGME) resulted in the Institutional Residency Review Committee giving RWJMS full accreditation through 2016.

"We look forward to the ACGME's new system, called the Next Accreditation System (NAS)," says **Marie C. Trontell, MD '76**, professor of medicine and associate dean for graduate medical education. This system continues the shift to evaluation of competencies and outcomes rather than processes and will place greater emphasis on the sponsoring institution, which will have Clinical Learning Environment Review (CLER) every 18 months. These reviews will focus on the learning environment at clinical sites and will involve spontaneous interactions with residents and administrators.

Awards & Honors

By Kate O'Neill

Student Writings Published in Leading Journals

A letter submitted by **Sandra Rodriguez '13** and **William Rafelson '13, MBA**, was published in the July 26 issue of the *New England Journal of Medicine*. **Vijay K. Rajput, MD**, adjunct associate professor of medicine, worked with the students on the letter.

An additional paper, "VIP and UIP [Uninsured Indigent Patient]," by William Rafelson and Dr. Rajput, was published on August 8 by the *Journal of the American Medical Association*.

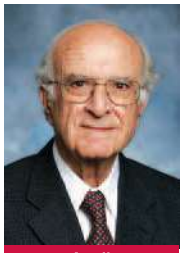
Towhid Ali '13 Selected as NIH Medical Research Scholar

Towhid Ali '13 is one of 45 students selected by the National Institutes of Health (NIH) for the inaugural class of its Medical Research Scholars Program (MRSP). The yearlong enrichment program provides mentored training at the NIH campus in Bethesda, Maryland. The MRSP enables scholars to conduct basic, clinical, or translational research in areas that match their personal interests and research goals.

The MRSP scholars attend courses, seminars, a structured lecture series, and clinical teaching rounds, in addition to presenting their research to the NIH community at domestic professional conferences. Each scholar is assigned a tutor/adviser to assist with developing a well-articulated career development plan and with selecting a dedicated NIH mentor.

National Lipid Association Presents Top Award to Dr. Khachadurian

The National Lipid Association (NLA) presented its 2012 Distinguished Achievement Award to **Avedis Khachadurian, MD**, emeritus professor of medicine, in recognition of his accomplishments in the field of clinical lipidology. The NLA gives this award, its highest tribute, to only one recipient each year, honoring a leader who is widely known for a major contribution to the field.



JOHN EMERSON

Avedis Khachadurian, MD

Dr. Khachadurian was the founding chief of the division of endocrinology, metabolism, and nutrition, holding that position from 1973 until 2002. The Avedis and Laura Khachadurian Laboratory for Metabolic Research at RWJMS was established and named in his honor in 2009.

Dr. Dhib-Jalbut Serves as President-Elect of Multiple Sclerosis Organization

Suhayl Dhib-Jalbut, MD, professor and chair, Department of Neurology, was named president-elect of the Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS). Dr. Dhib-Jalbut served as secretary/treasurer of ACTRIMS for the past three years and chaired its international congress in Montreal in 2008.



JOHN EMERSON

Suhayl Dhib-Jalbut, MD

An expert in multiple sclerosis (MS), Dr. Dhib-Jalbut has served on several national and international scientific committees and as associate editor for the *Journal of Neuroimmunology*. His research interests include how MS therapies work, biomarkers of MS treatment response, and neuro-protective gene therapy. In addition, he conducts basic and clinical research in multiple sclerosis funded by the National Institutes of Health and the National MS Society.

Awards & Honors

By Kate O'Neill

Faculty Honors and Distinctions

- **Naomi Schlesinger, MD**, professor of medicine and chief, division of rheumatology and connective tissue research, was elected co-chair, American College of Rheumatology (ACR) Crystal Study Group, and co-chair, ACR Abstract Review and abstract reviewer, Metabolic and Crystal Arthropathies. In November, she addressed the Rheumatic Disease Update on Gout Symposium, the Annual Scientific Meeting of the ACR/Association of Rheumatology Healthcare Professionals.



STEVE HOCKSTEIN

M. Maral Mouradian, MD

- **M. Maral Mouradian, MD**, William Dow Lovett Professor of Neurology, was appointed to the Clinical Neuroplasticity and Neurotransmitters Study Section at the Center for Scientific Review, National Institutes of Health.



STEVE HOCKSTEIN

Ranita Sharma, MD

- **Ranita Sharma, MD**, associate professor of medicine and director, Internal Medicine Residency Program, has been selected for induction into the Stuart D. Cook MD Master Educators' Guild for RWJMS for the 2012–2013 academic year.

Dr. Haffty Selected as President-Elect of Radiation Oncology Society



STEVE HOCKSTEIN

Bruce G. Haffty, MD

Bruce G. Haffty, MD, professor and chair, Department of Radiation Oncology, was selected as president-elect of the American Society for Radiation Oncology (ASTRO), the world's largest radiation oncology society. Dr. Haffty is internationally recognized for his clinical expertise in breast cancer and his clinical and translational research in radiation oncology. He has served ASTRO in numerous capacities over the past 20 years.

"With the ever-changing health care landscape, there are numerous challenges in the radiation oncology field — everything from national policy changes to research funding cuts," says Dr. Haffty. "With such challenges, I am committed to further elevating ASTRO as the worldwide leader and voice of radiation oncology regarding all aspects of the field, especially in the area of clinical care, where education and safety remain top priorities."

Dr. Like Selected for Inaugural Class of Fellows

The W. Montague Cobb/NMA Health Institute's Inaugural Class of Senior Cobb Fellows in Health Disparities includes **Robert C. Like, MD**, professor of family medicine and community health and director, Center for Healthy Families and Cultural Diversity.



JOHN EMERSON

Robert C. Like, MD

"This is truly a wonderful national honor," says **Alfred F. Tallia, MD '78, MPH**, professor and chair, Department of Family Medicine and Community Health. "Dr. Like and the inaugural group of senior fellows are 24 of the most renowned scholars and researchers in the fields of health and health care disparities."

Dr. Pang Receives Two Prestigious Awards

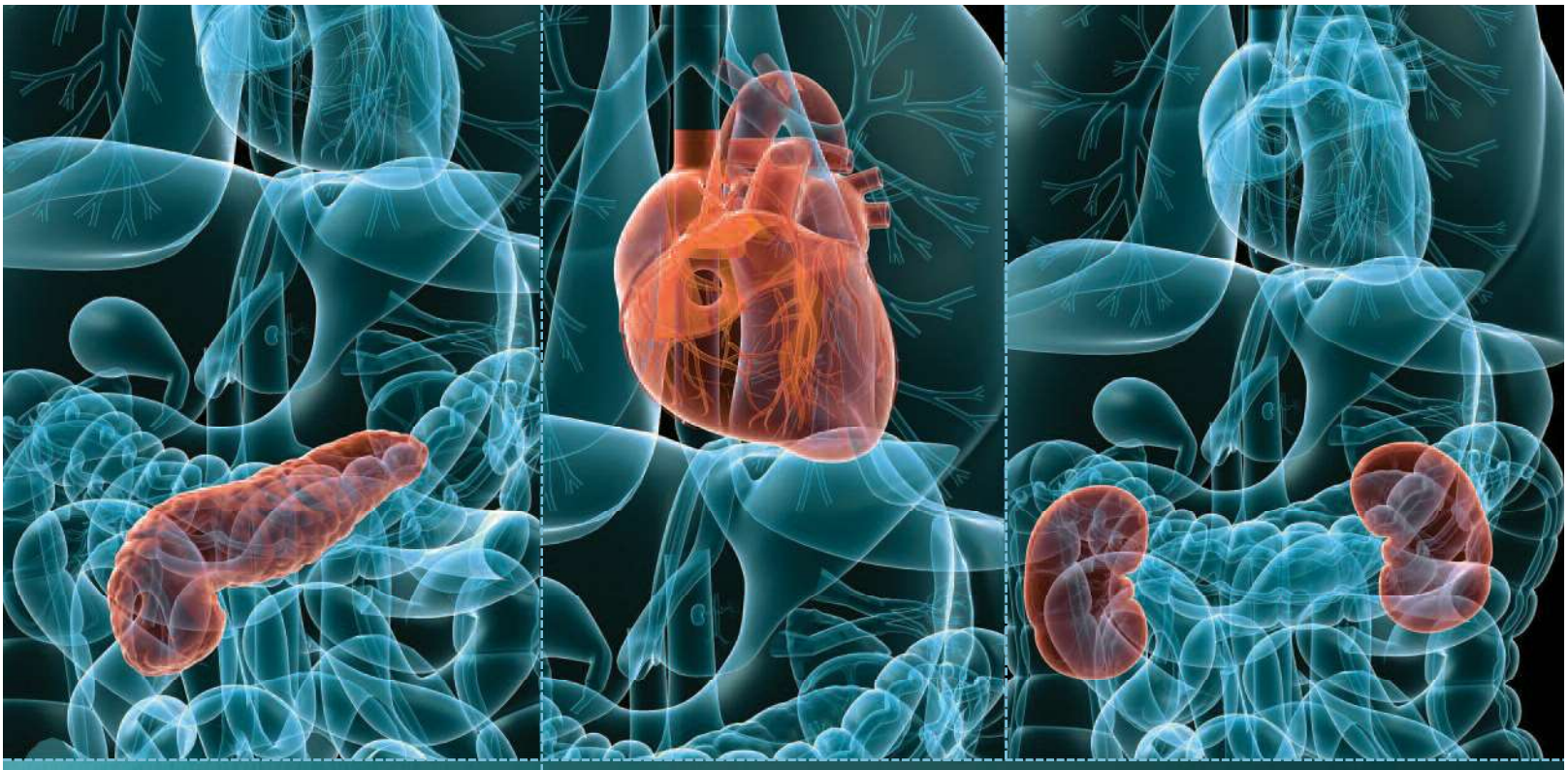
The Alexander and Alexandrine Sinsheimer Foundation awarded a three-year, $50,000 grant to **Zhiping Pang, MD, PhD**, assistant professor of neuroscience and cell biology, a researcher at the Child Health Institute of New Jersey. The prestigious award recognizes and supports Dr. Pang's research, "Probing Neuropeptide Y Release in the Hypothalamus."



JOHN EMERSON

Zhiping Pang, MD, PhD

In addition, The Brain & Behavior Research Foundation awarded Dr. Pang the 2012 Daniel X. Freedman Award for Outstanding Basic Research Achievement by a Brain & Behavior Research Foundation Young Investigator. The award recognizes Dr. Pang's success in developing a novel way to study synaptic dysfunction of brain and behavioral disorders, including schizophrenia and bipolar disorder.



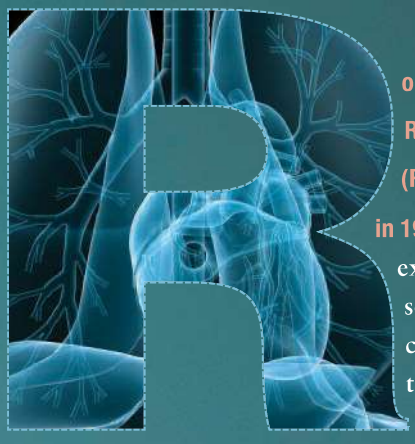
Transforming Transplant Care

The Transplant Center is fast becoming a world-class hub for lifesaving transplant services and research.

By Colin Stayton

Portraits by John Emerson

David Laskow, MD '81, Leads Transplant Program



Robert Wood Johnson Medical School and Robert Wood Johnson University Hospital (RWJUH) launched the Transplant Center in 1999 with two goals in mind. The first was to expand the availability of transplant services regionally. The second was to create a robust academic component that would support patients and the medical school. Under the direction of David Laskow, MD '81, associate professor of surgery and chief, transplant services, RWJMS and RWJUH, the Kidney and Pancreas Transplant Center flourished.

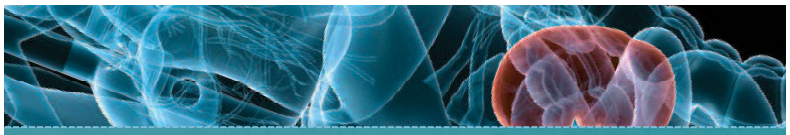
"Once we had the program developed on paper, it took about six months of extensive training before we actually performed our first surgery on March 15, 1999," Dr. Laskow says. "We did about 30 transplants in the first year. That's a pretty good number to start with."

Richard Mann, MD, MS, associate professor of medicine, joined the medical team six months into the program and took on the role of medical director of the Kidney and Pancreas Transplant Center. Following the significant growth in patient volume and positive outcomes during the first few years, the Transplant Center has since recruited two additional transplant surgeons, Adena Osband, MD, assistant professor of surgery, and Jon Jones, MD, assistant professor of surgery, as well as Jonathan Lebowitz, MD, associate professor of medicine, and is currently recruiting for a third transplant nephrologist.

Realizing a Vision for a Unified Center

In its formative years, the transplant program encompassed two components: the Kidney and Pancreas Transplant Center and the Advanced Heart Failure and Transplant Cardiology Program. They operated as distinct entities with separate locations and different administrative teams. To pool resources and provide better administrative support, Dr. Laskow and administrators from both RWJMS and RWJUH worked to increase collaboration between the programs.

Those efforts culminated in 2008 with the construction of the Plum Street building in New Brunswick, across the street from RWJUH's main campus. This building serves as the hub for the two



Meet Dr. David Laskow

David Laskow, MD '81, has ties to Robert Wood Johnson Medical School that run deep. After finishing an undergraduate program at Rutgers University, Dr. Laskow went on to graduate from Rutgers Medical School (now Robert Wood Johnson Medical School) in 1981 and completed a five-year general surgery residency at Beth Israel Medical Center in New York. Dr. Laskow headed south for a few years to become a transplant surgeon and the director of pancreas transplantation at the University of Alabama at Birmingham, but he returned to RWJMS as a faculty member in 1995. Four years later, Dr. Laskow became instrumental in founding the transplant program at Robert Wood Johnson University Hospital (RWJUH).

Dr. Laskow, now associate professor of surgery and chief, transplant services, RWJMS and RWJUH, describes the Transplant Center's early years as one of the most stressful yet rewarding times in his career. He recalls what it was like being the only surgeon in the program for the first two years: "I was on call every single day. For the first six months, I also had the all-important job of being the medical director of one person — myself."

A Taste of His Own Medicine

As a renowned transplant surgeon, Dr. Laskow found himself in the hands of his own transplant team when he needed a heart transplant following a life-threatening cardiac event in 2005. He attributes his survival to the amazing skill and collaborative spirit of the transplant team at RWJ.

"I already had a high regard for our transplant team, but when they save your life, you appreciate them that much more," Dr. Laskow says. "One thing that experience showed me was how great the nursing staff is at the Transplant Center. I've experienced firsthand the quality of patient care our transplant nurses deliver."

Dr. Laskow says he loves transplant surgery because, more than any other sub-specialty, "our patients are ours for the rest of their lives. I can't tell you how many weddings and birthday parties I'm invited to. Our relationships with patients don't end after surgery." M


Pancreas

programs, which now benefit from shared resources and strong coordination between the two administrative teams.

"The building itself is designed to be patient-centric, with administrative offices for both programs arranged in a U shape around the clinical consultation rooms," says Margaret Ames, RN, BSN, MPA, assistant vice president, cardiovascular and transplant services, RWJUH. "Housing both programs under one roof not only facilitates better communication, but also presents a unique benefit for patients requiring combined heart and kidney transplants."

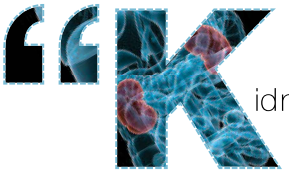
The Challenge of Surgical Volume



One of the major challenges facing the kidney and pancreas program has been the lack of organ donations. Over the years, the number of donations has not kept pace with the program's significant growth in patient volume. Given the inadequate number of organs available for transplantation, the kidney transplant team is working hard to build the live donor program to help facilitate the transplantation process for patients.

That recruitment program had a considerable impact on donation numbers. In addition to hosting regular educational seminars for recipients and potential donors, the Transplant Center's recruitment program involves enrollment in a statewide paired exchange program. One of the barriers in live organ donation has been matching donors with compatible recipients. For a patient on the transplant waiting list who has a friend or family member willing to donate a kidney — but whose kidney is incompatible — the paired exchange program connects that patient and donor with another patient and donor in a similar situation for a one-to-one organ exchange.

This improvement in donor accessibility has helped the Transplant Center increase surgical volume as its patient volume demands. From July 2010 through June 2011, the Transplant Center performed 14 heart transplants and 90 kidney and pancreas transplants. Of the kidney transplants, 34 were provided by living donors. Lending to the appeal of the recruitment program, transplant surgeons fully transitioned early on from open to laparoscopic nephrectomy, a less invasive approach to donor retrieval surgery that poses fewer risks of complication.



"Kidney and heart patients often come to us so debilitated by diabetes and obesity that they present as poor candidates for transplantation," Dr. Laskow says. "Our goal in these cases is to move patients into a healthier situation through lifestyle management, which optimizes their post-operative outcomes."

Still, the problem of too few organ donations persists. Although nearly 100 patients received kidney transplants at the Transplant Center last year, close to 700 remain on the list. In New Jersey, the average wait time for a kidney is four years; the wait time for a heart is less predictable.

"There's no guaranteeing when a patient will be matched with a donor," says cardiologist Jesús Almendral, MD, assistant professor of medicine and medical director, mechanical circulatory support program, RWJUH. "Once they do receive a transplant, there's always that fear of organ rejection — a fear patients have to live with for the rest of their lives."

The likelihood that a patient's body will reject a transplanted organ is greatest in the first year. After that, the chance of rejection decreases incrementally over time, but the risk never reaches zero. Dr. Almendral says providing ongoing post-transplant care indefinitely is necessary to monitor for warning signs of rejection.

"People are surprised at how much they can do after receiving a transplant. Many patients are able to return to a normal life following a transplant surgery," says Jesús Almendral, MD, assistant professor of medicine and medical director, mechanical circulatory support program, RWJUH (center), with Richard Mann, MD, MS, associate professor of medicine, RWJMS, and medical director of the Kidney and Pancreas Transplant Center (left), and David Laskow, MD '81, associate professor of surgery and chief, transplant services, RWJMS and RWJUH.





VAD: Advances in Use



A ventricular assist device (VAD) is an implantable apparatus that partially replaces heart function in patients with chronic heart failure. VADs are most often used as an interim solution for patients with end-stage heart failure in the event that heart transplantation is not immediately available. This temporary application for VADs is known as bridge-to-transplant. However, surgeons at the Advanced Heart Failure and Transplant Cardiology Program are championing a more permanent use of the VAD apparatus, known as destination therapy.

The Transplant Center has been approved by both the Joint Commission and the Centers for Medicare & Medicaid Services to use VADs as destination therapy based on quality outcomes. This application for VADs brings renewed hope for patients who don't meet clinical criteria for transplant candidacy. Originally, VADs increased a person's life span by only 12 to 18 months. Thanks to advances in technology and use, VAD as destination therapy is now indefinitely prolonging the lives of heart failure patients.

"As the U.S. population ages, heart failure rates will increase and the need for heart transplantations will rise," says Ada Bliven, RN, MS, APN, clinical manager, the Advanced Heart Failure and Transplant Cardiology Program, RWJUH. "Because the availability of heart donations isn't expected to meet those demands, VAD as destination therapy basically represents the future of end-stage heart failure care."

While bridge-to-transplant is still the gold standard for those on the donor waiting list, destination therapy restores a patient's ability to enjoy everyday activities and can forestall his or her need for transplantation.

"The most rewarding part of my job is seeing the difference VAD therapy makes in the lives of patients with end-stage heart failure," says Jesús Almendral, MD, assistant professor of medicine and medical director, mechanical circulatory support program, RWJUH. "They go from walking only a few feet to several miles without tiring."

Prepping Patients for Better Outcomes



Fortunately, the risk of rejection can be alleviated through appropriate pre-operative care. The Transplant Center developed a process for the care and management of pre-transplant patients to enhance quality of life during the waiting period and improve prognosis following surgery.

"Kidney and heart patients often come to us so debilitated by diabetes and obesity that they present as poor candidates for transplantation," Dr. Laskow says. "Our goal in these cases is to move patients into a healthier situation through lifestyle management, which optimizes their post-operative outcomes."

The Transplant Center's pre-operative program is a comprehensive, multi-disciplinary approach to case management. During a new patient's first consultation, he or she meets one-on-one with a specialty physician, a surgeon, a social worker, a pharmacologist, a financial coordinator, a nurse coordinator, a dietitian, and various administrators.

"Each one of us supplies an essential piece of the total education our new patients receive," says Dr. Mann. "I've been told by many patients who have gone through consultations at other transplant centers that our program is the most supportive and informative. Despite the growth we've experienced in patient volume, we still provide that personal touch for every patient."

During the initial visit, patients are assessed to determine whether they are suitable candidates. If the patient knows of a potential donor, that person is also brought in to determine organ compatibility and receives education on the donation process as well. Patients who are put on the waiting list return for annual re-education. More frequent follow-up is scheduled if the patient has an outstanding health condition that requires pre-operative management.

At the Advanced Heart Failure and Transplant Cardiology Program, heart failure patients are often seen on a weekly basis to receive specialty cardiology care. If patients have an exclusionary co-morbidity, cardiologists and advanced nurse practitioners work with them to improve health and increase their eligibility for a heart transplant.

Combined with the transplant teams' surgical expertise, the Transplant Center's care management program has given the center a competitive edge in terms of both pre-operative health and post-operative outcomes. According to the most recent data from the Scientific Registry of



Transplant Recipients, the mortality rate of patients at the center while on the waiting list for heart transplantation is 0 percent, as compared to the expected mortality rate of 0.09 percent, based on national averages. The one-year survival rate for patients who have undergone heart transplantation here is almost 97 percent, compared to the nationally expected rate of 85 percent. In fact, the one-year rate of survival following heart transplantation at the Transplant Center is currently the highest in New Jersey.

"People are surprised at how much they can do after receiving a transplant," Dr. Almendral says. "Many patients are able to return to a normal life following a transplant. They're glad they considered the option and grateful to us for providing the excellent care that contributed not just to their survival, but also their success."

A Leader in Academic Research

Building an academic component to the Transplant Center was a primary vision from the start. Early on, the Transplant Center enrolled in studies investigating new immunosuppressant molecules and targeted therapy development. As new products were developed, the Transplant Center had the advantage of being involved in the investigation and approval of those products for widespread use.

"Having academic involvement opens the door for us to seamlessly integrate clinical research with patient care," Ms. Ames says. "The advantage is that it keeps us on the forefront of best practices and drug research while providing our patients the very latest treatment modalities."

Combined with the transplant teams' surgical expertise, the Transplant Center's care management program has given the center a competitive edge in terms of both pre-operative health and post-operative outcomes.

In the future, Dr. Laskow expects to see further advancement in clinical excellence and more participation in studies and research. He also hopes to extend regional access to the Transplant Center through satellite locations. This year saw the establishment of the Transplant Center's first satellite, at Jersey Shore University Medical Center in Neptune.

"Ultimately, we want to develop a transplant program that utilizes every available resource — not only to bolster our own program, but also to advance the future quality of care for all transplant patients," Dr. Laskow says. "We're excited to see the program grow and continue participating in some of the latest evolutions in transplant care."

"There are very few instances in which you're happy to be admitted to a hospital," Dr. Mann adds. "Coming in to receive an organ transplant, after years of worry and doubt, is one of those instances. Organ transplantation really does transform and prolong a person's life. A transplant is often referred to as 'the gift of life'; I think that's an apt phrase to describe what organ donors provide." M





A Revolution IN Surgery

That's Minimizing Everything but Results

By Lynda Rudolph

PHOTOS BY JOHN EMERSON



Traditional "open" surgery is going the way of the dinosaur. Heart valve repairs, brain tumor resections, and other complex procedures that were formerly the territory of open surgery are now being performed using minimally invasive surgery, or MIS. The buzz about it is everywhere: on the lips and in the minds of not just clinicians but patients as well. Even advocates of health care reform love it.

The benefits are substantial. Shorter hospital stays. Less pain. Fewer and smaller incisions. Less scarring. Reduced blood loss. Faster healing and recovery. For physicians, it's a new frontier — one that offers better access to human anatomy. For patients, it's a revelation — in some cases, cutting recovery time in half. For watchdogs of operational costs, it's a panacea — the numbers of procedures are up; readmissions and complications are down.

It seems as though we went overnight from nine-inch incisions to those that are barely visible to the human eye. But when and where did the MIS revolution actually begin?

Where It All Started

The origins of minimally invasive surgery date back more than 200 years, to the same year when Thomas Jefferson was reelected president. In 1804, a device called the Lichtleiter (light conductor) was introduced in Frankfurt, Germany, by Philipp Bozzini. It was a light-guided instrument that served as a primitive endoscope. But it wasn't until 1981 that the first laparoscopic appendectomy was performed by Kurt Semm, a pioneer of modern laparoscopic surgery. Today, the number of minimally invasive surgical applications is mind-boggling.

"Twenty years ago, there was very little minimally invasive surgery being performed. Today, the majority of surgeries have some minimally invasive or remote access application," says Alan M. Graham, MD, professor and interim chair, Department of Surgery, chief, vascular surgery at Robert Wood Johnson University Hospital (RWJUH), and medical director for clinical practice operations and planning, Robert Wood Johnson Medical Group.

Minimally invasive surgery is characterized as surgical procedures that require incisions of no more than one-eighth to one-quarter of an inch. The procedural list is endless. Arthroscopy. Endovascular aneurysm repair. Mitral valve repair. Hysterectomy. Uterine fibroid removal. Tubular microdiscetomy. Percutaneous nephrostomy. Atrial septal defect repair. Mohs micrographic surgery. Thyroidectomy. Urethral suspension. Hip arthroplasty. Video-assisted thoracic surgery.



"Twenty years ago, there was very little minimally invasive surgery being performed. Today, the majority of surgeries have some minimally invasive or remote access application," says Alan M. Graham, MD, professor and interim chair, Department of Surgery, chief, vascular surgery at Robert Wood Johnson University Hospital (RWJUH), and medical director for clinical practice operations and planning, Robert Wood Johnson Medical Group.

MIS Applications Are Burgeoning Locally

Adrian Balica, MD, assistant professor of obstetrics, gynecology, and reproductive sciences and director, Minimally Invasive Gynecologic Surgery Program, is using minimally invasive procedures for women who suffer from gynecologic conditions. Single port laparoscopic surgery (SILS) for hysterectomy, ovarian cystectomy, and uterine conservation procedures, such as endometrial ablation, using radio frequency are commonplace. "Robotic surgery is a new tool we've added," says Dr. Balica. "With the magnification built into the robotic technology, I can actually see capillaries that aren't visible to the naked eye."



Adrian Balica, MD, assistant professor of obstetrics, gynecology, and reproductive sciences and director, Minimally Invasive Gynecologic Surgery Program, is using minimally invasive procedures for women who suffer from gynecologic conditions.

In the case of rectal surgeries, unlike the national trend, in which only 10 percent are done using minimally invasive methods, surgeons at RWJUH are using robotic surgery for the rectum in nearly half the cases, with significant success. Since the need for large incisions is eliminated, nerve damage that affects bladder function is avoided, so outcomes for patients are much improved over those following open surgery.

Along with rectal robotic surgical expertise, Craig Rezac, MD, assistant professor of surgery and director, Colorectal Surgery Program, is one of



Craig Rezac, MD, assistant professor of surgery and director, Colorectal Surgery Program, is one of the pioneers of transanal endoscopic microsurgery. He performed the first procedure in the state four years ago and is developing the Robotic Colorectal Surgery Program at RWJMS and RWJUH.

the pioneers of transanal endoscopic microsurgery (TEM). He performed the first procedure in the state four years ago and is developing the Robotic Colorectal Surgery Program at RWJMS and RWJUH. The TEM procedure is a minimally invasive approach that provides magnified vision and superior optics for removing tumors throughout the rectum, allowing surgeons to take out rectal lesions that would have been considered inoperable.

Isaac Yi Kim, MD, PhD, associate professor of surgery and chief, section of urologic oncology, at The Cancer Institute of New Jersey, completed his 1,000th robotic prostatectomy in October 2012. Dr. Kim developed a new approach known as the athermal intrafascial robotic (AIR) prostatectomy. This radically different way to enter the tissue planes — around the prostate rather than through the endopelvic fascia — has resulted in reduced trauma to the nerves that control erections.

Gamma Knife Perfexion is currently being used for brain cancer and to treat arteriovenous malformation (AVM), pain disorders, and tremor. Gamma Knife Perfexion is the specialty of

Shabbar F. Danish, MD '01, assistant professor of neurosurgery, director, stereotactic and functional neurosurgery, and director, Gamma Knife Center at RWJUH. It's the only radiosurgery tool that has been developed specifically for use on the brain.



Isaac Yi Kim, MD, PhD, right, associate professor of surgery and chief, section of urologic oncology, at The Cancer Institute of New Jersey, completed his 1,000th robotic prostatectomy in October 2012.

Dr. Danish and his team are using lasers to treat brain tumors that have been inoperable with traditional surgical methods. They also use it to treat epilepsy. Having recently reached the 50-procedure milestone, they perform more of these types of laser procedures than anyone else in the country. Laser ablation has been used on other parts of the anatomy for years, but it has been employed to treat epilepsy only since 2010.

In the procedure, surgeons thread a fiber-optic cable through a small hole in the skull and, using image guidance, carefully maneuver it to where the brain lesion is located. Then they initiate the laser ablation to burn out the targeted tissue that is at the origination point of the epilepsy. "I think laser procedures are going to revolutionize epilepsy treatment, because we can achieve the same outcomes without opening the head," says Dr. Danish.

The implantation of deep brain stimulation (DBS) devices to treat movement disorders is another way in which MIS has transformed neurosurgery. These devices deliver electrical pulses to stimulate the brain, targeting specific areas that will result in better control of the disabling



PHOTO: ALAN SCHNEIDER/COURTESY OF ROBERT WOOD JOHNSON UNIVERSITY HOSPITAL

Shabbar F. Danish, MD '01, assistant professor of neurosurgery, director, stereotactic and functional neurosurgery, and director, Gamma Knife Center at RWJUH, and his team are using lasers to treat brain tumors that have been inoperable with traditional surgical methods.

movements of Parkinson's disease and similar conditions.

We may currently seem to take this revolution for granted. But, as Dr. Danish points out, "Five years ago, some of this technology didn't exist."

"The trend is moving toward minimally invasive," says Dr. Graham. "The technology is evolving, and remarkable results are possible."

"Just look at the numbers," adds Dr. Kim. "They are rising dramatically each year."

But the future is about more than increasing numbers of existing MIS procedures. It's also about innovations. "Within the next year, we expect to see single port laparoscopic surgery, using a new robotic device, which means only one small incision will be needed," says Dr. Kim. There's a new application for partial nephrectomies as well, which involves injecting dye into the kidney to determine where the cancer is located, effectively "staining" the cancer cell. The fluorescent-dyed tumor lights up, providing a real-time assessment to reduce the likelihood of leaving any cancerous tissue behind.

Minimally Invasive Surgery as a Major Attraction

MIS training and education are required as part of the curriculum qualifications for residents. In 2005, the Residency Review Committee of the Accreditation Council for Graduate Medical Education revised the laparoscopic and endoscopic minimum case requirements for graduates of surgical residencies. These requirements include 60 basic laparoscopic surgeries, 25 advanced laparoscopic surgeries, 35 upper endoscopies, and 50 colonoscopies.

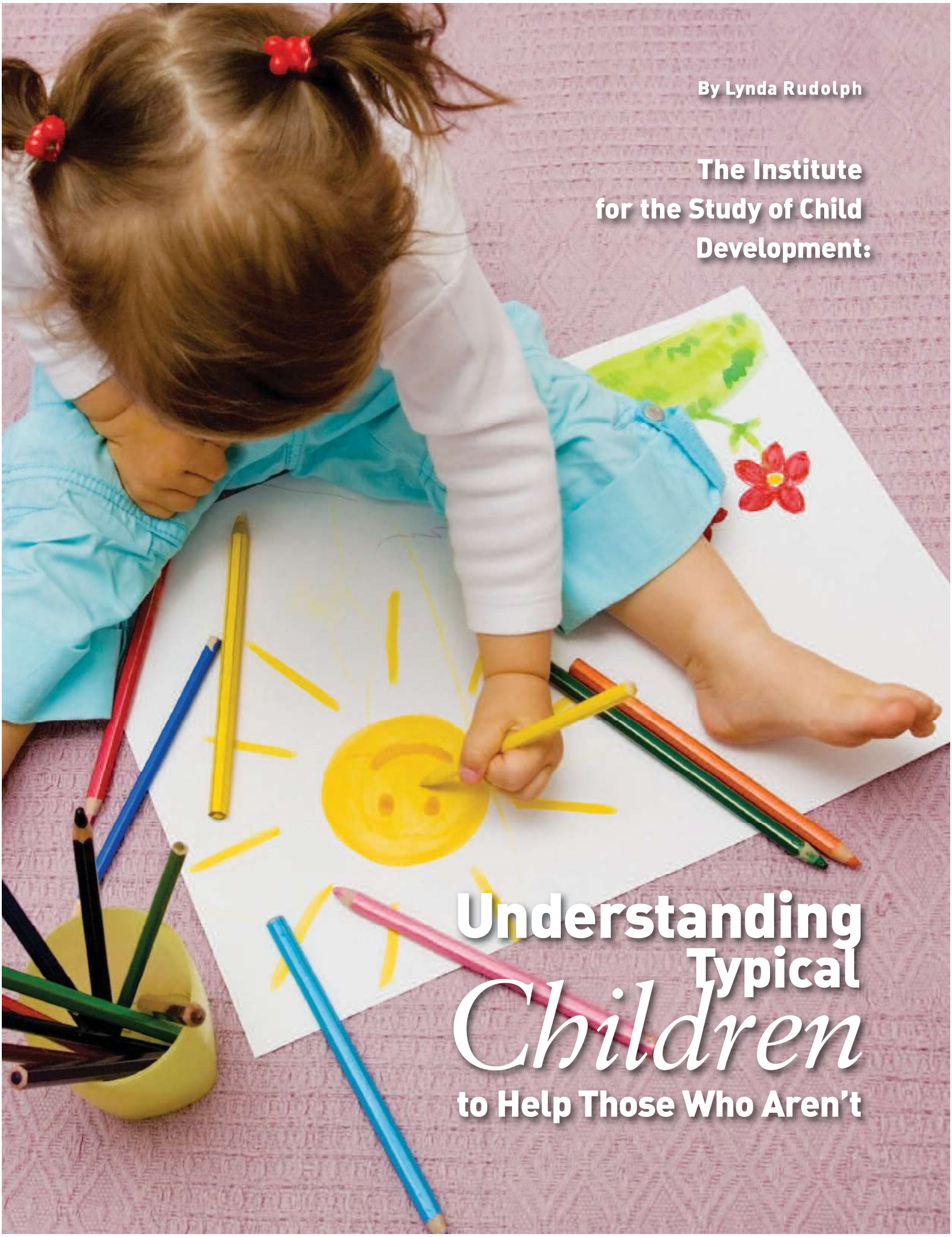
"Medical residents are now looking for programs that can provide the kind of procedural experience they need," says Dr. Rezac. "There are minimum requirements for procedures needed for residents to sit for their boards."

Becoming a leader in the operating room affects physician recruitment as well. "The dynamic physicians we're after are looking for a state-of-the-art environment," says Dr. Graham.

And patients are coming into physicians' offices armed with their own research that they've done on the Internet. "They come in with a list of what they're looking for," says Dr. Graham. "They're going to go someplace else if we don't have it."

MIS has become so essential to medical practice that complete centers are being established around it. "We feel it's so critical to patient care that we are establishing a Minimally Invasive Center at RWJMS and RWJUH," says Dr. Graham. The center — already robust and newsworthy — will invite all the specialties to be housed under one virtual roof. "This brings together our extensive collective of resources, creating a central hub of information and innovation people in New Jersey can turn to," Dr. Graham concludes.

MIS is just the beginning of how surgery is being reinvented. It not only sets the bar for procedural innovations in place today; it holds the promise of things to come. M



By Lynda Rudolph

The Institute for the Study of Child Development:

Understanding Typical *Children* to Help Those Who Aren't



You might assume that the Institute for the Study of Child Development is dedicated to examining atypical behavior and developmental anomalies in children. But you'd be only half right. Michael Lewis, PhD, University Distinguished Professor of Pediatrics and Psychiatry and director of the institute, offers an example of why studying typical children is so critical: "If I don't know what percentage of boys wet the bed, I can't tell whether a five-year-old boy who is wetting the bed has a problem. We see ourselves as understanding the basic processes of development — studying the whole child."

The institute was formed in 1983 and charged with researching the processes leading to healthy children, translating those findings into useful products and services, and educating the world about them. In the nearly 30 years since its emergence, the institute has compiled a body of work that is nothing short of remarkable.

Studies have included the understanding of environmental contexts; the long-term effects of drugs and toxic exposure *in vitro*; behavioral and physiological reactions to stress; the impact of deviant caregiving and traumatic events; the emergence of consciousness; and emotional regulation and inhibitory control.

Four philosophical principles guide the research program: (1) a recognition that the development of a child is an interactive process between the child's characteristics and the social environment; (2) children are social creatures; (3) each child is a potentially competent, active learner with multiple and independent skills; and (4) a child's emotional life is the central component around which his or her development takes place.

One of the Few Programs to Identify Gifted Children

The Gifted Child Program was established in 1984 to identify and profile children's cognitive abilities and school achievement levels. Although participants are as young as three years of age, the majority of children seen recently are of early elementary school age. Barbara Louis, PhD, adjunct associate professor of pediatrics, has been guiding the program since 1995. "Parents come to us with observations they've made about their children that seem to indicate they are gifted," says Dr.

PHOTOS BY: JOHN EMERSON

Louis. "Parents of the older children are frustrated with the level and pace at which the children are being taught in school."

Indicators of advanced development often include the ability to talk early and carry on full conversations at an early age, as well as learning to read at a very early age without being formally taught. More than two-thirds of the children whose IQs are tested in the clinic score in the gifted range. Many of the gifted are children who are extremely bright but who are underachieving.

"They start out fast and furious, and then in elementary school they get bored because they quickly learn the new material that's being taught and are ready to move on," says Dr. Louis. The program helps parents with decisions regarding appropriate educational options and means of encouraging their children's optimal development.

As an outgrowth of its clinical services, research has been done on a number of topics related to the development of gifted children. Studies have been published regarding such subjects as parents' beliefs about giftedness in their young children, identification of children for gifted programs, identification of young, inner-city, minority gifted children, gifted savants, sex and handedness in gifted children, diverse profiles of extremely gifted children, and the relation of early language skills to later giftedness. Research also is being done on the development of theory of mind in gifted children.

Studying Young Infants in a Laboratory Setting

The Longitudinal Study of Child Development was established in 1983 and is one of the longest-running studies of American infants and their families ever established. "We study very young babies who are just two months of age," says Margaret W. Sullivan, PhD, adjunct professor of pediatrics. "Through this lab, we can study an infant's learning ability and early emotion and motivations."

Heart rate and cortisol levels are collected digitally to understand the physical reactions that babies have when they are exposed to different settings. "It's an amazing moment when you see a light bulb go on that's non-verbal but you know the infant has made a connection between its behavior and some change in the outside world," says Dr. Sullivan.

Sometimes the simplest observations can lead to clinical applications. Since children with autism can't recognize themselves in a mirror by two years of age, and those with Down syndrome must reach a mental age of 15 to 18 months to do so, the institute looked at those disparities and has been using mirror recognition in order to screen potential autism spectrum disorders (ASD) in very young children.

"That's some of what we're about," says Dr. Lewis. "Looking at standard, normal development and contrasting it with the learning development in children with Down's and autism spectrum disorders, we can develop something as practical as a diagnostic screening."

The lab studies babies who are developing normally, and those who have high-risk cognitive and physical disabilities, frequently in collaboration with PSE&G Children's Specialized Hospital (CSH). The partnership of the institute and CSH has resulted in improved or new therapies to use with children. "Over the years, it has become much more accepted to use assistive technology to help babies learn to manipulate and control toys," says Dr. Sullivan. "The hope is to help them do it efficiently."

Of particular interest is the institute's commitment to understanding the relation between children's behavior and their brain function. This interest centers around the major theme of the institute, namely, to study brain processes in development and to understand deviations in this development. The study of brain and behavior using EEG, MRI, and fMRI is led by Dennis Carmody, PhD, adjunct professor of

"We see ourselves not as clinical scientists, but basic scientists," says Michael Lewis, PhD, University Distinguished Professor of Pediatrics and Psychiatry and director of the Institute for the Study of Child Development (far left). "It's all about basic processes put to practical use for children. That's why we're here."



Barbara Louis, PhD, adjunct associate professor of pediatrics, has been guiding the Gifted Child Program at the Institute for the Study of Child Development since 1995. Her image is reflected in the mirror of the observation room.



The study of brain and behavior using EEG, MRI, and fMRI is led by Dennis Carmody, PhD, adjunct professor of pediatrics and associate director of the Institute for the Study of Child Development.

pediatrics and associate director of the institute.

The studies of typically developing children have shown that particular brain regions, notably the left temporoparietal region and prefrontal cortex, are involved with self-referential behavior, including mirror self-recognition, development of personal pronouns, and pretend play. These findings support the behavioral work, which shows that infants between 15 and 24 months have developed consciousness or a representation of themselves.

This work has been extended to children with ASD. Dr. Lewis and Dr. Carmody have found that children who have under-developed self-representation also have immature brain development in the same regions where self-representation is found.

Searching for Insight in Children with Other Challenges

In the 1990s, Dr. Lewis began searching for ways to research difficult-to-reach populations of children — those with prenatal cocaine exposure or who had been physically abused or neglected. David Bennett, PhD, associate professor at Drexel University's College of Medicine, became part of the adjunct faculty to collaborate with Dr. Lewis.

"In the '90s, babies with prenatal cocaine exposure were a hot topic (due to its suddenly high prevalence in cities)," says Dr. Bennett. "In our studies we have found that cocaine exposure was a risk factor for antisocial behavior. This may be a consequence of attention disorders and some cognitive effects, such as lower IQ scores, particularly for boys in our study."

This longitudinal study is only one such study being conducted. "We have also been studying children from abusing homes and have found early manifestations of emotional failure in these children," says Dr. Lewis. "In fact, maltreated infants are more likely to have higher cortisol levels and are more likely to show immunocompetence failures."

The institute is also spearheading research into the resilience of young minority or immigrant children. Researchers consider the environmental context of minority children, including poverty, culture, acculturation, discrimination and prejudice, bilingualism, English-language acquisition, and developmental influences. "Ethnic minority children's achievement scores are the lowest in the country, and they have the highest high school dropout rates," says Geraldine Oades-Sese, PhD, adjunct assistant professor of pediatrics and director, Research Lab for Resilience and Early Childhood Development.



The hope is to adapt child development theories for these children from different backgrounds to incorporate their unique experiences, belief system, values, language, and culture to help them succeed. Dr. Oades-Sese is also currently working on an innovative instructional model that includes all these factors, which she considers essential ingredients for the social-emotional and academic resilience of these children.

Studies of typical and atypical development in high-risk juvenile populations are also among the key projects of the institute. "High risk is defined as kids living in poverty who haven't finished high school," explains Jason Gold, PhD, adjunct assistant professor of pediatrics. "The conversion of shame to blame in juvenile delinquency explains a great deal."

Roughly 90 percent of the problems have to do with instances of disrespect perceived by these adolescents and focusing on humiliation or shame. Shame in the delinquency population suggests that there is room for interventions to reduce shame and therefore the blaming of others, which lead to violent behavior. These research projects look at typical development and emotional development with the idea that there may be multiple emotions at play — a supposition that has been borne out in research.

Other research involves the study of the lack of socialization in youngsters, particularly as it relates to their dependence on electronic devices. Interestingly, this work could lead to ways to motivate teens to become more compliant with medical procedures, such as diabetes testing. The plan is to give teens cell phones and have them "earn" minutes by complying with testing. "This type of bench-to-bedside application of our research is an important part of what we do," says Dr. Gold.

Through the years, the institute has been granted more than $40 million to fund its research and clinical programs. The institute has also played a key role in fostering the development of Robert Wood Johnson Medical School's Autism Center. In addition to the clinics and research effort, the institute has an educational function: training PhDs, post-doctoral students, and pediatric fellows in the new developmental disabilities fellowship program with Children's Specialized Hospital.

A single theme runs through every project and touches every research goal and program. "We see ourselves not as clinical scientists, but basic scientists," emphasizes Dr. Lewis. "It's all about basic processes put to practical use for children. That's why we're here." M

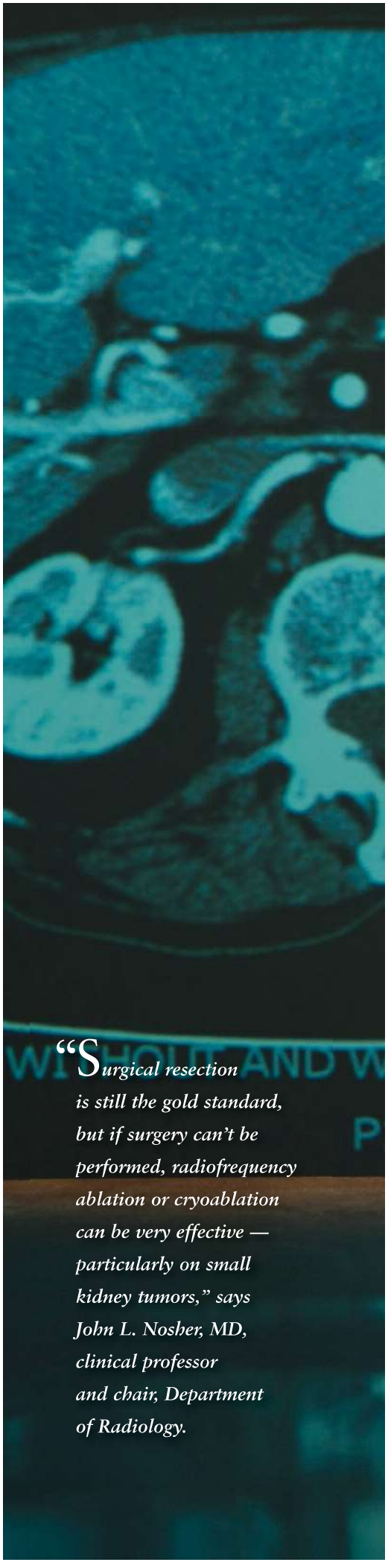
The child's abilities to identify himself in the mirror, use personal pronouns, and engage in pretend play are related to the development of brain function as measured by EEG. The child and the equipment are prepared prior to EEG data collection. Tara Matthews, MD, developmental behavior pediatrics fellow, comforts the child, and Anais Kreitmann, MS, research assistant, confirms reliable EEG signals.

PHOTOS BY: JOHN EMERSON

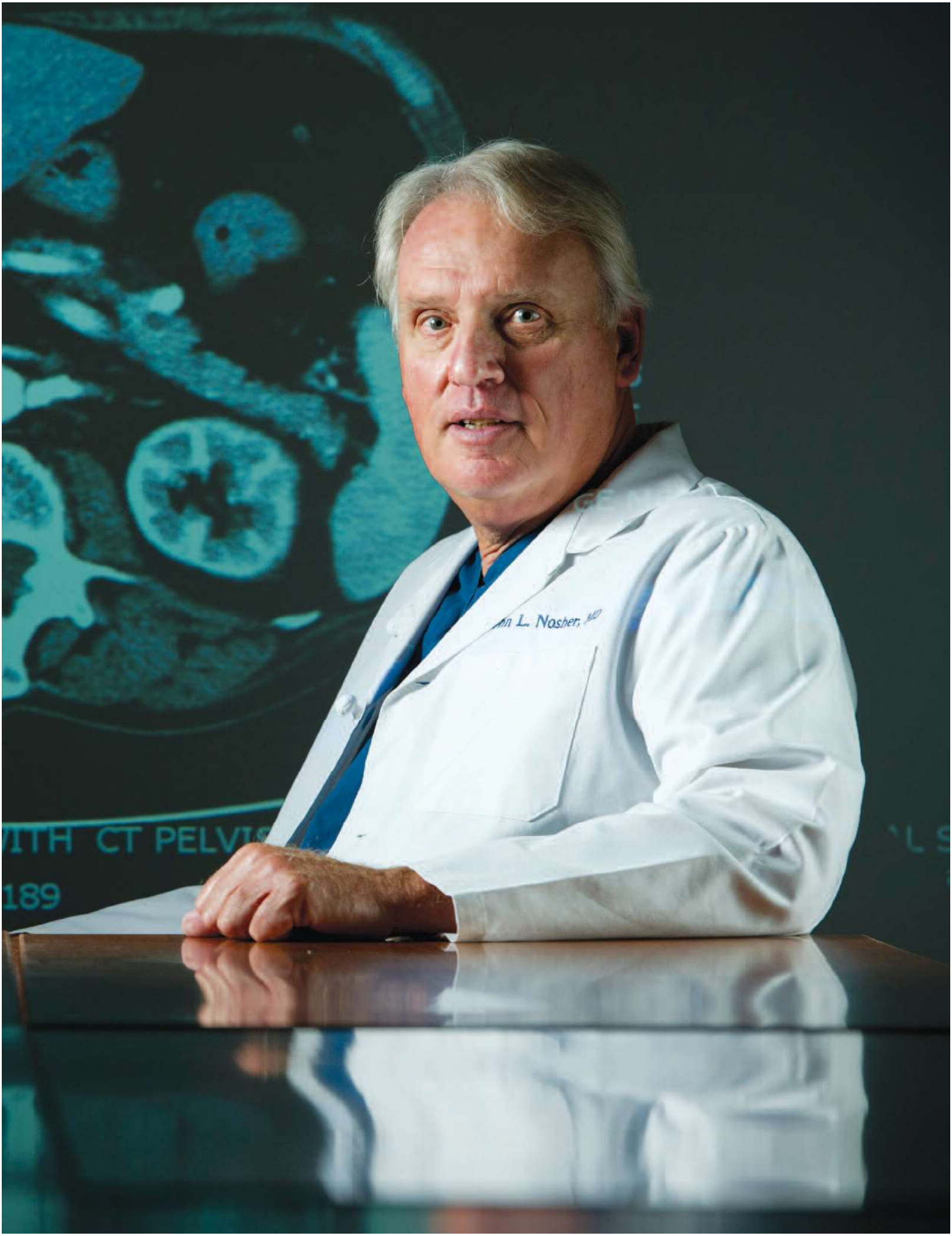
Interventional Oncologists Are Creating Fire and Ice to Improve Cancer Patients' Chances

Interventional oncology is a relatively new discipline in the cancer therapy field. As a sub-specialty of interventional radiology, it follows the trend of using laparoscopic interventional techniques, similar to those used in vascular and endovascular treatments, to treat certain cancer tumors. Some of the therapies, including the use of heat (radiofrequency ablation), cold (cryoablation), and internal radiation (radioembolization), have gained ground in New Jersey thanks to the expertise of physicians at Robert Wood Johnson Medical School. In fact, more ablative types of procedures are being performed at The Cancer Institute of New Jersey (CINJ) than at any other hospital in the area.

By Lynda Rudolph • *Portraits by John Emerson*



"Surgical resection is still the gold standard, but if surgery can't be performed, radiofrequency ablation or cryoablation can be very effective — particularly on small kidney tumors," says John L. Nosher, MD, clinical professor and chair, Department of Radiology.


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L. Nosher, MD



"Technological advances are occurring rapidly, allowing us to do amazing things," says John L. Nosher, MD, right, with Darren Carpizo, MD, PhD, assistant professor of surgery and surgical oncologist at The Cancer Institute of New Jersey.

Image-guided interventional therapy for kidney, lung, liver, and colorectal cancer in selected patients has become a viable alternative in cases where either the location or the number of tumors makes surgery a poor choice or where the health of the patient is a barrier. "Surgical resection is still the gold standard, but if surgery can't be performed, radiofrequency ablation or cryoablation can be very effective — particularly on small kidney tumors," says John L. Nosher, MD, clinical professor and chair, Department of Radiology.

Using Radio Waves and Liquid Nitrogen to Destroy Cancer Cells

Radiofrequency ablation (RFA) destroys tumors with heat. It involves the use of CT guidance and is an option when surgical resection is not



appropriate and when it is a limited disease with four or fewer lesions that are four centimeters or less in diameter. During the procedure, the physician guides a needle electrode into the cancerous tumor using ultrasound, CT, or magnetic resonance imaging. Then abnormal cells are destroyed by high-frequency electric currents. Electromagnetic waves that are emitted interact with molecules in the tumor, causing them to vibrate and generate heat. Tissue death occurs in less than six minutes at 50 to 55 degrees and is instantaneous at 60 to 100 degrees. The goal of ablative therapy is to destroy the lesion and leave a one-centimeter margin of adjacent tissue.

Another type of ablative therapy, cryoablation, freezes tumor cells to destroy them. Physicians use liquid nitrogen to create spheres of ice and insert them directly into a tumor, precisely targeting cancerous cells with the same image-guidance mechanisms as for

RFA. Researchers are also developing computer-aided planning tools to help define models that are providing added intelligence on where the spheres should be placed.

The team has performed more than 100 procedures at Robert Wood Johnson University Hospital (RWJUH) since initiating the program.

Planting Radiation-Laced Spheres at Tumor Sites

Radioembolization — also known as Selective Internal Radiation Therapy (SIRT) — is a treatment for liver cancer that is gaining more acceptance as its efficacy is being proved. "Although the treatment has been performed for 15 years prior to our experience, it's been five years since the procedure was developed at RWJMS, CINJ, and RWJUH. It has gained credibility as more papers have been written about it," says Dr. Nosher.

"The goal is to go to the problem directly versus systemically," he says. The first stage of the three-stage treatment involves advancing a catheter through the artery in the leg to reach the artery supplying blood to the liver. Using image guidance, physicians block all other arteries to avoid damaging organs outside the liver. Before delivering the radiation treatment, physicians block the blood flow to the tumor. Physicians then use small sand-like spheres with yttrium-90 — a powerful, radiation-emitting beta particle — attached to them. The spheres are inserted through a catheter into the blood vessels in the liver. This form of radiation therapy safely achieves high-intensity doses.

The radiation treatment is given in one or two sessions, typically 30 days apart. The procedure is approved for colorectal metastases and hepatic tumors and is gaining acceptance for the treatment of many other tumors that have spread to the liver.

"We are the first in the state of New Jersey to have performed this procedure," adds Salma Jabbour, MD, assistant professor of radiation oncology. The program is currently the 15th largest in the country.

A comprehensive team is required to make any of these therapies viable. "These are complicated patients with complex tumors," says Dr. Jabbour. "It requires a highly skilled surgeon, interventional radiologist, medical oncologist, and radiation oncologist to effectively deliver the therapy." Candidates for radioembolization most frequently are those who can no longer tolerate chemotherapy or for whom chemotherapy is no longer working. Success rates have been promising: survival time has doubled for many individuals.

Evaluating and Defining SIRT Treatment

SIRT was recently the subject of a study conducted by Dr. Nosher; David J. Foran, PhD, professor of pathology and laboratory medicine, chief, division of medical informatics, and director, Center for Biomedical Imaging and Informatics (an interdepartmental center within RWJMS and CINJ); Lin Yang, PhD, of the center; and Rebekah H. Gensure '14. The researchers investigated whether the use of hepatic tumor CT texture signatures could be valuable as potential imaging biomarkers by evaluating the ability to classify patients by SIRT response outcomes. They initiated the study because there was a need for a predictive model to stratify candidates prior to treatment.

The data set consisted of 20 advanced-stage patients between the ages of 47 and 69 who had a median survival rate of 368 days. The results of the study indicate that hepatic texture signatures may be a predictive tool for SIRT candidates. In the future, those with inoperable tumors may benefit from a predictive model that mirrors their own condition — improving not only the treatment procedures but survivability as well.

Collaboration, Research, and Advancements Set the Stage for Future Progress

Radiation oncologists perform all the interventional oncology procedures in collaboration with the division of surgical oncology in the Department of Surgery at RWJMS, as well as the Departments of Surgical Oncology, Radiology and Medical Oncology. In fact, the multi-disciplinary approach is important in deciding on the right course of treatment. "Our goal is to understand how to best deal with the cancer, and then determine how to proceed," says Darren Carpizo, MD, PhD, assistant professor of surgery and surgical oncologist at CINJ.

Image-guided minimally invasive therapies are a departure from the traditional field of radiation oncology. "It's a change for us — we're not just reading pictures, we're evolving and doing things that hadn't been heard of three to five years ago," says Dr. Nosher. "Technological advances are occurring rapidly, allowing us to do amazing things." M



THE SECOND ANNUAL *Gala*

RAISES $213,000 IN SCHOLARSHIP SUPPORT

BY KATE O'NEILL

The Second Annual Scholarship Gala to Celebrate with Alumni & Friends, jointly hosted by Robert Wood Johnson Medical School and the Foundation of UMDNJ, was a spirited and highly successful evening, raising more than $213,000 in support of medical student scholarships. "I deeply appreciate the enthusiasm, generosity, and hard work of the medical school community, which made the gala such an enormous success," says **Peter S. Amenta, MD, PhD**, dean. "Thanks to everyone who helped, we will be able to provide significant new scholarship support for our medical students."

Guests at the April 21 celebration included 330 alumni, faculty, staff, students, and friends, as well as leaders from 14 of the medical school's hospital affiliates throughout New Jersey.

"Our Alumni Association has a long history of striving to build scholarship support for medical students at RWJMS," says **Tamara LaCouture, MD '94**, president, Alumni Association. "With increasing financial demands on our current and future students, the importance of providing scholarships has never been greater."

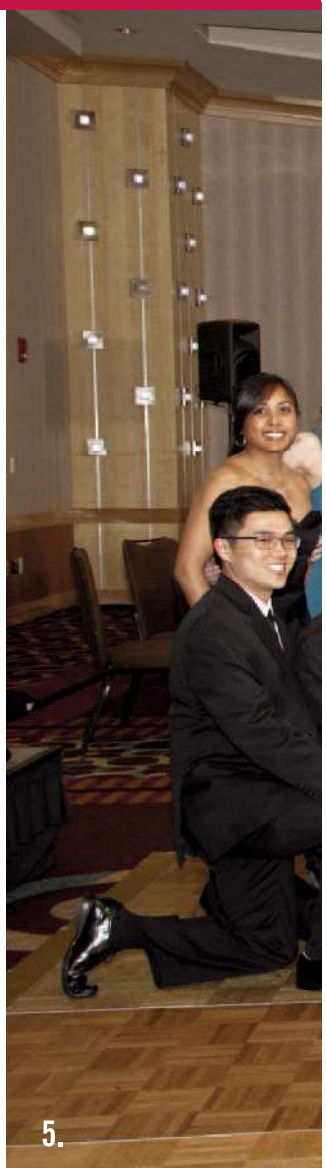
The Alumni Association honored the medical school's first graduating class, the Class of 1968, with several members in attendance. In addition, alumni from the anniversary classes celebrated their years together. **Ronald Nahass, MD '82**, and **Rosanne Vita Nahass, MD '84**, came to reconnect with friends and celebrate the 30th anniversary of his medical school class. "The Gala is a great event to showcase the accomplishments and future goals of our alma mater," says Rosanne Nahass. "We were happy to honor those individuals who have been integral to the school's success, especially Dean [Norman] Edelman, who was such an important mentor to us both. It was great to see so many familiar faces and catch up with old friends."



1. *Patricia Whitley-Williams, MD, chair, Department of Pediatrics, and Harold Williams, are pleased to attend the Gala.*



2. *Neil Calman, MMS '73, MD, and Marlene Calman. Dr. Calman received the Distinguished Alumni Award at the 2011 Gala.*





3. *Dr. Amenta (far left) and George Heinrich, MD, vice chair and CEO, Foundation of UMDNJ (far right), expressed the school's gratitude to Kiron M. Das, MD, PhD, professor of medicine, and his wife, Kamala Das, MD, who created a $25,000 endowed scholarship to support medical students.*



4. *The following members of the first graduating class, the Class of 1968, enjoyed a wonderful reunion at the Gala (left to right): Elliot Jacobs, MMS '68, MD, Leigh Jacobs, Eric Wurmser, MMS '68, MD, Theresa Wurmser, and Walter Rymzo, MMS '68, MD.*











5. *RWJMS students with Peter S. Amenta, MD, PhD, dean (back row, center). Many of the students pictured received scholarships following the success of the Inaugural Scholarship Gala in 2011.*

6. *Denise V. Rodgers, MD, president (interim), UMDNJ (left), greets Eduardo Fernandez, MD '89, former president, RWJMS Alumni Association, and Brenda Fernandez.*

7. *Left to right: Denise Kiss, Geza Kiss, MD '95, former president, RWJMS Alumni Association, and Sonia Garcia Laumbach, MD '99, assistant dean for student affairs.*

8. *Donald Rose, MD '80 (left), recipient of the Distinguished Alumni Award, greets classmates Melissa Miller, MD '80, and Steven Gecha, MD '80.*

9 *Judith Amorosa, MD, clinical professor of radiology, and Louis Amorosa, MD, professor of medicine, are delighted to attend the Gala.*





AWARDS

At the Gala, RWJMS honored the following exceptional members of the medical school community:

Meritorious Service Award

Harvey A. Holzberg, MBA, FACHE
President Emeritus, Robert Wood Johnson University Hospital

From 1989 to 2004, Mr. Holzberg served as president and chief executive officer of Robert Wood Johnson University Hospital. He also served as president and CEO of the Robert Wood Johnson Health System and chair of the Robert Wood Johnson Health Network.

Distinguished Alumni Award

Donald Rose, MD '80
Clinical Associate Professor of Orthopaedic Surgery, NYU School of Medicine, Founding Director of the Harkness Center for Dance Injuries, NYU Hospital for Joint Diseases

Dr. Rose practices orthopaedics at RYC Orthopaedics, in Manhattan. He is the founding director of the Harkness Center for Dance Injuries at the NYU Hospital for Joint Diseases. He has served as an orthopaedic consultant for dance groups including the Alvin Ailey American Dance Theater, Cirque du Soleil, and the Dance Theater of Harlem.

Honorary Alumni Award Granted Posthumously

Stephen F. Lowry, MD, MBA
Professor and Chair, Department of Surgery, Senior Associate Dean for Education, Robert Wood Johnson Medical School

An eminent physician-scientist, Dr. Lowry led internationally recognized research and clinical trials. He was a world-renowned expert on inflammation and the ways in which the condition is responsible for much of today's disease. He was the first faculty member to hold the Harvey Professorship in Innovative Teaching.

Please Save the Date!

The Third Annual Gala will take place on April 27, 2013, once again at The Heldrich in New Brunswick. The Alumni Association will celebrate the anniversaries of the following classes: '68, '73, '78, '83, '88, '93, '98, '03, and '08.

10. *2012 Gala Award Recipients (left to right) are Susette M. Coyle, RN, who accepted the Honorary Alumni Award posthumously awarded to her husband, Stephen F. Lowry, MD, MBA; Meritorious Service Award recipient Harvey A. Holzberg, MBA, FACHE; Distinguished Alumni Award recipient Donald Rose, MD '80; Dr. Amenta; and Norman H. Edelman, MD, who served as dean of RWJMS from 1988 to 1995.*

11. *Tamara La Couture, MD '94, president, RWJMS Alumni Association, presents commemorative plates honoring the Class of 1968 to (left to right) Elliot Jacobs, MMS '68, MD, Walter Rymzo, MMS '68, MD, and Eric Wurmser, MMS '68, MD.*

GALA SCHOLARS SAY *"Thanks"*

- Gala guest **Andrew Orr '15** received one of the 18 $10,000 scholarships awarded after last year's event. "I was thrilled," he writes. "It's very encouraging to know that I have the support of the school, and I hope to be able to give back over the next three years and, in the future, as an alumnus."
- 2011 Gala Scholarship recipient **Breton Roussel '15** writes: "Interacting with the alumni, faculty, and other donors demonstrated to me a strong sense of community and generosity within the RWJMS family. It is an honor to have been selected from a group of incredible peers. I feel a profound sense of encouragement from the RWJMS community as I move forward and will do so with a more manageable financial situation."

LETTER FROM THE ALUMNI ASSOCIATION PRESIDENT

Dear Alumni and Friends:

I am pleased to welcome you to the winter issue of *Robert Wood Johnson Medicine*!

It has been a great honor to serve as president of the Alumni Association. I would like to thank Dean Amenta for his leadership in our joint efforts to support RWJMS students and alumni programs. I would like to welcome our new president, Andrew Stefaniwsky, MD '77, and the following Board of Trustees officers: Sonia Garcia Laumbach, MD '99, vice president/president-elect; Thomas McPartland, MD '01, secretary; Hank Lubin, MD '83, treasurer; and Geza Kiss, MD '95, chair, Membership Committee.

I would like to personally thank all alumni who attended the Second Annual Scholarship Gala to Celebrate with Alumni & Friends last April. It was a wonderful celebration, filled with great school spirit and pride. The Gala raised more than $213,000 to support medical student scholarships. *(Please see Gala article and photos on pages 39–42.)*

The Alumni Association is delighted to support the Third Annual Scholarship Gala on Saturday evening, April 27, 2013, at 7 p.m. at The Heldrich in New Brunswick. With increasing financial demands on our current and future students, the ability to offer scholarship support has never been more important. At the Gala, we will enjoy an evening with friends, classmates, and colleagues, while providing much-needed financial support for RWJMS students. We will honor the anniversaries of the following classes: 45th: 1968, 40th: 1973, 35th: 1978, 30th: 1983, 25th: 1988, 20th: 1993, 15th: 1998, 10th: 2003, 5th: 2008. Please save the date: I look forward to seeing everyone there!


STEVE HOCKSTEIN

As you are aware, the Alumni Association has a long history of striving to provide support for the young men and women who attend RWJMS. Through the generous support of our alumni, we distributed $140,000 in scholarships and loans to RWJMS students for the 2012–2013 academic year. We thank you for your contributions and request your continued dedication to this cause. Our students benefit from access to these resources, without which the dream of becoming a physician may not be possible.

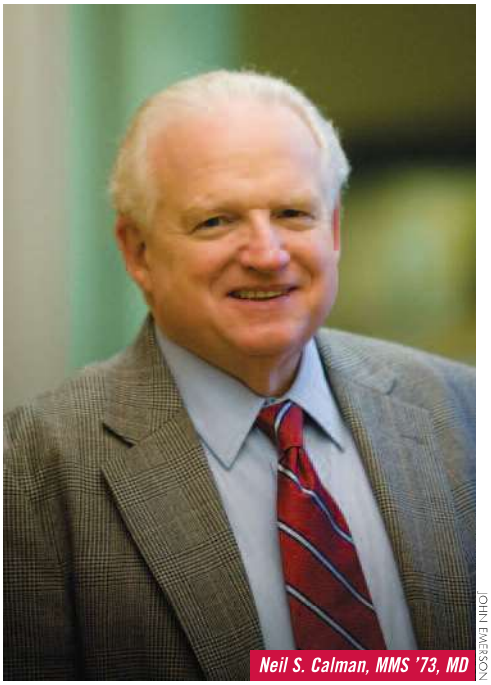
The Alumni Association is a wonderful way to stay in contact with fellow classmates, network with colleagues, socialize with our students, collaborate on community/institutional projects, and keep abreast of the ongoing advancements at RWJMS. If you are interested in learning more about the Alumni Association or joining the Board of Trustees, we invite you to contact Roberta Ribner at ribnerrs@umdnj.edu. I want to thank the past presidents of the Alumni Association and members of the board for all the work that they have done and continue to do. I plan to remain an active member of the Board of Trustees, and it is my hope that we can continue to accomplish wonderful things together.

Sincerely,

Tamara A. LaCouture, MD '94
President, RWJMS Alumni Association

P.S. Please visit our Web site at http://rwjms.umdnj.edu/alumni and click on *Make a Gift* to contribute to the Alumni Association Annual Fund. You may also mail your gift in the enclosed envelope.

Neil S. Calman, MMS '73, MD, Chairs New Residency at Mt. Sinai


Neil S. Calman, MMS '73, MD

JOHN EMERSON

The Institute for Family Health, one of the largest health center networks in New York State, spearheaded the establishment of a new Department of Family Medicine and Community Health at Mount Sinai School of Medicine in July. Neil S. Calman, MMS '73, MD, the institute's president, chief executive officer, and co-founder, serves as chair of the new department — the first department of family medicine to be housed at a Manhattan academic medical center.

"I am thrilled to be joining Mount Sinai and look forward to expanding our shared mission of providing outstanding primary care services to the Harlem community and training the next generation of family practitioners who will deliver excellent clinical care," says Dr. Calman.

"Through our research, we will address disparities in access to care and improve the outcomes of people suffering from conditions of the highest prevalence in urban, medically underserved communities," he adds.

The department's centerpiece will be its Harlem Residency in Family Medicine, which welcomed its first class of family medicine residents in June. Established in 2012 with federal Teaching Health Centers funding, the residency is one of only 22 such programs in the United States.

Dr. Calman received the 2011 Distinguished Alumni Award at the first RWJMS Scholarship Gala to Celebrate with Alumni and Friends.

— *K.O'N.*





Communicate with Alumni on Social Media Sites

RWJMS news and events and an opportunity to participate in conversations with alumni and students are now available on facebook.com, twitter.com, and linkedin.com.

On Facebook and LinkedIn, search for "Robert Wood Johnson Medical School" and "Robert Wood Johnson Medical School Alumni Association." On Twitter, search for "UMDNJ_RWJMS." Participation on Facebook and LinkedIn is by approval of the site administrator, but all can register.

Alumni Association Awards Hippocrates Scholarship to Julie Szymaniak '16

The Alumni Association awarded the 11th Hippocrates Scholarship to Julie Szymaniak, of Princeton. The association annually awards the scholarship to an incoming first-year student based on academic excellence. Hippocrates Scholars receive $20,000 toward their tuition in each of their four years at RWJMS.

At Stanford University, Julie majored in human biology, a program that interrelates biology and the social sciences. In the summer before her senior year of high school, she taught English in an indigenous community in the Amazon and later volunteered as an English teacher in Mexico. She returned to the Amazon on a Stanford-run conservation program and later studied marine biology and ecology in Australia and fulfilled her Latin American studies minor in Chile.

Prior to applying to medical school, Julie gained valuable experience in the clinical world. She was an administrative assistant to gastroenterologist Martin C. Carey, MD, professor of medicine, Harvard Medical School, a senior physician at Brigham and Women's Hospital. Julie was pleased to translate from Polish to English some key materials for Dr. Carey's study of the effects of the medical problems of composer-pianist John Field on his performance and creativity.

She subsequently worked with Yolonda L. Colson, MD, PhD, associate professor of surgery, Harvard Medical School, and assistant professor of thoracic surgery and director, Women's Lung Cancer Program, Brigham and Women's Hospital. Julie's primary responsibilities were with the Women's Lung Cancer Forum. Dr. Colson says, "Her energy and compassion were key ingredients in the successful efforts to build a community of survivors and a support network for those just starting the fight against lung cancer. She was a master at taking a new idea and making it happen."

Last spring, says Julie, she became anxious about the long-term burden of student loans. "I didn't want to have to choose my specialty based on paying my medical school debts," she says. Then she learned that she had been awarded the Hippocrates



Julie Szymaniak

STEVE HOCKSTEIN

Scholarship — unexpected and welcome news delivered by Carol A. Terregino, MD '86, interim senior associate dean for education, associate dean for admissions, and associate professor of medicine. "I couldn't believe it," Julie says. "Not just to have gotten such an amazing scholarship, but to know it will continue for all four years. That's so important, and I am so grateful."

— *K.O'N.*

The Robert Wood Johnson Medical School
ALUMNI ASSOCATION
Cordially Invites You to Attend

The 25th Annual
Career Night

Tuesday evening
January 8, 2013

6:30 – 9:30 pm

Great Hall
RWJMS Piscataway

Dinner will be served ■ RSVP to ribnerrs@umdnj.edu

Kathryn L. Holloway, MD '84:

AT THE FOREFRONT OF NEUROSURGERY FOR MOVEMENT DISORDERS

Kathryn Holloway, MD '84, discovered the realm beneath the brain during her last year at Rutgers Medical School. Starting a third-year elective, she watched, fascinated, as neurosurgeons looked through the surgical microscope, taking them deep into the intracranial region to repair an unruptured aneurysm. She found it "the most beautiful place to be," she recalls.

A graduate of Rutgers, The State University of New Jersey (Camden College of Arts and Sciences), Dr. Holloway was inducted into the Rutgers Alumni Association Hall of Fame in May. The honor recognizes her work as a superb clinician, a groundbreaking inventor, and a respected teacher and mentor. "I was touched by this honor, but, above all, I was humbled to be recognized in the company of four outstanding fellow alumni," she says.

A Focus on Movement Disorders

Dr. Holloway completed her residency in the Department of neurosurgery at the Medical College of Virginia, now Virginia Commonwealth University School of Medicine (VCUSM), which she chose for the strength of its program and the chair's exceptionally caring manner with his patients. In 1990, following her training, she was invited to join the faculty of the Department of Neurosurgery, where she took on leadership of the epilepsy surgery program and later developed the movement disorders surgery program.

Annually since 1999, Dr. Holloway has received Teaching Excellence Awards from VCUSM, and she continues to spark an interest in neurosurgery in many of her students. She served as director for resident education for her first 12 years on staff, introducing new teaching conferences and restructuring existing ones.

Dr. Holloway was appointed a full professor of neurosurgery in 2003 — at the time, one of only three women in the United States to hold this position. In addition, she serves as chief of neurosurgery at the Hunter Holmes McGuire Veterans Association (VA) Medical Center in Richmond, where she built a collaborative movement disorders program that was designated as one of the six Parkinson's Disease Research, Education, and Clinical Care Centers nationwide. The VA annually cares for more than 40,000 of the 80,000 U.S. veterans estimated to have Parkinson's disease (PD) and associated movement disorders. It created these centers of excellence to provide top-flight clinical care and innovative research as well as outreach and education programs throughout the United States.

Dr. Holloway sees most of her patients at University Hospital at VCUSM, dividing her time about 30/70 between general neurosurgery and functional neurosurgery. General neurosurgery encompasses a variety of surgeries to treat conditions ranging from carpal tunnel syndrome to degenerative spine disease to brain tumors. In functional neurosurgery, she explains, she "fixes things not seen on an X-ray in order to improve patient function." In this area, she uses deep brain stimulation (DBS) to treat move-

BY KATE O'NEILL

DANA ADDISON



ment disorders including PD and dystonia; she also performs temporal lobectomies as well as surgery on the trigeminal, vagus, and spinal nerves.

Therapies Evolve along with Imaging Technology

Improved imaging technology has advanced the surgeon's ability to pinpoint target areas of the brain, improving both diagnosis and treatment. "In the '80s, when I was in med school," says Dr. Holloway, "everyone had CT [computerized tomography] scanning, but few had MRI [magnetic resonance imaging]. The field didn't exist. Now, everyone has it."

Reversing the brain's underproduction of the neurotransmitter dopamine is key to controlling the rigidity, tremors, and bradykinesia (abnormally slow movement or mental function) that are symptomatic of Parkinson's disease. In the 1960s, surgery was "in full bloom" as a form of therapy for symptoms of the disease, says Dr. Holloway. Then the discovery and subsequent approval by the federal Food and Drug Administration (FDA) of levodopa (L-dopa) shifted the focus back to medical management.

In the 1990s, surgery for PD had a resurgence, represented, in part, by a return to pallidotomy, a neurosurgical treatment used in the 1960s. In this procedure, the surgeon uses radiofrequency to destroy small sections of the globus pallidus, a section of the brain associated with movement disorders. Also in the 1990s, fetal tissue grafts were proposed as a potential therapy, an area that Dr. Holloway helped explore during a 1990 fellowship at the National Institutes of Health.

"But the trials failed to meet end point," she says.

Deep Brain Stimulation and Nex-Frame Offer Hope

In 1997, neurosurgery took a giant step forward with the FDA's approval of

— *Continued on Page 50*

Robert Eidus, MD '74:

PLEDGED TO THE REINVENTION OF FAMILY PRACTICE

Robert Eidus, MD '74, seems to be in perpetual motion. In a career devoted to family medicine, he has held often-overlapping positions in academic medicine, managed care, hospital administration, consulting, quality assessment, and family practice.

He has been both a leader and an innovator in his own field. "I always seem to become affiliated with new or developing organizations," says Dr. Eidus. "I like the challenge, and I like coming in on the ground floor."

Family Medicine: A Tool for Reinventing Primary Care

Dr. Eidus was a member of the first four-year class at Rutgers Medical School, attracted by the new Department of Family Medicine and the opportunity to study with its founder, Frank C. Snope, MD. The department was grounded in the belief that primary care could be reinvented by returning to the model of patient-centered family practice. Dr. Snope, a pioneer in family practice reinvention, was later named emeritus professor of family medicine and community health at Robert Wood Johnson Medical School.

Instead of being taught by family medicine residents, who were relatively uncommon in the early 1970s, medical students worked closely with seasoned physicians at Hunterdon Medical Center and Muhlenberg Hospital during their family medicine rotation. Of all the specialists he met, says Dr. Eidus, "These doctors had the closest, most enduring relationships with their patients."

Dr. Eidus completed his residency at Overlook Hospital, in Summit, a teaching affiliate of the Columbia College of Physicians and Surgeons, and then spent 11 years in academic medicine. "I kind of fell into it," he says, "because I enjoyed teaching, and there was a paucity of faculty in the field." Within four years, he was appointed chair of the Department of Family Practice and director of the Family Practice Residency at St. Joseph's Hospital, in Paterson. In addition, he saw patients and served as a preceptor for residents at Overlook, including Paula Krauser, MA, MD '78, clinical associate professor of family medicine and community health, RWJMS. "Bob Eidus was an amazing teacher, with an excellent eye — and ear — for detail," she recalls.

Managed Care: The "Golden Era" and Beyond

Three decades later, in 2011, Dr. Eidus was elected president of the New Jersey Academy of Family Physicians. In his inaugural address, he reflected on his choice in the mid-1980s to move from academic medicine into managed care. "Along with many others from family medicine," he said, "I mistakenly migrated to the managed care industry thinking that it was going to be the *second* reinvention of primary care."

"We believed we could have a wider impact — an epidemiological effect — on health care by moving into managed care," he added recently. "And for a short time, we did."

For three years, Dr. Eidus served as vice president and medical director for New Jersey at U.S. Health-

BY KATE O'NEILL



COURTESY OF ROBERT EIDUS, MD

care, where he was responsible for medical policy and medical quality. Subsequently, he became executive vice president and chief medical officer of ChoiceCare Health Plans, in Cincinnati, overseeing medical management for this 280,000-member HMO, with 3,000 participating physicians. One of his proudest achievements was leading both organizations to full, three-year accreditation by the National Committee for Quality Assurance (NCQA). Dr. Eidus remained active in NCQA, serving on the Review Oversight and Reconsideration Committees until 2002.

By 1995, he says, the "golden era" of managed care had faded. HMOs became profitable, were bought up by large insurance companies, and morphed into a specialist-benefiting structure. As doctors and patients became frustrated with the growing constraints of managed care, it was time for more effective and permanent reinvention.

Entrepreneurship and Disease Management

To meet this challenge, Dr. Eidus enrolled in a two-year executive MBA program at the Kellogg Graduate School of Business Management at Northwestern University, in Evanston, Illinois. Participants came from all professions, not only health care. "That was good," he says. "It provided a different perspective on strategic planning and how to treat the customer."

Dr. Eidus then set off in new directions: disease management and entrepreneurship. He was named president of Corning Franklin Health, a company that specialized in disease management. This area of health care focuses on optimizing health care for people with serious, complex illnesses including cancer and HIV/AIDS; premature birth; and chronic diseases such as asthma. Patients with these conditions constitute approximately 5 percent of the patient population, but their medical care drives an estimated 60 percent of health care costs.

"This model has been taken to another level by RWJMS alumnus Jeffrey Brenner, MD '95," says Dr. Eidus. "Dr. Brenner has earned national acclaim for his pioneering work in disease management in Camden, New Jersey."

Dr. Eidus went on to serve as president and CEO of Innovative Health Solutions (IHS), an independent disease management company that focused on women's health. Two years later, he converted IHS into Informed Health Decisions, a private company, which he led as president and CEO.

On the threshold of the new millennium, Dr. Eidus evolved again, founding Eidus Health Solutions (EHS). An independent consulting firm, EHS offers experience and expertise in areas including evidence-based medical care, evaluation of disease management, and medical leadership.

He also became medical director of the Einstein Practice Plan, a 280-physician multi-specialty group practice in Philadelphia. While at Einstein, he was principal investigator on Take Care to Learn, funded by a $350,000 grant from the Robert Wood Johnson Foundation to study and quantify the level of asthma management in primary care practices.

— Continued on Page 50

Kathryn L. Holloway, MD '84:

AT THE FOREFRONT OF NEUROSURGERY FOR MOVEMENT DISORDERS

— *Continued from Page 47*

deep brain stimulation (DBS). "It is a vast improvement over previous methods," says Dr. Holloway, who specializes in DBS and is widely recognized for her expertise with the procedure.

In DBS for movement disorders, the surgeon generally implants electrodes on one or both sides of the globus pallidus, the thalamus, or the subthalamic nucleus. An electrical lead from a battery pack, similar to a pacemaker, delivers impulses to the target area of the brain. Once in place and functioning, the system reduces the severity of PD-associated movement disorders by disrupting abnormal nerve signals. Unlike techniques such as pallidotomy, DBS does not involve destruction of brain tissue, and its effects are reversible and adjustable.

For several decades, neurosurgeons were guided by MRI pictures stored in a "halo ring" affixed to the patient's skull. The frame is first worn during the stereotactic mapping of the brain and target area. Subsequently, the halo is attached to the operating table while the procedure is performed. While effective, the frame has drawbacks, including its bulkiness and the complete immobilization of the patient during the DBS procedure.

A problem solver by nature, Dr. Holloway wanted to create a better device. She served as the lead designer on a multidisciplinary team that developed NexFrame, a frameless, lightweight mechanism with accuracy that is equivalent to that of the halo. It is about the size of a take-out coffee cup, and attached to it are the surgeon's tools. Like the halo, the NexFrame device is affixed to the skull, but patients can freely move their head and neck, guiding the team by providing feedback.

Neurosurgeons in 20 medical centers across the United States are using NexFrame to relieve the symptoms of patients with PD and other neural conditions. Other applications for the device are in the pipeline. In one example, Dr. Holloway is using NexFrame-assisted DBS to treat depression by turning off discrete areas of the brain's limbic system.

Not only is Dr. Holloway intrigued about the brain's inner realm, she is passionate about the world around her. She and her husband, Felix Tapawan Garcia, love spending time with their 12-year-old son, Luke, pursuing a host of outdoor sports, including mountain biking and skiing in the Blue Ridge Mountains. M

Robert Eidus, MD '74:

PLEDGED TO THE REINVENTION OF FAMILY PRACTICE

— *Continued from Page 49*

Dr. Eidus has consistently participated in randomized, evidence-based studies through EnquireNet, a nationwide, practice-based research network, and through the division of research in the Department of Family Medicine and Community Health at RWJMS. Much of the research aims at measuring the value to patient, physician, and practice of the "patient-centered medical home" — a key concept in the reinvention of primary practice.

"Bob is a great resource," says Alfred F. Tallia, MD '78, MPH, professor and chair, Department of Family Medicine and Community Health. "The diversity of his positions as a health insurance executive, a member of NCQA, a consumer, and a physician brings wisdom to everything he does."

Solo Practice and the Patient-Centered Medical Home

In 2002, Dr. Eidus's career came full circle, when he established a solo practice that follows the patient-centered medical home model — an integrated, team approach to patient care. In addition to Dr. Eidus, the staff includes a family nurse-practitioner, a health coach, a patient care coordinator for the sickest 2 percent of his patients, and a part-time psychiatric nurse-practitioner. "Patients are the other partner in the practice," says Dr. Eidus. "Evidence shows that people who are involved in their own care have better outcomes, so I prefer to work in partnership with my patients."

In early 2012, he merged with practices in two neighboring counties, creating Vanguard Medical Group. The physicians, all primary care specialists, are aligned philosophically through their training in family medicine. "Our patients range in age from two months to 96 years," says Dr. Eidus, who enjoys caring for patients of all ages — and, in a few cases, four generations of the same family. "Health is more than the absence of disease. If you know the family and understand its lifestyle and dynamics, you can be much more helpful to your patients.

"I enjoy every part of it," he adds. "I'm very tired by the time I close up on Friday, but I take time to recharge and always look forward to Mondays. I would never want it to be the other way around." M

CLASS NOTES

WHAT'S NEW? Please send your professional and personal news for **CLASS NOTES** to: Roberta Ribner, Editor, *Robert Wood Johnson Medicine*, Coordinator, Alumni Affairs, Robert Wood Johnson Medical School Alumni Association • 335 George Street • Suite 2300 New Brunswick, NJ 08903 • Phone: 732-235-6310 • Fax: 732-235-9570 Email: ribnerrs@umdnj.edu • **http://rwjms.umdnj.edu/alumni**

NINETEEN EIGHTY-TWO

Henry Kranzler practices psychiatry in Philadelphia.

NINETEEN EIGHTY-THREE

Jeffrey Bruce is the Edgar M. Housepian Professor of Neurological Surgery and director, Bartoli Brain Tumor Research Laboratory at New York-Presbyterian Columbia University Medical Center.

Robert Paull practices dermatology in Edison.

NINETEEN EIGHTY-SIX

Joseph Costabile writes: "Still in the Navy Reserves assigned to 4th Medical Battalion, United States Marine Corps."

NINETEEN EIGHTY-SEVEN

Russell Sassani practices at Take Shape Plastic Surgery in Fort Lauderdale, Fla.

NINETEEN NINETY

Elizabeth Leef Jacobson is an assistant professor of medicine at Weill Medical College of Cornell University. She practices at the Iris Cantor Women's Health Center, a multi-disciplinary practice providing comprehensive, coordinated care to both women and men.

NINETEEN NINETY-FOUR

Gillian Zeldin writes: "My husband, Robert, and I, and our three daughters, Yael, Avital, and Liana, are loving living in Paris, France, not Texas."

NINETEEN NINETY-FIVE

Peter Pasley is an assistant professor of medicine at New York Medical College. He joined the Westfield Internal Medicine practice after being in private practice in Manhattan for the past 11 years.

NINETEEN NINETY-SIX

Brian Heppard writes: "My practice continues to focus on geriatrics and hospice and palliative medicine. Since June 2011, I am serving as medical director for Evercare in upstate New York."

NINETEEN NINETY-SEVEN

Jacqueline Douge reports: "I am deputy health officer for the Frederick County Health Department in Frederick, Md. I was accepted as a fellow of the 2012–2013 Maternal Child Health Public Health Leadership Institute."

TWO THOUSAND

Aaron Auerbach reports: "I am helping to start up the Joint Pathology Center, which was legislated by President Barack Obama. I helped author a new textbook, *Diagnostic Pathology, Neoplastic Dermatopathology*, and am enjoying my two boys, Benjamin (4) and Zack (1)."

TWO THOUSAND THREE

Marissa De Freese writes: "I was married in December 2011. I accepted a position as a faculty trauma surgeon and surgical intensivist at Stamford Hospital starting in the fall of 2012."

TWO THOUSAND FOUR

Adam Rosh reports: "In August 2012, I began as director for the Detroit Receiving Emergency Medicine residency program. I am founder of Rosh Review, LLC, a cutting-edge educational Web site for the emergency medicine qualifying exam."

TWO THOUSAND FIVE

Jeffrey Gander writes: "I graduated from the general surgery residency at Columbia University Medical Center in June 2012. I served as the administrative chief resident of the program. In July 2012, I began a fellowship in pediatric surgery at Children's Hospital of New York-Presbyterian – Columbia. My wife, Lauren, and I welcomed our first son, Ryan William Gander, on January 3, 2012."

Jeffrey Mathews completed a musculoskeletal and neuroradiology fellowship at Thomas Jefferson University Hospital. He recently joined Lourdes Imaging Associates in Camden.

Vikash Panghaael writes: "My wife, ophthalmologist *Rupal Patel Panghaael, MD '04*, is working at Monmouth Eye Care in Tinton Falls. I completed my training in radiology with a fellowship in musculoskeletal radiology and am in private practice at Shore Imaging in Ocean County. I am working with my sister, *Sunita Mann, MD '93*, who is also a radiologist-neuroradiologist. My wife and I have two children, Anika (3) and Akash (1½). I recently launched a new Web site, KeepMyXray (www.keepmyxray.com), which allows users (patients and doctors) to take control of their own radiology imaging."

TWO THOUSAND SIX

Kunal Gupta completed a three-year gastroenterology fellowship at the University of Vermont College of Medicine. He joined Middlesex/Monmouth Gastroenterology in New Jersey.

TWO THOUSAND EIGHT

Rahul Vemula is chief resident of general surgery at Monmouth Medical Center.

TWO THOUSAND TEN

Jessica Merkel-Keller and *David Sinopoli, '11*, were married on April 14, 2012. She writes: "*Carol Terregino, MD '86*, her husband, and *Alan Marcus, MD '10*, attended our wedding. We live in Baltimore and are physicians in residence at the Johns Hopkins Hospital. I am continuing my training in psychiatry, and David is in the Department of Anesthesiology and Critical Care Medicine."

TWO THOUSAND TWELVE

Dorian Batt and Amir Vardri were married in June 2012. She is doing an internship in anesthesiology at New York-Presbyterian/Weill Cornell Hospital.

Nilay Sethi received an award for the Best Publication by a Medical Student at the Dean's Research and Mentoring Awards in September 2012.

IN MEMORIAM

Susan Martling, MD '79, passed away on October 20, 2011. She had practiced medicine in Marin County, Calif., for 30 years.

RESIDENTS

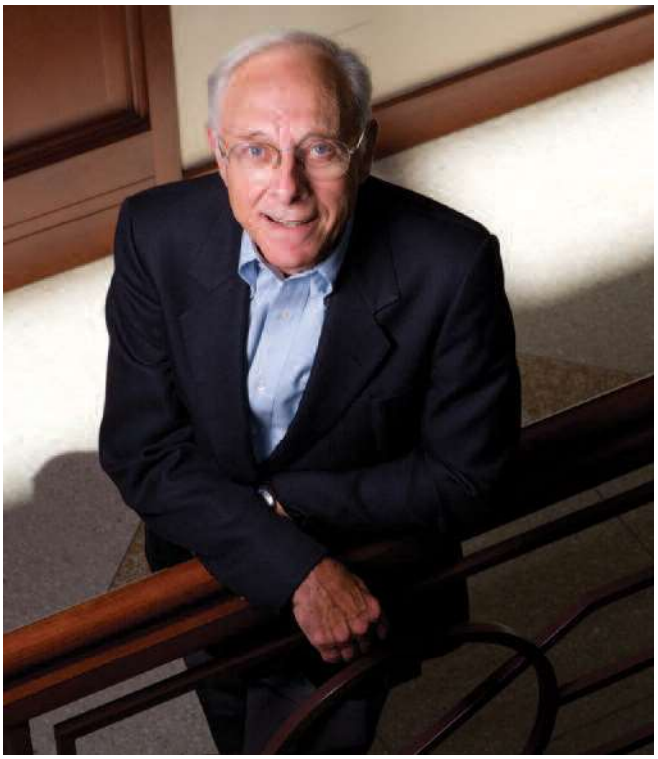
Bertrand Parcells and Alexis Lanteri, MD, were married in June 2012. He is an intern in orthopaedic surgery at RWJMS.

FORMER RESIDENTS

Marc Westle is senior vice president of innovation at Mission Health in Asheville, N.C. He is an expert on health care delivery strategies.

LAST PAGE

In Memoriam: Aaron J. Shatkin, PhD



JOHN EMERSON

With great sadness, the RWJMS community learned of the passing of Aaron J. Shatkin, PhD, on June 4, 2012. Dr. Shatkin was founding director of the Center for Advanced Biotechnology and Medicine (CABM). He was a professor of molecular genetics, microbiology, and immunology, a member of The Cancer Institute of New Jersey, and University Professor of Molecular Biology at Rutgers, The State University of New Jersey.

Dr. Shatkin was an eminent scientist and prominent force in stimulating the growth of biomedical sciences research in New Jersey. As the founding director of CABM, he built New Jersey's strongest academic research facility dedicated to virology, biophysical science, cell development, and cancer biology. He cultivated an environment of respect, open discourse on education and scientific training, and, most importantly, collaboration. His impact on RWJMS and Rutgers University can be measured by the hundreds of medical students, graduate students, and post-doctoral fellows who have graced the laboratories at CABM and moved on to successful careers.

Dr. Shatkin trained and worked at the nation's most prestigious research facilities: the National Institutes of Health, the Salk Institute, and The Rockefeller University. He was head of the Laboratory of Molecular Virology and later, chair of the Department of Cell Biology at the Roche Institute of Molecular Biology. His zeal for science led to the discovery of mRNA capping and other fundamental contributions to gene expression mechanisms in animal cells and viruses.

BY JENNIFER FORBES

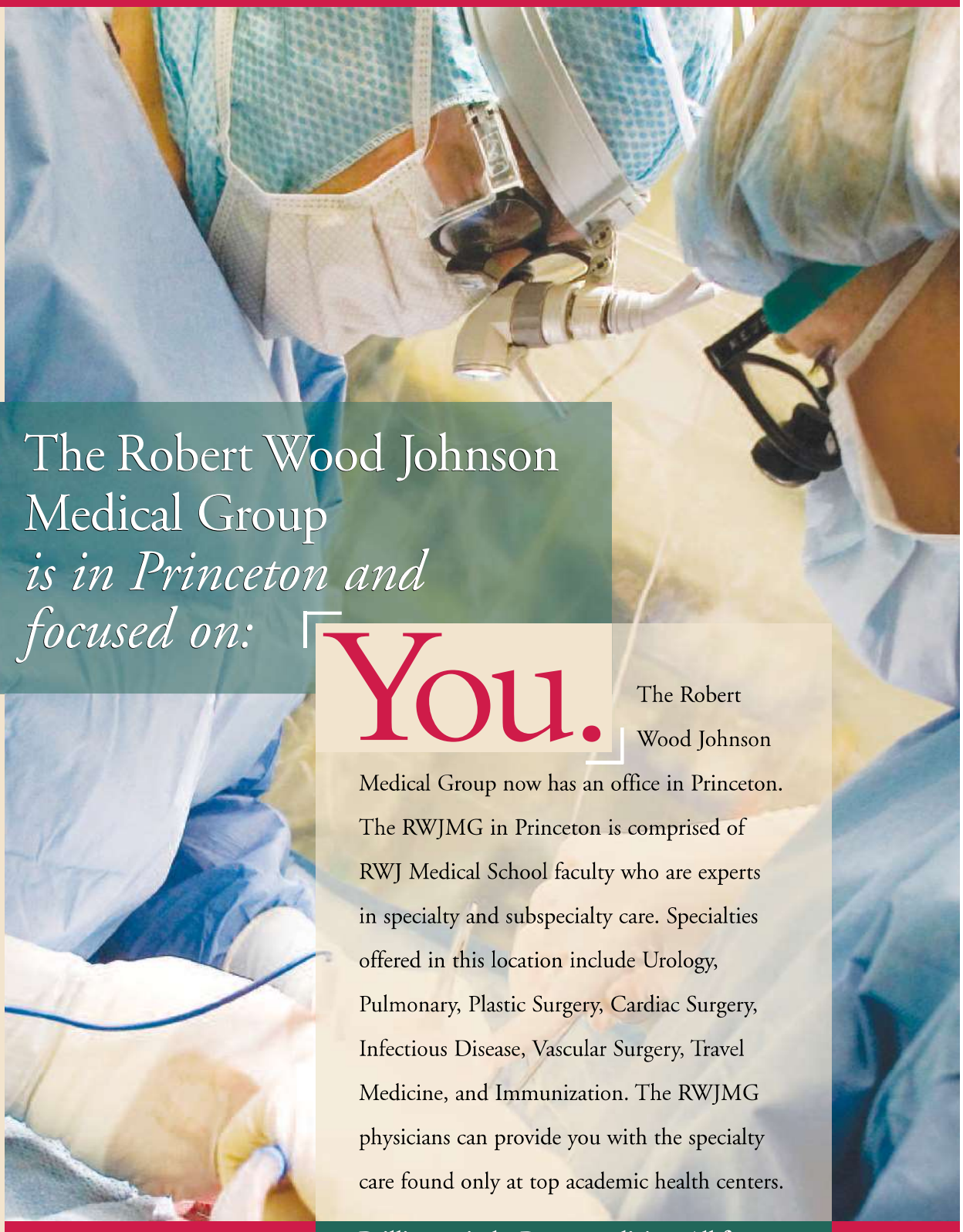
He served on numerous national and international scientific advisory boards and was founding editor-in-chief of the journal *Molecular and Cellular Biology*.

In honor of his scientific achievements, Dr. Shatkin was recognized with the U.S. Steel Award in Molecular Biology from the National Academy of Sciences, the Thomas Alva Edison Science Award, the New Jersey Pride Award in Science and Technology, the Association of American Medical Colleges 2003 Award for Distinguished Research in the Biomedical Sciences, and the Outstanding Medical Research Scientist Award for Basic Biomedical Research by the Edward J. Ill Excellence in Medicine Foundation. In 2008, he was named one of New Jersey's Top 10 Scientists by *New Jersey Business*. His alma mater, Bowdoin College, granted him an honorary doctorate of science in recognition of his work.

Despite his scientific achievements and uncompromising leadership, Dr. Shatkin was humble in nature and exuded a humorous, fun spirit. This was evident at the RWJMS inaugural Scholarship Gala, in 2011, where he received the Honorary Alumni Award from the Alumni Association. His acceptance speech was the highlight of the evening, filled with warmth for his family, colleagues, and students.

Aaron Shatkin was a passionate scientist, admired mentor, valued colleague, and caring friend. He will be greatly missed.

A memorial service honoring his life and career and the 26th Annual CABM Symposium, "Advances in Biology and Medicine—A Tribute to Aaron Shatkin," took place in October. M



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