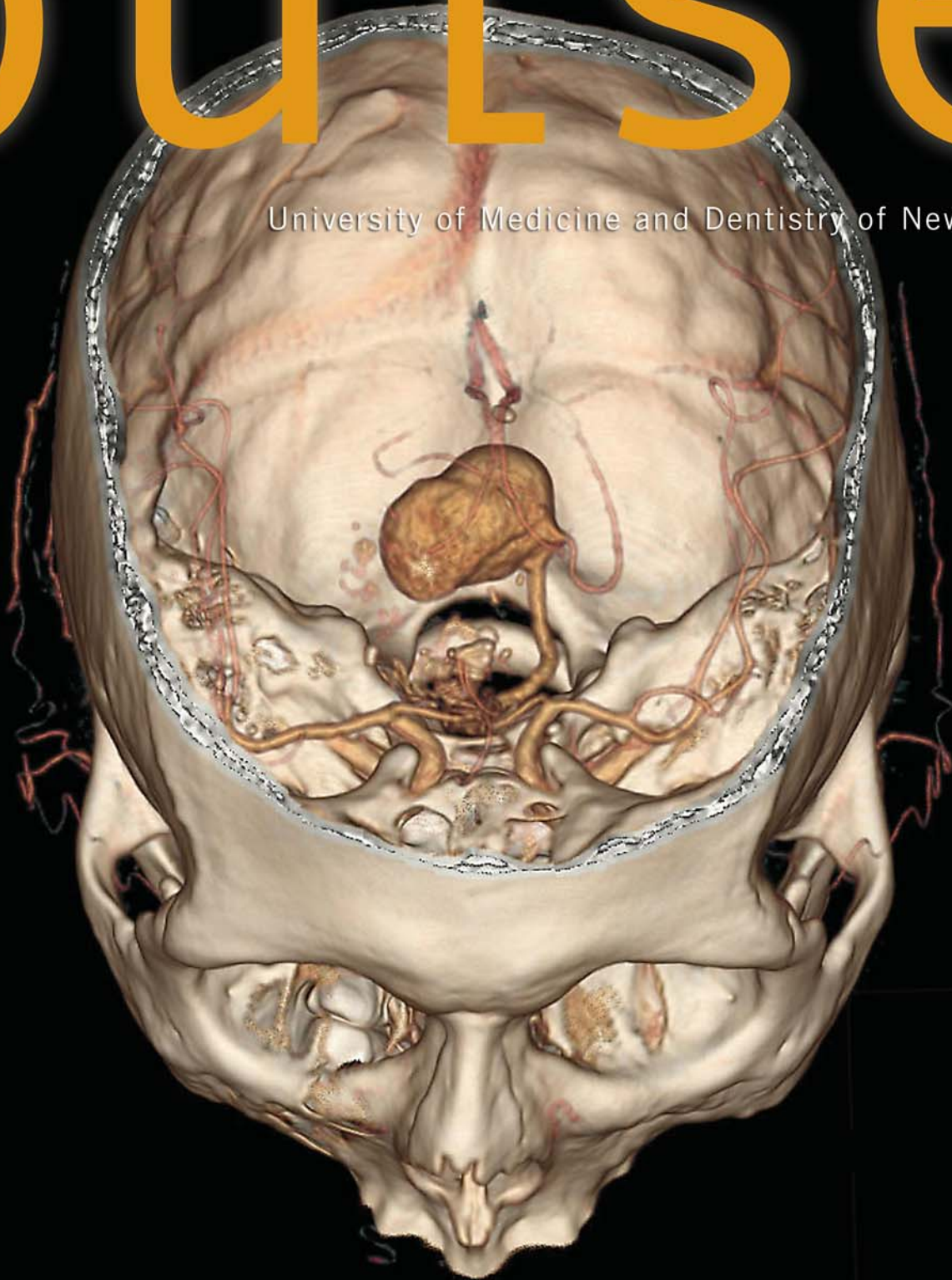


pulse

University of Medicine and Dentistry of New Jersey



THIS IS A 22-YEAR-OLD BRAIN.

THAT LARGE BUBBLE IS AN ANEURYSM.

OUR GLOBAL TB POWERHOUSE • THE ART OF CANCER RESEARCH • EIGHTY-SOMETHINGS @ WORK

Message from the Dean

Another school year has come and gone at New Jersey Medical School. This past May, we watched 142 graduating members of the Class of 2008 make the transition from their roles as students to that of doctors. As these stellar individuals face the next stage of their medical training in their respective residency programs, I'm confident they will continue to make us proud.

There's a lot for us to be proud of at New Jersey Medical School:

- Our match rate of 97 percent remains well above the national average. That means the vast majority of our students are able to parlay the top-notch training they receive here into their first jobs as doctors in residency programs at some of the nation's most prestigious institutions.
- We continue to be a place where high-quality science is conducted. One needn't look much further than the grants our scientists are receiving to know the type of cutting-edge and highly regarded research that takes place here.
- Our Admissions Office is as busy as ever, fielding thousands of applications from aspiring medical students to fill just 170 spots.
- Our faculty members remain steadfast in their commitment to providing quality medical care that's defined by compassion.

In this issue of *Pulse*, you will read more about projects and programs run by our faculty, staff and students as well as other achievements that make New Jersey Medical School a place we all can be proud of.

In health,



Robert L. Johnson, MD, FAAP
The Sharon and Joseph L. Muscarelle Endowed Dean (Interim)



pulse

VOLUME 6 NUMBER 1 SUMMER 2008

UNIVERSITY OF MEDICINE & DENTISTRY OF NEW JERSEY

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Summer 2008



INSIDE INFORMATION

- 2 How Do You Measure Success? Try Match Day County by County, Respira Grows
- 3 *New Jersey Journal of Medicine* Launched Barbers Recruited to Fight Cancer
- 4 Sunday in the Park, Racing for a Cure Straight Talk for Teens Leevy's Legacy
- 5 NJMS News by the Numbers A Motown Miracle in a Musical Moment

A CLOSER LOOK...

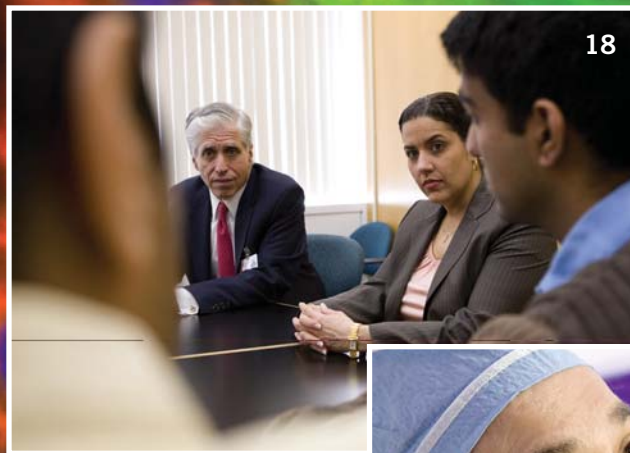
- 6 ...At Our Endowed Chairs
- 10 ...At The Power of Hormones
- 12 ...At www.ePlasty

NJMS PEOPLE: DO YOU KNOW?

- 14 Hamid Bagce, Student Inventor at Work
- 15 Noreen Gomez, Art is Her Passion
- 16 Sylvia Voorheis & Eileen Quirk, Eighty-Somethings
- 17 Kudos

FEATURES

- 18 **Inside the Admissions Office**
A peek at the harsh realities behind the scenes
- 22 **Doctor Who?**
Taking the mini-version of med school
- 24 **The Aneurysm Answer**
On the way to solving a neurological nightmare
- 28 **Inside Our Global TB Powerhouse**
The battle to stop a catastrophe in the making
- 30 **Growing Great Researchers**
The art of mixing the clinical and scientific sides of cancer medicine

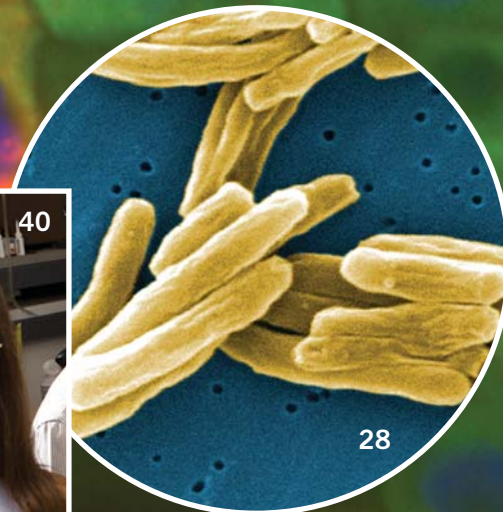


ALUMNIFOCUS

- 34 News of Special Interest to NJMS Graduates
- 36 To Send Med Students into Newark Oh, The Places You Will Go
- 37 Class Notes: Are You in this Picture?

FOCUS ON PHILANTHROPY

- 40 How Kirby Makes All the Right Connections





Sarada Sakamuri, MD, '08 and Elaine Liu, MD, '08

How Do You Measure Success? Try Match Day

YES, THE 97 PERCENT MATCH RATE — a figure which far exceeded the national average of 94.2 percent — was impressive. But consider the fact that fourth-year students won these nearly perfectly matched residencies in prestigious programs at Stanford, Duke, Yale, Brown, Johns Hopkins, Weill-Cornell, Columbia, Emory, the Mayo School of Graduate Medical Education, and in highly competitive specialties like dermatology, neurosurgery, ophthalmology, urology and orthopaedics. ●

Section compiled and written by Genevieve Morris

County by County, RESPIRA Grows

RESPIRA, the NJMS bilingual program teaching children and parents about asthma triggers, symptoms and disease management, grew by three counties recently. Starting in 2006, the innovative initiative served families in Essex and Union, but new funds — \$150,000 from the Healthcare Foundation of New Jersey and \$507,000 from sanofi-aventis — will ease expansion into Hudson, Morris and Passaic counties.

“The prevalence of asthma in New Jersey is increasing at an alarming rate,” says Evelyn Montalvo Stanton, MD, RESPIRA director and NJMS assistant professor of pediatrics. “Inner-city children are among the most affected, with the highest prevalence in Latino children, particularly those of Puerto Rican descent.” Partnering with the New Jersey Children’s Health Project, a mobile medical unit launched by the Children’s Health Fund and the UMDNJ-School of Nursing, RESPIRA will now add more bilingual staff members. ●



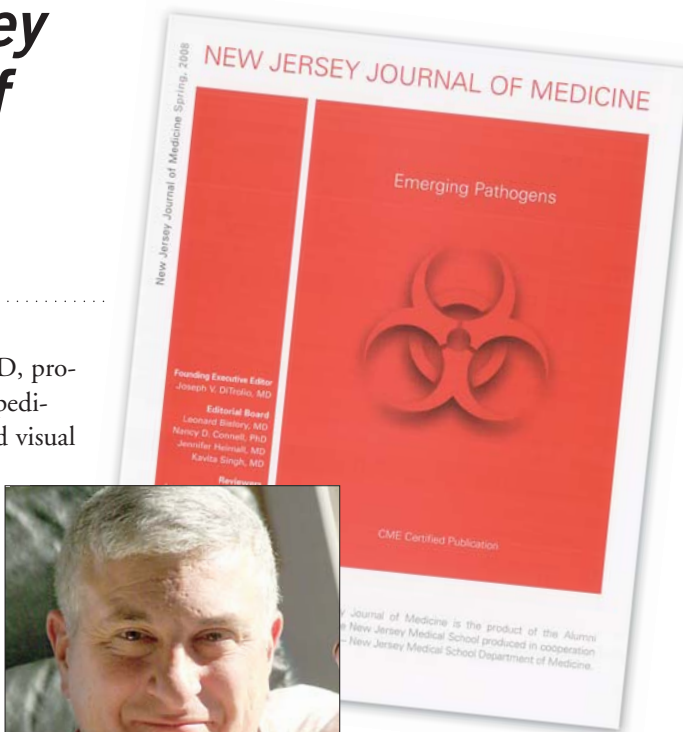
New Jersey Journal of Medicine Launched

Leonard Bielory, MD, professor of medicine, pediatrics, ophthalmology and visual sciences and director of the Division of Allergy/Immunology and Rheumatology, knows a thing or two about creating a new publication. More than 30 years ago in his first year at NJMS, he started *The Innominate*, a student newspaper.

This past spring, the inaugural issue of the *New Jersey Journal of Medicine* was published to positive reviews. The new publication, sent to alumni and faculty, is the product of the Alumni Association of NJMS, the Department of Medicine and UMDNJ-Center for Continuing and Outreach Education. Published semi-annually, it was made possible in part by a grant from sanofi-aventis.

"The feedback has been quite good," says Bielory, noting that several faculty members have already expressed interest in contributing to the next issue.

"I did have an appreciation for what I was getting myself into," Bielory says, describing the task of launching a new journal.



Leonard Bielory, MD

Also on the journal's editorial board are: Nancy D. Connell, PhD, professor of medicine; Jennifer Heimall, MD, a medical staff fellow at the NIH; and Kavita Singh, MD, a private practitioner in Brentwood, TN. Joseph V. DiTrollo, MD, Alumni Association president, is executive editor. "The Alumni Association is always available to help build on the excellent education received by our students," DiTrollo says.

The first issue, a CME- (continuing medical education) certified publication, was devoted to the subject of emerging pathogens and featured articles by members of the Department of Medicine, including Connell ("Extensively Drug-Resistant TB" and "Bioterrorism, Biodefense and Medicine"); Lawrence D. Budnick, MD, associate professor of medicine ("Seasonal Influenza Resources for Clinicians"); David Cennimo, MD, an infectious disease fellow at NJMS ("Chronic Persistent Cough") and 11 others. ●

(See page 12 for news about the new ePlasty online journal.)

Barbers Recruited to Fight Cancer

PATRONS of barbershops in northern New Jersey may soon find themselves receiving more than just haircuts. They may also get life-saving information about prostate and colorectal cancer as part of a special program. To raise awareness about these cancers and reduce their incidence and mortality rates, Stanley H. Weiss, MD, professor, preventive medicine and community health, and an NJMS team are implementing The Prostate Net's Barbershop Initiative™ in Essex, Hudson, Union and Middlesex counties.

They have embarked on an aggressive campaign to train barbers to educate customers about the dangers of these cancers and encourage the men to take advantage of free screenings. This program is facilitated through Essex County Cancer Coalition co-coordinators Christopher P. Tuohy and Daniel M. Rosenblum, PhD, and outreach worker Deborah A. Johnson. Weiss designed the \$185,000 Centers for Disease Control and Prevention (CDC)-sponsored project, which has also been funded by the Office of Cancer Control and Prevention of the New Jersey Department of Health and Senior Services. ●



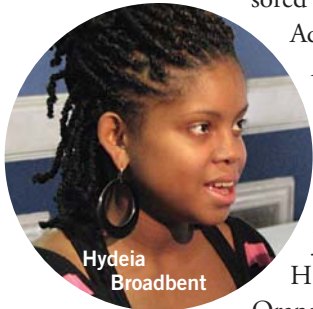
Sunday in the Park, Racing for a Cure

ON an overcast Sunday morning in May, 176 UMDNJ employees on five teams laced up their sneakers and headed for Branch Brook Park in Newark for a good cause: the inaugural walk/run sponsored by the North Jersey Affiliate of the Susan G. Komen for the Cure, which pledged financial support for NJMS/University Hospital Cancer Center's mammography van. The University teams raised nearly \$12,000 and the event totaled more than \$1.2 million. ●

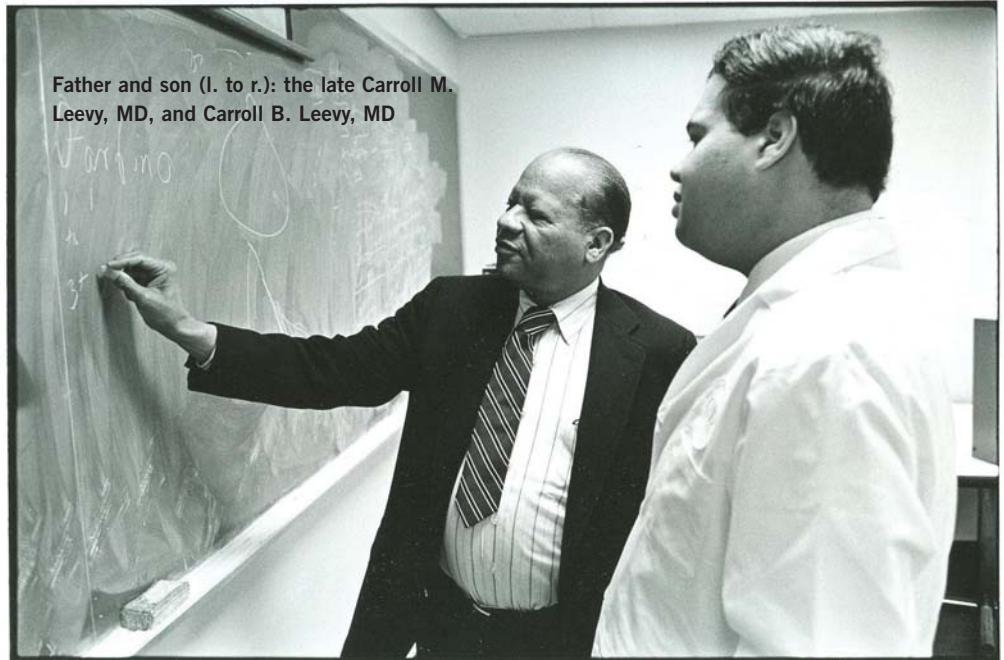


Straight Talk for Teens

THREE hundred and fifty Essex County high school students attended the 4th Annual Teen Forum on HIV/AIDS sponsored by the Division of Adolescent and Young Adult Medicine on April 11. Activist Hydeia Broadbent, born HIV positive, was joined by actor Jamie Hector of HBO's "The Wire;" East Orange police sergeant DeLacy Davis, founder of Black Cops Against Brutality; Haneefa Freeman, an advocate for HIV awareness and Dr. Rani Whitfield, all panelists on a discussion titled: "Think about your choices. The decisions you make today will affect the life you lead tomorrow." The event also featured Alesha Renee, a Black Entertainment Television (BET) host and spokesperson for BET's national "Rap it Up" HIV/AIDS Campaign and the National Coalition Against Domestic Violence. ●



Hydeia
Broadbent



Father and son (l. to r.): the late Carroll M. Leevy, MD, and Carroll B. Leevy, MD

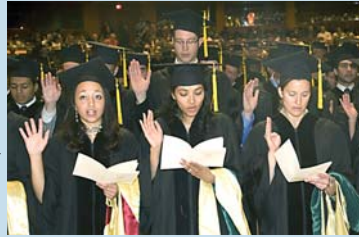
Leevy's Legacy

DOZENS OF COLLEAGUES, FRIENDS AND FAMILY MEMBERS took part in a memorial service for the late Carroll Moton Leevy, MD, one of the founding fathers of NJMS. Attendees included his son, Carroll B. Leevy, MD, an NJMS faculty member; UMDNJ President William F. Owen, Jr., MD; NJMS Interim Dean Robert L. Johnson, MD; NJMS Vice Dean Maria Soto-Greene, MD; and Department of Pediatrics Acting Chair Kendell Sprott, MD. Leevy was the second faculty president from 1970 to 1972 and served as chair of the Department of Medicine from 1975 to 1991. He published four books, 20 textbooks, and more than 500 scientific papers. He also established the Sammy Davis, Jr. National Liver Institute and was one of the first NJMS faculty members to receive the title Distinguished Professor. ●

NJMS News by the Numbers

142

New doctors who celebrated at NJMS Convocation on May 19 at New Jersey Performing Arts Center



\$15.6 million

Five-year grant from the National Institutes of Health—National Institute of Allergy and Infectious Diseases to Abraham Pinter, MD, professor, microbiology and medical genetics, one of 10 researchers nationwide who will be developing preventive HIV vaccines

4,200

Total number of graduates of annual Mini-Med program over its nine-year history

3

Researchers receiving awards from the UMDNJ Office of Patents and Licensing, funded by the New Jersey Commission on Sciences and Technology and The Foundation of UMDNJ: Peter Frederiske, PhD, Emilia Vitale, PhD, and Harvey Ozer, MD

43

Top Docs from NJMS chosen by *New York Magazine*



\$110,000

Another grant from Research to Prevent Blindness (RPB) to the Institute of Ophthalmology and Visual Science, led by Marco Zarbin, MD, PhD, bringing the total RPB commitment up to \$1,725,000

\$20,000

Gift from the Daniel Jordan Fiddle Foundation to The Autism Center's Bridging the Gap program

\$1 million

Reynolds family gives third million for The Tim Reynolds Family Spinal Cord Injury Center and the research of Robert Heary, MD.

\$200,000

Three-year award from the March of Dimes to implement "The University Hospital OB/GYN Preterm/Prenatal Health Project" under Medical Director Theodore Barrett, MD



A Motown Miracle in a Musical Moment

SOUL singer-songwriter, record producer, and star of Motown's legendary Miracles, Smokey Robinson enjoyed the spotlight at the New Jersey Performing Arts Center on June 5 and joined past performers like Bette Midler, Bernadette Peters, Kenny Loggins, Gladys Knight and Tony Randall, who have all come to the rescue of MS. This year's event, attended by 2,100 people, raised \$1.7 million to be used to support local research programs including the Neurological Institute of New Jersey at UMDNJ–NJMS. In the past, proceeds have established two endowed chairs at the Institute.

NJMS researchers Teresa Wood, PhD, and Steven Levison, PhD, were honored that Thursday evening with Medal of Excellence Awards. Both professors of neurology and neurosciences, they are one of a few husband-and-wife MS research teams in the U.S. (For more information about Wood's work, see page 8.) ●



A CLOSER LOOK AT OUR ENDOWED CHAIRS

ANDREW THOMAS AND TERESA WOOD

Two Winners' Tales

BY JILL SPOTZ

Look for the secret of brilliant work and you'll probably find the freedom money can buy. Endowed professorships do this so well. At NJMS, a minimum donation of \$2 million supports an endowed chair, one of the most prestigious honors presented to a faculty member. The gift offers a lasting legacy for the donor, while simultaneously supporting NJMS's brightest stars because the money is invested annually, with 5 percent of the fund's assets spent each year to sustain the chair's research. NJMS currently has more than 25 endowed chairs with funds going to education, research, patient care and community service activities in areas such as trauma surgery, public health, infectious disease and bioinformatics.

There are inspirational stories behind all of these endowments which give credence to both the philanthropists and the researchers who share NJMS's desire to move medicine forward.

Meet two of our endowed chairs: **Andrew P. Thomas, PhD**, is researching obesity and its associated conditions of heart disease and type 2 diabetes; and **Teresa L. Wood, PhD**, is investigating multiple sclerosis and breast cancer.



Andrew Thomas, PhD



The Thomas P. Infusino Endowed Chair

Andrew P. Thomas, PhD

Professor and Chair, Department of
Pharmacology and Physiology

WALK through Andrew P. Thomas' lab on the sixth floor of the Medical Science Building (MSB) and witness a whirlwind of scientific experiments in action...that is, if you can keep up with him. The professor in The Thomas P. Infusino Endowed Chair is quick on his feet but even faster in thought. It's a race to keep up with him.

"In this area of the lab we are working with tissue culture. Over there is our biochemical area. Here, we are monitoring living cells in real time to detect either their physiological status or the proteins they are expressing," he explains. "We are always interested in the cellular dynamics that underlie physiology." In the Thomas laboratory, microscopes illuminate living cells

maintained in tissue culture. Fluorescent probes monitor the signaling processes that connect hormonal and metabolic stimuli to alterations in cell function. A very sensitive camera takes pictures at brief intervals, creating a moving image of cells in action.

A PhD student working in the lab describes Thomas as "laid back" yet one of the most intelligent people he has ever met. This professor completed his graduate and postdoctoral training at the University of Bristol in England and later at the University of Pennsylvania. He came to NJMS in 1997 from the Department of Pathology, Anatomy and Cell Biology at Thomas Jefferson University, where he had risen through the ranks from assistant professor to full professor in just eight years. In his 11 years as a chair at NJMS, his department's research funding has grown from \$1 million to \$7 million.

Because he oversees a department of 30 faculty members, much of his time is spent behind a desk, but he still visits the lab each day. There, you'll find him answering ques-

tions and helping others. Thomas is known for his findings on intracellular signals used by hormones to control metabolism. He was the very first researcher to identify how IP₃ controls calcium signals in the liver.

When a call for proposals was announced for a new endowed chair position in 2005, the pharmacology and physiology department put Thomas' name forward. In fact, this group jumped at the opportunity. The NJMS donor, Thomas P. Infusino, had served as chairman and CEO of Wakefern Food Corporation, the parent company of ShopRite supermarkets. Infusino's colleagues thought a tribute was in order when he retired, so they presented him with an endowed chair to fund education, research or patient care programs at NJMS. All Infusino had to do was choose a winning proposal.

Back in the Department of Pharmacology and Physiology, Thomas recalls, "We created a proposition that was reviewed by the Foundation of UMDNJ and Mr. Infusino. We discussed how we would utilize the funds and Mr. Infusino felt our research

A CLOSER LOOK

interests were important to him.” The former CEO was attracted to the idea of research on obesity, diabetes, heart disease and alcoholic tissue injury.

Both obesity and type 2 diabetes, occurring in epidemic numbers nationwide, can lead to stroke, heart disease, blindness and amputations. “We are certain that these conditions are linked to an underlying dysfunction in the regulation of metabolism,” Thomas explains. “There are two ways the body senses its metabolic status, one is through hormones such as insulin and the other through the direct effect of metabolites on cells.” While his laboratory had studied the hormonal regulation of metabolism for many years, Thomas expanded to investigate how cells are regulated by their exposure to metabolites. He has initiated analyses of this metabolic sensing in the liver and muscles, where amino acids derived from dietary protein elicit signals that regulate tissue growth and function.

“Metabolic sensing in the brain is a critical component in the regulation of appetite and eating behaviors,” explains Thomas. “Growing evidence suggests that the central nervous system plays a major role in this.” He has also been collaborating with Vanessa

Routh, PhD, associate professor, who identified the specialized neurons that sense glucose and the body’s metabolic state.

Funds from the endowment support assistant professor Larry Gaspers, PhD, who is able to devote almost all his efforts to the metabolic sensing mission. Gaspers, who was a post-doctoral fellow at Thomas Jefferson University, has worked with Thomas for 15 years and came to NJMS in 1997. “I was always interested in calcium signaling,” Gaspers explains. “We had studied how nutrients, such as amino acids, evoke calcium responses and whether mitochondrial metabolism plays a role in generating these intracellular signals. The basic imaging techniques were already in place, but now we are using these approaches to focus on new goals.”

Gaspers oversees the Thomas lab and credits his mentor for his own leadership style. “Andrew is very sharp and challenges you to think,” he explains. “The graduate students are free to be adults and take responsibility for their projects. This is important because some principal investigators choose experiments for their students. Andrew lets them direct their own projects and encourages them to think outside the

box. In the end, it will be their ambitions and aspirations that make the project work.”

One student with her own good ideas is second-year PhD candidate Stephanie Troy, who is collaborating with Routh on how neurons in the hypothalamus detect hypoglycemia. Thomas explains, “If you’ve had a big meal, neurons start firing and tell you to stop eating or if you are hungry, another set of neurons signals that your blood glucose is low and you should start eating. Stephanie is trying to understand which ones are activated when your blood glucose is low.” French-born, Troy has only been in the U.S. for two years. “Although I had to adapt to a different language and culture, I enjoy this lab because all the students and post-docs interact. Everyone has their own specialty but we can ask for assistance if we run into trouble with a technique,” she says.

Funds from the endowment are being used to train MD-PhD physician-scientists and to facilitate a surgical post-doc’s investigation into multiple organ system failure, in a collaboration with Edwin Deitch, MD, professor and chair, surgery. The Infusino gift will also support an ongoing lectureship featuring a prominent scientist working in a related area.

The Rena Warshow Chair in Multiple Sclerosis

Teresa L. Wood, PhD

Professor and Vice Chair for Research, Department of Neurology and Neurosciences

TERESA L. Wood, PhD, holds many NJMS titles: professor, Department of Neurology and Neurosciences, vice chair for basic science research, University Professor—a designation established by UMDNJ in 1999 to attract the best and brightest researchers in the world—and The Rena Warshow Chair in Multiple Sclerosis (MS).

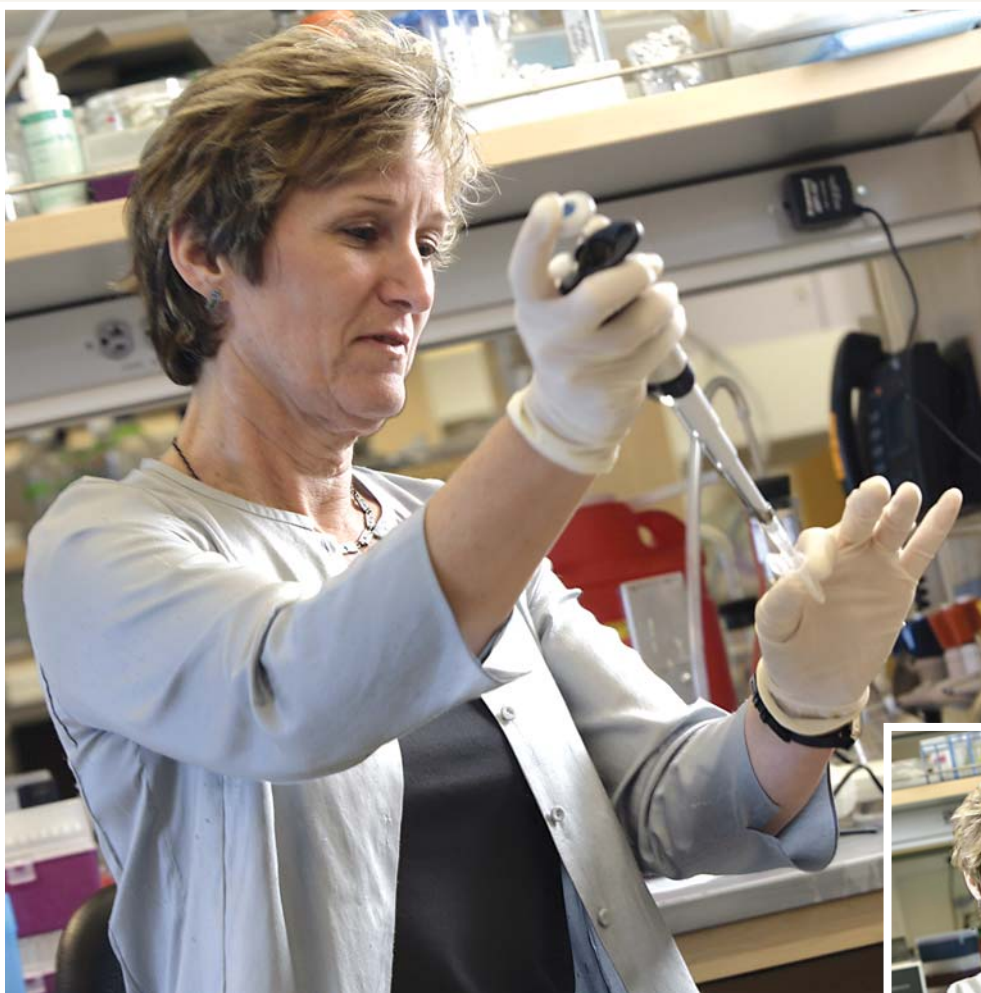
Wood came to NJMS in 2005 from Penn State College of Medicine to fill this

endowed position for three reasons. First, “there is a strong MS research community here,” she explains. “NJMS is also well known for its exceptional clinical care of MS patients, and third, the New Jersey Medical School—University Hospital Cancer Center was being constructed, which fit both areas of my research.”

According to the National Multiple Sclerosis Society, MS affects 2.5 million individuals worldwide. Two to three times as many women as men suffer from this chronic, often disabling disease of the central nervous system (CNS). One of these women is Lee Kushner, wife of New Jersey real estate developer Murray Kushner. Lee was diagnosed more than 10 years ago with a mild form of MS, which prompted the Kushners to start the annual NJMS Musical

Moments for MS concerts. The first benefit in 1998 raised \$2 million, which went to establish The Rena Warshow Endowed Professorship in Multiple Sclerosis, named in honor of Lee’s deceased mother. Since then, these annual fund-raisers have generated more than \$6 million for MS research.

MS is primarily a disease of the brain’s “white matter,” made of nerve fibers responsible for transmitting communication signals. In MS, lesions appear in random areas of the CNS white matter, and myelin, nerve insulating material, is lost. Myelin, the fatty sheath coating the axons of nerves, is the focus of Wood’s search for a cure or at least a promising new MS treatment. “Since myelin and the cells that make it are attacked in MS, I am trying to understand how immature cells in the brain turn into



Teresa L. Wood, PhD, (left and below) and Deborah Lazzarino, PhD, (below right)



myelin-producing cells during development,” Wood explains. “Then, we may be able to repair them in an adult situation where the cells and myelin are lost.” She is also interested in stem/progenitor cells because they generate the myelin producing cells. Stem/progenitor cells are abundant in the developing brain and a number of them are still present in the adult nervous system. One of her ideas is aimed at helping these cells turn into myelin-producing cells as the damage is occurring.

Wood also wants to understand the pathways that the myelin producing cells take before they die. “Protection and repair are two aspects of our work,” she explains. “If we can understand how to protect the cells from injury or damage perhaps we can prevent the amount of loss.” The repair research is concentrated on trying to generate new cells and new myelin. However, transplanting stem cells isn’t the easy answer. Wood explains that since there are endogenous (produced by the body itself) stem cells, it may be easier to trigger these cells to produce

additional cells rather than transplanting new ones. “There are problems with both approaches,” she explains, “It’s difficult to transplant stem cells for MS lesions because the lesions are scattered throughout the body, unlike some cancers that are focused in one location.” But it is also a problem directing endogenous cells to form the type of cells needed at the lesion site.

Wood is studying another aspect of MS repair. In relapsing-remitting MS, the most common form of this disease, a person experiences relapses, when new or old symptoms surface, followed by periods of remission with full or partial recovery. She is looking at what’s happening to the endogenous cells during each phase. “During the remitting period, the cells experience repair, often the result of the endogenous progenitor cells forming new myelin-producing cells. Some cells that surround lesions actually divide, make new cells and turn into myelin-producing cells,” she explains. “This repair is often the result of the endogenous progenitor cells

forming new myelin-producing cells.”

Evidence from other MS research laboratories suggests that the repair eventually fails, moving the patient back into relapse, not because the cells are depleted, but because they are inhibited from continuing. The breakdown may be in the signaling. The cells may not be receiving or responding to the correct signals. So Wood’s laboratory is investigating the signaling processes needed for promoting the repair and generation of new myelin.

Wood is also a breast cancer researcher. Though not supported by the endowment, these studies relate to the MS work because they focus on fundamental mechanisms supporting cell growth and the biology of stem and progenitor cells in relation to breast cancer. She points out that a hallmark of cancer is uncontrolled growth. Some of the pathways of this unrestrained growth, active in stem and progenitor cells, also control normal growth during developmental processes. But in uncontrolled growth, the pathways are deregulated.

Endowed professorships play a critical role in attracting and retaining faculty. Without this support, researchers like Wood, who have brought more than \$2 million in NIH funding to NJMS, would not be here. For more information about endowments and supporting NJMS, please contact The Foundation of UMDNJ at (866) 44-UMDNJ. ●

A CLOSER LOOK AT THE POWER OF HORMONES

Kevin Beck, PhD



If you “Wikipedia” the subject of hormones on the internet encyclopedia, **Kevin Beck’s** conundrum becomes quickly apparent.

HORMONES have been at the heart of this NJMS researcher’s journey into the factors that lead to susceptibility for developing mental disorders. Talk about complicated questions! There online, 18 pages of definitions and circuitously interconnected explanations spill forth, suddenly turning the topic of hormones into a wild biochemical world just below the surface of possibly every single human behavior. It was in the 19th century that the first studies discovered that “hormonal glands” influenced behavior, and ever since, researchers like Beck and clinicians have been trying to understand the role of hormones in neuronal processes associated with sensation, learning and memory, and the expression of various symptoms associated with neurological disorders and psycho-

pathologies. Although there are flickers of light at the end of this tunnel, there are many inconsistencies and the debate goes on.

“I’ve been interested in ovarian hormones and sex differences since I was in graduate school.” Beck, who earned a master’s degree in developmental psychology at Columbia University and his doctorate in biopsychology at City University of New York, was puzzled by the fact that certain subjects were more reactive to chronic stress but only some developed long-lasting behavioral and neurochemical changes afterward. Many of these individual differences were dependent upon the past experiences of the animal as well as the sex. In searching for novel mechanisms for individual differences both between and within each sex, the research led him to

explore the rapidly developing field of psychoneuroimmunology (PNI).

An assistant professor of neuroscience at NJMS who teaches in the “Neurobiology of Disease” course at the medical school, he’s combined his love of psychology and biology as a research physiologist at the VA New Jersey Health Care System and as associate director of the UMDNJ Stress and Motivated Behavior Institute. “I thought my background areas of psychology and neuroscience were complicated, but now with the immune system involved, that is a whole other ball of wax.” Even in cases of post traumatic stress disorder (PTSD)—prominently in the media because so many American soldiers are suspected of having PTSD—Beck reports that lab and clinical research in the last decade has shown that these patients are experiencing aberrant hormone and immune responses.

Always intrigued by how hormones relate to pathology, Beck has spent years investigating the effect of estrogen and progesterone on learning and sensory reactivity, especially after what would be considered traumatic stress. Why is it true that women are statistically more likely to suffer from depression and anxiety as opposed to schizophrenia, which appears equally in males and females? “The question then becomes: Is there a hormone that supports the expression of certain symptoms? Which hormone influences which symptoms? What are they doing and where? For instance, we’ve just finished up some studies and it looks like progesterone may be a smoking gun for some changes in sensory reactivity. Not that estrogen doesn’t play a role but the data supports the fact that progesterone is a critical element in some sort of regulation, influencing the immune system, adrenal hormones, and shifting the neurochemical balance in the brain.”

When Beck and his colleagues examined changes in rat sensory response following exposure to a traumatic stressor, they found male rats remained generally unchanged, but

female rats showed less reactivity to acoustic stimuli. “Both sexes startled to the same acoustic decibel stimuli, but the degree of their motor response levels, or the amount they flinched, was selectively reduced in the females. We called this stress-induced startle suppression,” Beck explains. What’s more, the dampened-down reaction was linked specifically to the presence of ovarian hormones because when Beck removed this ovarian chemical influence from the rats, they didn’t exhibit the “stress-induced startle response” and behaved just like the males. To test his theory further, Beck’s team also injected the female rats with a pro-inflammatory cytokine which is commonly released by the body when exposed to intense stressors. His recent work suggests progesterone is the necessary ovarian hormone for this effect.

Progesterone is being recommended in treatment plans for both male and female victims of traumatic brain injury because of its neuroprotective powers. This steroid hormone is a powerful anti-inflammatory which has an impact on many other organs. “All these endocrine systems are connected,” Beck says. Not to be dismissed as simply female-related or estrogen’s partner, progesterone receptors are even located in the submucosal tissue of the bronchial tubes as well as in macrophages in the immune system. Beck bemoans the fact that the body of research literature on women is so much smaller and so hotly debated that “people don’t know what to make of it. Women are an incredibly understudied population.”

Following up on the work of researchers like neuroscientist Tracey Shors, PhD, at Rutgers University, Beck and his colleague Richard Servatius, PhD, associate professor, neurology, documented how ovarian hormones affect women’s ability to learn to associate a sound with an elicited eye-blink response caused by a puff of air to the cornea. In trials, female subjects learned to blink in response to the sound in anticipation of the air puff. In her research, Shors found that

female rats learned this response quicker than male rats, but only during the hormonal phase when their estrogen was peaking followed by a rise in progesterone (known as proestrus). Beck questioned whether similar hormonal influences could be occurring in women; especially because the rat estrus cycle is so much more compact than the human menstrual cycle.

and becoming more susceptible to link irrelevant stimuli from the time of trauma to physical and emotional experiences later.

Hormones, it turns out, have a powerful behavioral and biochemical impact over the course of the entire female life cycle. “It’s well-known that supplements of thyroid hormones really make a difference in treatment for depression.” A key to female

“Women are an incredibly understudied population.”

The body of research literature on them is so small and so hotly debated that “people don’t know what to make of it.”

Surprisingly, he discovered that for a sample of adult pre-menopausal women, learning the conditioned eye-blink response was more dependent upon oral contraceptives than the menstrual cycle. In the non-medicated women, there were no significant differences in learning during their cycles. However, the women taking oral contraceptives picked up the learned response much faster than the others. The drugs definitely affected the ability to acquire the new motor response. “These results were so unexpected.” What are these synthetic hormones doing?

“We still don’t know,” he says. No one has been able to answer this riddle because, Beck explains, normal hormone assays can’t accurately measure the amount of oral contraceptives circulating in the body. “This is still a bit of an unknown because synthetic hormones do not come out in traditional assays. Is their influence on the brain riding on top of normal hormones or are they qualitatively different? Are we increasing some sort of mental efficiency level when we add them?” When Beck considers all those statistically significant instances of female anxiety disorders, he also wonders if some women aren’t being influenced by these hormones to mentally process events almost too efficiently, making unnecessary associations,

behavior, Beck believes, is in progesterone, “because when you put it on board biologically, during pregnancy, lactation, or anywhere in the female profile,” Beck says, startle responses can be “pushed down, and possibly held below baseline.” An example in real life can be seen in victims of chronic stress due to domestic violence, where women’s emotions have been documented as blunted. “Maybe there is an endogenous mechanism for women under regular, unpredictable or uncontrollable stress that makes them pull back and not hyper-respond” while still remaining in a stress-induced hypervigilant state.

In fact, the full range of hormonal powers is quite staggering, as the Wikipedia treasure-trove states: they stimulate and inhibit all growth; affect mood and mind; induce and suppress apoptosis (programmed cell death); activate and inhibit the immune system; regulate metabolism; help the body prepare for any new activity such as fighting, fleeing or mating; prime us for new life phases like puberty and parenting; and control all reproduction. About all this, Beck is certain: “If we really want to get to the core of some psychopathologies, we need to take an integrative approach and not simply come up with a better Prozac: It has to include hormones.” —**MARYANN BRINLEY**

A CLOSER LOOK AT WWW.ePLASTY



A new Web site links plastic surgeons around the globe

THE country of Mauritius, in the Indian Ocean off the southeast coast of Africa, is more than 9,200 miles—but just a click of the mouse—away from Newark, NJ. That’s incidental information to most, but not to NJMS professor, plastic surgeon and division chief Mark Granick, who’s journeyed there twice and will head back again shortly. With only one resident plastic surgeon, this island with a population of a little more than a million needs Granick’s expertise in more ways than one. He goes there to “lend a hand” or, actually, two hands, to surgically correct congenital abnormalities, and repair disfigurements caused by accidents and burns. But it was in this far-off locale that his brainchild was conceived.

While Granick’s operating room expertise has certainly changed the lives of many in Mauritius, his greater impact may now be in the wider world of plastic surgery.

Doctoring—like most professions—is collegial in nature, with physicians learning new information, techniques, and skills from one another, and this is especially true for surgeons. So, how does a lone plastic surgeon such as Mauritius’ R. P. Gunessee—with not one colleague in his specialty within close geographical range—manage to stay current and hone his abilities? With very great difficulty, says Granick, because subscriptions to journals, which certainly help keep physicians in the loop, can run into many thousands of dollars and take months to arrive at distant post-offices. Both are

major minuses to a surgeon needing to be consistently at the top of his form.

The solution? Obviously the World Wide Web, but subscriptions to most online professional journals are incredibly costly. Granick’s solution? An “open access” online plastic surgery journal—free, always up-to-date, and immediately reachable—that would be equally valuable in Mauritius and Newark, Vancouver and Beijing, Delhi and London. The downside? None, if you’re willing to dedicate what little “free” time is left after back-to-back surgical procedures and teaching responsibilities, to create and sustain such an enterprise. So, that is exactly what Granick did, joining forces with two surgeon-colleagues to launch *ePlasty* several months ago.

“Open access” is a concept near and dear to Granick’s heart. The idea, he says, is about 10 years old and gained followers with the flourishing of the Internet. Eliminating price and time barriers to accessing scientific information is tantamount, but there are other benefits. The surgeon points out that sometimes it takes two years to get a scientist’s research into print—way too long for time sensitive material—and that many printed journals turn down 88 percent of submissions because of space limitations. “The content of open access journals is available 24/7,” he says, “the turn-around-time for publishing a scientist’s material is slashed and space is not an issue. We also do not have to wait to complete a volume before making material available—as soon as an article is ready, it goes up.”

But don’t think that “peer review” is sacrificed, he points out. An article goes through much the same process it would if submitted to a traditional journal—review by multiple experts in the author’s field, suggestions for changes given to the writer if the article is accepted for posting, and time for those suggestions to be incorporated into the text.

But the entire process moves along at a clip, with accepted articles being published within two to three months of submission. “Up and out in three months,” is his motto. In addition, reprints of an article—that can cost upwards of \$20,000 in licensing and other fees from a traditional journal—cost nothing more than the paper and ink to download them from PDF format. “The writer retains ownership of everything, including photos and other visuals,” Granick explains, “unlike standard journal articles, where the writer signs everything over to the publisher.”

The creators envisioned a site where, in addition to reading scholarly articles with accompanying visuals (28 have been posted in the last two months), you could go to learn an innovative surgical technique, study the proper way to use a new instrument or piece of equipment via a multi-media presentation, review interesting cases with accompanying questions and answers to prepare for boards, and participate in a forum where you can ask questions, and receive and post answers. For instance, a resident who plans to set up a practice could learn

from others in his field who had recently done this. (This is the only section requiring a sign-in.) The virtual “exhibit hall,” which is just getting off the ground, will allow advertisers to do “amazing things that you just can’t do in print,” such as demonstrating how to set up a machine in the OR, or showing step-by-step how to use it. This will be similar to an exhibit hall at a medical conference.

For authors thinking of submitting a paper, the editors have made your job easier by creating a template. But the work still needs to be excellent; so far, 29 papers have been rejected.

Granick takes great pride in this project. “We are Pub-Med indexed,” he states, which means the online journal’s content is available via the free search engine service of the U.S. National Library of Medicine, which has more than 17 million citations from MEDLINE and other life science journals for biomedical articles back to the 1950s. The plastic surgeon also sees *ePlasty* as providing students in their 20s—who, he says, are masters of multi-tasking and seem to learn more effectively by reviewing cases and reading chapters online than by sitting through lectures—with more effective means of studying. Granick and his co-editors are intent on providing students and residents with a “core curriculum or living textbook of plastic surgery,” with all of the essential knowledge of their specialty.

The plastic surgeon will return to Mauritius in time for World Diabetes Day on November 14. His wife Carol Singer-Granick, an NJMS associate professor of pediatrics and pediatric endocrinologist, will accompany him there once again to bring her expertise to this island where no one practices her specialty. While *ePlasty* has certainly made its mark there, Granick will still be needed to work with his team on upwards of 90 of the nation’s most complex plastic surgery cases. But despite the thousands of miles he’ll journey, with just a click of the mouse at the end of this year, you just might be privy to some of his most interesting OR experiences. —EVE JACOBS

In the plastic surgery ward of Victoria Hospital, Candos, Mauritius. Standing: (l to r) Dr. R. P. Gunessee, Frank Ciminello, MD, Mark Granick, MD, and Guy Cappuccino, MD.



NJMS PEOPLE DO YOU KNOW?

HAMID BAGCE

Student-Inventor at Work

From a knee brace design based on leftover magnetic fluid in the lab to new sign language software, he always takes his creative pursuits passionately.

“WHEN you’re an engineer, you’re taught to work with what you have,” says Hamid Bagce, a first-year MD/PhD student, describing how his lab team once formulated an idea for a rehabilitative knee brace. They had been trying to find a constructive use for an excess of expensive magnetic fluids that had been ordered for the lab. So, Bagce linked properties of the fluid, which dampens motion, to an experience he had while playing racquetball, and from there, the idea was born.

“The magnetic fluid allowed for controlled dampening by altering viscosity of the knee brace, thus permitting us to rehabilitate the knee possibly through either immobility

or resistance training, depending on the extent of injury,” he explains. This process—of first considering what materials he has access to and then formulating profitable applications for them—is not only a scientific exercise for Bagce, but a theme of his life that has paved the road to personal successes.

Always gifted in math and science, Bagce used these talents to distinguish himself and propel his academic career toward medical school. He was raised in Paterson, where his scholarly achievements caught the eye of a non-profit group, New Jersey Seeds, which granted him a full academic scholarship to Delbarton, a private college prep school in Morristown. Then he accomplished the

same feat twice more—first earning a full scholarship to New Jersey Institute of Technology (NJIT), and then getting complete funding for his current MD/PhD program.

Bagce chose to major in engineering as he completed his pre-med requirements, and to focus on devices that would help improve peoples’ lives. The undergraduate worked on three major research projects: a computerized sign language program to facilitate communication among the deaf; a rehabilitative chair that mimics the movements of a horse to reduce muscle spasticity in children with cerebral palsy (part of a major research grant that was awarded to NJIT); and the knee brace, which uses magnetic fluids in combination with electrical stimulation to decrease range of motion and thereby prevent injury.

Inspired by NJIT Professor Richard Foulds, as well as other teachers, Bagce is interested in research and learning in his future career. “Whenever Dr. Foulds was lecturing, nothing else existed to him. I saw how devoted many professors are to their work, and I decided that I want a profession like that.” He finished his undergraduate coursework in three years, earning a 4.0 average and distinction as the Outstanding Biomedical Engineering Student.

Bagce envisions himself as the kind of physician who teaches his patients preventive medicine. Frustrated by his failure to convince his own parents to stop smoking, Bagce hopes that his medical degrees will confer a certain authority, as well as skill, to persuade people to change self-destructive ways. “I don’t want to treat just one patient’s symptoms. I want to treat the entire family, and address lifestyle,” he explains.

These may seem like grand goals for a first-year student, but if his prior successes are any indication, Hamid Bagce will find a way to take the resources at hand and make these raw materials work in new, remarkable ways. As an engineer-physician-researcher and inventor, he will certainly bring a unique array of talents to the table.

—LISA JACOBS



NOREEN GOMEZ

Art is Her Passion

NOREEN Gomez loves art. Name the genre—oil and water color paintings, ceramics, pottery, photography, quilts, jewelry, metal and wood sculptures, poetry, et cetera—and Gomez will tell you she loves them all. You can say it's in her blood.

"My mother started painting when she was in her 50s. I have a brother and a sister who are artists in Virginia," says Gomez, whose daughter, Christine Ryan, is an artist/fashion designer in Brooklyn. "I grew up with art on the walls. It's always been something I've loved."

So it comes as no surprise that when the Newton Square, PA, native was asked to oversee the NJMS annual Arts Festival shortly after joining the staff eight years ago, she jumped at the chance. Gomez explains that the program initially began as a one-week long spring event that featured work from UMDNJ artists and the local community on the B-Level of the Medical Science Building (MSB). Then it was moved to the fall, showcasing artwork for two-month stretches. With permission from NJMS's Interim Dean Robert L. Johnson, MD, Gomez recently expanded the program to year-round.

"It was so depressing when we took the art down," says Gomez, explaining the decision to keep it up.

With assistance from Shelly Gelbman and Cynthia Kirby, both of NJMS, and Karen Floriani of the UMDNJ–New Jersey Dental School, Gomez, a program assistant within NJMS's Facilities Planning and Management Services, masterfully plays the role as the Arts Festival's recruiter, promoter and curator.

Colorful murals depicting aquatic scenes, black-and-white photographs of street settings and children at play, abstract paintings, portraits of women, animals, and floral arrangements all add aesthetics to the otherwise cold, cement-block-and-mortar walls at

various locations in the MSB, including the B-level as well as the Dean's Office reception area.

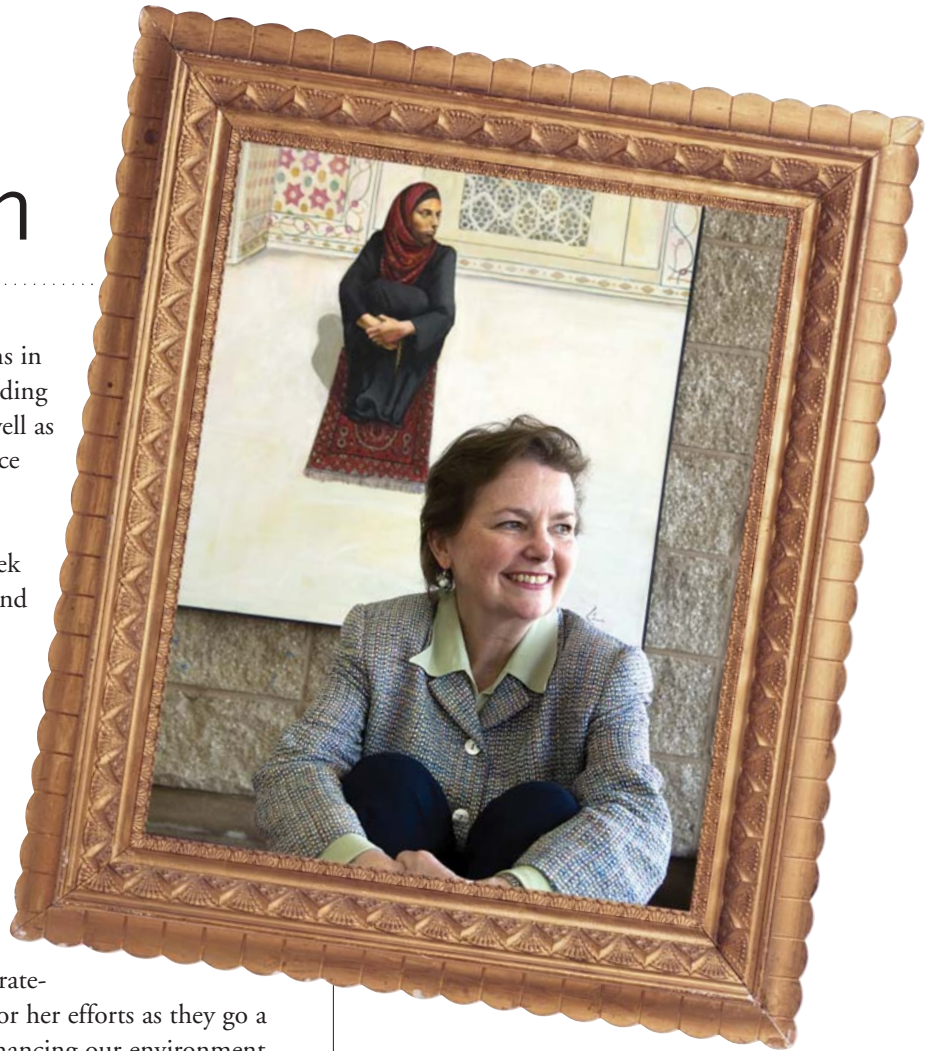
"Noreen has taken a one-week long program and transformed it into something that people can appreciate all year long," says Walter L.

Douglas, Jr., executive director for administration. "We are grateful to Noreen for her efforts as they go a long way in enhancing our environment, showcasing the artistic talents of our colleagues and strengthening our connection with the community."

As the program becomes more popular, Gomez finds recruiting exhibitors to be the easiest part of this assignment. In fact, there's a year-long waiting list to show pieces.

"A lot of the artists find out about it through word-of-mouth," says Gomez. "Artists who have exhibited in the past tell others about it because they're happy with how they and their artwork are treated. Their pieces are truly appreciated here."

The backgrounds of the artists are as diverse as the artwork. The artists are faculty members, staff, students, local citizens, and University Hospital patients from the Department of Inpatient Psychiatry and the Child Life Department. Current and past exhibitors include: Joseph Benevenia, MD, interim chair and professor, Orthopaedics; Deborah Heller, MD, professor, Pathology



Quietly, she turned a week-long event into a never-ending arts festival on campus.

and Laboratory Medicine; Keith Bratcher, principal management assistant, Dean's Office; Scott Cutro, MD, NJMS Class of 2008; and Joyce Dyer, a UH oncology patient and Newark resident.

Gomez also has been working with Diane Wheeler, program administrator at NJMS–University Hospital Cancer Center, to exhibit art on the F, G and H levels of the Cancer Center building. (See story on page 30.)

For Gomez, art pieces are not just wall accessories. They engage people, encouraging them to appreciate their surroundings. "It's nice to see people walk down the hall, stop and look at the artwork," she says. "It doesn't matter whether they like it or not. The fact that the exhibit speaks to them in some way and that they're aware of it is gratifying to me." —GENENE W. MORRIS

NJMS PEOPLE DO YOU KNOW?

SYLVIA VOORHEIS
& EILEEN QUIRK

Eighty-Somethings

These feisty, energetic octogenarians don't believe in retirement.

WHEN Sylvia Voorheis first entered the workforce in the City of Newark, her primary mode of transportation was a trolley. The round-trip fare was 10 cents. The year was 1937. Now, the 89-year-old veteran of World War II leaves her home five days a week and drives 10 miles to NJMS where she is a patient services representative.

Most people work because they need to earn a living and then they retire. However, this extraordinary woman has a different motive. "I don't work for the money. You have to have a reason to get up in the morning. I'm working to stay alive," says Voorheis, who has been an employee at UMDNJ for approximately 16 years.

This feisty, yet regal, octogenarian has worked in several industries and tried retirement—twice. Finding little contentment in being a retiree, she sought a paid position at UMDNJ in the Department of Ophthalmology. Voorheis enjoys spending her weekdays at NJMS making telephone calls to confirm patient appointments and walking her usual swift pace to assist colleagues and register patients. "I can't believe how old I am. People ask me and I say I'm in my 70s," she said, admitting that sometimes she forgets her age.

Voorheis, the eldest employee at UMDNJ, is one of 21 octogenarians working in this statewide institution. Eileen Quirk, 85, is another. According to the Human Resources Department, there are 12



Sylvia Voorheis (left) and Eileen Quirk

octogenarians on the Newark campus, eight on the New Brunswick-Piscataway campuses, and one on the Stratford campus.

Quirk still walks seven blocks each morning to the Path train and then takes the University shuttle bus to arrive at her desk where she is now an administrative assistant in the NJMS Liver Center and the Sammy Davis, Jr. Liver Institute, a part of the Department of Medicine. For 58 years, she also worked for the late Carroll M. Leevy, MD, considered to be a founder of the medical school.

Sure, she has challenges. Initially, one of them was her knowledge of medical jargon and the other is now her sight. She was born with a missing pigment in the back of her eye, but that doesn't deter her. She met that first challenge matter-of-factly: "My gospel for all these years has been the medical dictionary. Now, that I'm older, I use my spy glasses," she says, referring to a pair of magnifying glasses she needs to overcome her visual handicap.

Like Voorheis, Quirk isn't on campus for the money. Instead, "It's the personal satis-

Voorheis commuted to Newark when her round-trip fare was 10 cents and has tried retirement twice. (Too boring.) **Quirk still walks seven blocks to the PATH** each morning before catching the campus shuttle bus at Penn Station. (And makes the reverse trip later that day.)

faction in doing something for others,” she says. At the end of her day, she returns to the home she shares with her 92-year-old sister. Inspired by the lessons her parents taught them early in life, she remembers their advice: “Get jobs, make money, live independently. That kind of pushes me along,” Quirk says. When asked to describe her years as an NJMS employee, she explains that being at the medical school for so long has been “like watching something grow and being part of it in a small way.”

Meanwhile, long before the medical school was established, Voorheis was photographed for a 1943 edition of *LIFE* magazine. In the picture, wearing her Navy Wave military uniform, she sits in the front row watching as Frank Sinatra croons and an audience full of uniformed Waves listens.

According to Barbara Andrews-Jenkins, her colleague in the NJMS Institute of Ophthalmology and Visual Sciences, “Sylvia is considered the wise sage

with stories of her life during the Depression, travels to Cuba, and her military days as a Wave in the Navy. She could very easily retire and live in Florida or anywhere else she chose, but she faithfully rises each morning and reports to work no matter what the weather looks like.” This year, *Garden State Woman* magazine presented Voorheis with their Woman of the Year award. “We are so proud of her,” says Andrews-Jenkins.

Voorheis, who recalls purchasing her first new car, a Plymouth Special Deluxe, for approximately \$1,700 in 1950, takes pride in her independence and her work. During the week she gives her time, shares her expertise and, in return, reaps the rewards. “I am most grateful for having lived a blessed life and still being able to work with such caring young people who make me look forward to each day.”

—KAYLYN KENDALL DINES



Voorheis (far right), was featured in a 1943 edition of *Life*.

KUDOS

PETER W. CARMEL, MD, professor and chair, neurological surgery, was presented the 2008 Distinguished Service Award during the annual meeting of the American Association of Neurological Surgeons (AANS) on April 29 in Chicago. Carmel, who has served as an active member of AANS since 1971, was recognized for his outstanding commitment and dedication to neurosurgery.

STANLEY COHEN, MD, professor and chair, pathology and laboratory medicine, has assumed the role of President-Elect and Treasurer of the American Society for Investigative Pathology, one of the largest professional societies representing experimental and investigative pathologists. He was also appointed Treasurer, Federation of Societies of Experimental Biology.

JOEL DELISA, MD, professor and chair, Department of Physical Medicine and Rehabilitation, received the “Outstanding Medical Educator Award” by the Edward J. III Excellence in Medicine Association, Inc., for his significant contributions.

PATRICIA FITZGERALD-BOCARSLY, PHD, professor, pathology and laboratory medicine, has been appointed scientific director of the NJMS Flow Cytometry Core Laboratory. Fitzgerald-Bocarsly, whose research involves innate viral immunology and cancer immunology, is also Chair, National Institute of Health AIDS Immunology and Pathogenesis study section and was awarded an NIH Shared Instrumentation Grant.

NJMS faculty members **HARVEY OZER, MD**, professor, microbiology and molecular genetics, and director of the NJMS/UH Cancer Center; **PETER FREDERISKE, PHD**, assistant professor, pharmacology and physiology; and **EMILIA VITALE, PHD**, associate professor, pediatrics, were among several UMDNJ physicians and scientists who shared \$350,000 in research grants announced by the UMDNJ Office of Patents and Licensing.

George Heinrich, MD



Inside

Each year, tens of thousands of would-be doctors engage in fierce competition for a coveted spot in one of the nation's 129 accredited medical schools. These impressive academic achievers are without a doubt among their generation's best and brightest. Yet most will find their hopes dashed by harsh reality: there are only so many seats to go around. It can be a heart-wrenching process—as the Office of Admissions staff at NJMS knows all too well.

This year alone, almost 5,000 applicants sought admission into NJMS's fall 2008 entering class. That's 5,000 applications and personal statements to be painstakingly reviewed by a subcommittee of the school's 17-member admissions committee, a volunteer group composed of faculty members and students. Of these, 15 percent of the applicants are invited for an hour-long, one-on-one interview with one of about 60 faculty members who volunteer hours of their time each year for this crucial admissions function. Finally, fewer than 200 applicants ultimately matriculate at NJMS—and several thousand receive "letters of regret" in the mail.

By Joni Scanlon

the NJMS Admissions Office



Mercedes Rivero, (above) and with George Heinrich, MD, (below)



But the numbers tell only part of the story. Between the lines are tales of individual strength, incredible perseverance against the odds—and, heartbreakingly—of hard-fought journeys thwarted by rejection. Above all, it's the story of the seven dedicated individuals in NJMS's Admissions Office, who are committed to guiding students and doing everything they can to treat each one as an individual and not a mere statistic.

Indeed, whatever the method or media, each member of this small staff skillfully interacts with thousands of nail-bitingly nervous applicants each year. It's a job that requires superb people skills; more so, it requires compassion and empathy. That's why, despite incredible logistical difficulties, Associate Dean of Admissions George Heinrich, MD, insists on an open-door policy.

In keeping with this policy, prospective applicants have an opportunity to seek individual consultations

with either the Associate Dean of Admissions or the Director of Admissions Mercedes Rivero to discuss prospects for admission, the overall process, as well as academic requirements.

"I make sure that anybody who wants to see me gets to see me," says Heinrich. "Applying to medical school is a horrible process," he adds. "The pressure these poor young people feel is incredible. The stakes are so high, and it's so very hard to get in. So we owe it to our community to be accessible."

The office's open-door policy extends to everyone—from admitted students figuring out their next steps to those struggling painfully to understand rejection. "If a prospective applicant reaches out to us—regardless of what their credentials are—it's our responsibility to guide them in the most

thoughtful yet direct manner possible," says Rivero. Primarily, Rivero says, prospective applicants come in for advice on ways they can strengthen their application or, if they plan to reapply, what to do with their time off between applications.

Who's Who in Admissions

There is a culture of caring and compassion that permeates the entire staff of the Office of Admissions at New Jersey Medical School.

Applicants anxiously awaiting an admissions decision instinctively recognize it, as do students comfortably ensconced in their programs, who enthusiastically keep the admissions staff informed of their progress throughout their medical school years and even beyond.

An alumnus of NJMS himself, Associate Dean of Admissions George Heinrich remembers his days as a student, and feels a need to give back to the school he loves and appreciates. "I'm here because I know I couldn't have had a better education anywhere else," he says. "I value the opportunity to continue to help NJMS grow and to get even greater recognition through the excellence and accomplishments of its graduates."

Meet the Rest of the Team

Admissions Coordinator Lisa Houston serves as the liaison between NJMS and AMCAS (American Medical College Application Service). She also coordinates NJMS's joint-degree programs with several undergraduate schools. "Lisa is a great resource and a seasoned admissions professional," says Rivero.

Tiffanie Hart attends recruitment fairs and career panels and has become the face of NJMS admissions. "She has a great approach to guiding prospective applicants," Rivero notes.

Luciana Wheeler, responsible for the interview scheduling process, is the first person prospective students meet when they come in for their interview. Rivero describes Wheeler as "welcoming and reassuring and making every effort to make their interview experience a smooth one."

Jenneice White is the office's primary administrator and, says Rivero, "does an impressive job at keeping the admissions office operational and functional."

Lonnie Wright has been an admissions counselor for more than 35 years and is highly regarded by not only prospective students in search of his advice but by many current NJMS students, faculty and staff. Wright tried to retire, but came back part-time after finding himself beset by phone calls from students and faculty members—now alumni—he once recruited and advised. "He has a wonderful gift in that he is a great motivator and an inspiration to work with and learn from," says Rivero.

In addition to the office staff, 120 volunteers make NJMS's personalized approach to the admissions process possible.

The Admissions Committee is composed of 17 members drawn from NJMS's research and clinical faculties, administration and three members of the student body (representing second-, third- and fourth-year students).

Approximately 60 faculty members volunteer their time to conduct one-on-one interviews with applicants.

An additional 30 second- to fourth-year students are part of a new initiative in which students interview applicants, providing valuable insight.

Fifty volunteer student tour guides—led by four student coordinators—lead tours of NJMS's facilities, including the anatomy lab, University Hospital and student housing.

"Our decisions are constantly validated by students' extraordinary accomplishments," says Rivero. "The admissions process is rewarding because it is the result of effort by a team whose contributions are representative of the strong collaborative spirit at NJMS," she adds.

These consultations elicit unexpected results at times, she says: "We've had applicants realize that they just weren't ready and needed more time to pursue personal interests before making the big leap into the medical school application process." Other times, says Heinrich, an applicant realizes they've received bad, possibly outdated, advice from someone who may have been familiar with the admissions process several decades ago.

This Doctor Makes House Calls

This commitment to personalized service extends to the way students are notified of their acceptance. When he came on board 15 years ago, Heinrich began personally phoning each admitted student to tell them the good news. "I was looking for a way to distinguish NJMS," he says, "and then I remembered how anxious I felt checking my mailbox every day when I was applying to medical school. Was it a thick envelope? A thin envelope? I decided to personally call everyone who was accepted."

Heinrich, who once tracked down a student in a remote African village, likes to say that no one gets into NJMS without talking to him first, and enjoys knowing that most NJMS graduates remember the exact moment they received his call. "Getting into medical school is a wonderful moment, one of the most important moments in someone's life," he says. "If we expect passion from our students, we have to demonstrate our own passion."

Finding the 'Magic Formula'

Many applicants look for a magic recipe, that serendipitous formula that will help them leapfrog over equally impressive candidates. But it's not a formula anyone in the NJMS Office of Admissions can easily provide.

"We encourage applicants to pursue activities that are personally rewarding, as well as academically and professionally challenging," Rivero adds. "Medical school is a tremendous commitment and it is important that they have a clear understanding of what it will take to be successful in medical school and become compassionate healthcare providers." For her part, Rivero says she is drawn by opportunities to make a broader impact on society by guiding young people toward fulfilling their dreams.

Above all, the admissions committee is looking for something hard to define—but easy to spot: A true passion for medicine.

"We look at each applicant in a very holistic way," says Heinrich. "Obviously, everyone we interview can succeed academically. But we have the luxury of looking at everything—their communication skills, their passion, their caring. Our job is to select people we think will provide something special to other students and to their patients as healthcare providers."

"The intangibles are important," Rivero adds. "In fact, they're just as important—at times more important—than the tangibles." ●

Doctor Who?

Taking the Mini-version of Med School

BY EVE JACOBS



It's graduation day. The excitement rising in the NJMS amphitheater on Wednesday night, April 30, fills the air like birdsong on an early spring morning—a little shrill but uplifting nevertheless. In fact, the students listening to their very last lecture before the beginning of the official ceremony to award completion certificates could hardly be happier, even if they were actually finishing medical school. This is the Mini-Medical School graduation, but, believe me, there's nothing “mini” here: the students' drive to learn is off the charts; their expectations are high; the lectures are chock-full of information; the homework reading assignments are “meaty”; the energy in the room is amazing; and the faculty is top-notch. It's difficult to pull yourself away from the comforts of home during the dark, cold nights beginning in late February for nine Wednesday evenings of three-hour sessions that demand real intellectual focus. For most who attend, this follows a full day of school or work, afternoon sports, child care responsibilities and sometimes a fairly long trip to get to UMDNJ's Newark campus. No time for dinner, but the program planners have thought of everything—providing sandwiches, fruit and water to sustain their students.

It takes an A-1 faculty and highly motivated students to make this thing work—and truly, it does work. With an attrition rate of next-to zero, this may be the most dedicated and successful class of learners on the planet.

This is the ninth year of Mini-Medical School at NJMS and the momentum shows no signs of abating. A new group gathers here each winter, but there are some who choose to return a second year, or even a third. And then there's one exceptional student by the name of Irving Bender who comes year after year to expand and update his knowledge of medicine. The students' ages range from 15 to 75. Some are high school students interested in healthcare careers. This year's teens came from many towns, including Belleville, Colonia, Fort Lee, Livingston, Montclair, Paramus and Teaneck. And the program has been in existence just long enough to lay claim to some former Mini-Medical School attendees who have graduated from college and are now NJMS students, serving as volunteer preceptors to give the “next generation” the benefit of their experience.

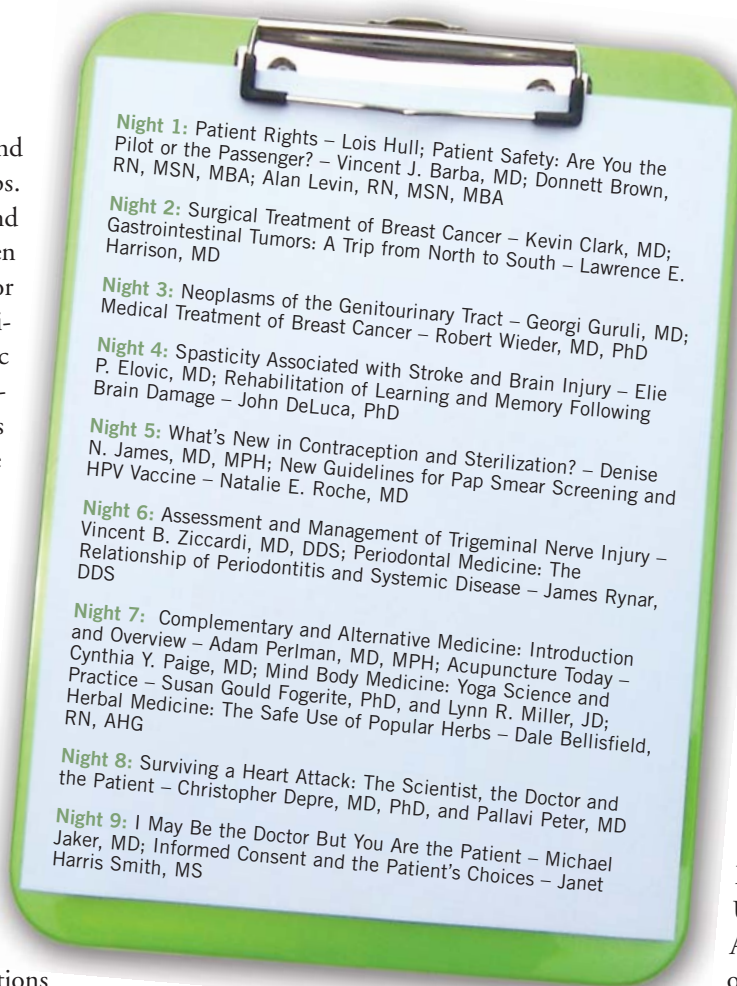
If you think the material is “dumbed down,” just ask the 21 notable lecturers, all faculty members of NJMS, and the 41

medical students who help plan and run these Wednesday line-ups. Ah—and don't forget the weekend courses and other "extras"—when four to six hours of a Saturday or Sunday fly by in a whirl of activity. These include sessions on basic life support (BLS), cardio-pulmonary physiology, how to access complex and up-to-the minute medical information, and pathology (complete with organs and body parts to observe and touch). There are also tours of the Trauma/Emergency Department at UMDNJ-University Hospital and general tours of this academic health center, which is the primary clinical training site for NJMS medical students and residents, and a no-cost health screening clinic for Mini-Med participants, which is credited with spotting potentially serious medical conditions

in prior years' attendees. This—the Grand Prix of continuing education programs—is as close to the real thing as you're going to get without committing yourself to the grueling demands of the real thing. Or maybe you are planning to attend medical school, and then what you'll get is a privileged look inside a world that few others ever experience.

The Mini-Medical School binder weighs almost five pounds. I know—I put it on the scale. Inside is a wide array of background readings and also short bios acknowledging the lecturers' credentials. It's bulk can be somewhat daunting, but if you're brave enough to dive in, you'll find articles with such titles as: Local Therapy and Survival in Breast Cancer; Localized Prostate Cancer; Insurgent Micrometastases: Sleeper Cells and Harboring the Enemy; Botulinum Toxin for Spasticity After Stroke; Can Cervical Cancer Be Prevented?; Periodontitis: A Risk Factor for Coronary Heart Disease?; Integrative Medicine: Bringing Medicine Back to Its Roots; Miracle Workers? Why We Expect Doctors to Do the Impossible; and a chapter from the *Handbook for Mortals*—Guidance for People Facing Serious Illness. All are well worth your time.

Mini-Med is not unique to NJMS, although its spin is surely all its own. Credit for that goes to its originator, Jacob Jay Lindenthal, PhD, DrPh, professor of psychiatry at the school, who is also director and founder of its Institute for the Public Understanding of Health and Medicine, and a widely exhibited photographer, and second-in-command Michael Grabow, MS, MBA. The history of "mini-meds" in



- Night 1:** Patient Rights – Lois Hull; Patient Safety: Are You the Pilot or the Passenger? – Vincent J. Barba, MD; RN, MSN, MBA; Alan Levin, RN, MSN, MBA
- Night 2:** Surgical Treatment of Breast Cancer – Kevin Clark, MD; Gastrointestinal Tumors: A Trip from North to South – Lawrence E. Harrison, MD
- Night 3:** Neoplasms of the Genitourinary Tract – Georgi Guruli, MD; Medical Treatment of Breast Cancer – Robert Wieder, MD, PhD
- Night 4:** Spasticity Associated with Stroke and Brain Injury – Elie P. Elovic, MD; Rehabilitation of Learning and Memory Following Brain Damage – John DeLuca, PhD
- Night 5:** What's New in Contraception and Sterilization? – Denise N. James, MD, MPH; New Guidelines for Pap Smear Screening and HPV Vaccine – Natalie E. Roche, MD
- Night 6:** Assessment and Management of Trigeminal Nerve Injury – Vincent B. Ziccardi, MD, DDS; Periodontal Medicine: The Relationship of Periodontitis and Systemic Disease – James Rynar, DDS
- Night 7:** Complementary and Alternative Medicine: Introduction and Overview – Adam Perlman, MD, MPH; Acupuncture Today – Cynthia Y. Paige, MD; Mind Body Medicine: Yoga Science and Practice – Susan Gould Fogerite, PhD, and Lynn R. Miller, JD; Herbal Medicine: The Safe Use of Popular Herbs – Dale Bellisfield, RN, AHG
- Night 8:** Surviving a Heart Attack: The Scientist, the Doctor and the Patient – Christopher DePre, MD, PhD, and Pallavi Peter, MD
- Night 9:** I May Be the Doctor But You Are the Patient – Michael Jaker, MD; Informed Consent and the Patient's Choices – Janet Harris Smith, MS

America is less than two decades old. The first such program was founded by John Cohen, then Chancellor of the University of Colorado in Denver, who had been teaching immunology and medicine at the school for 20 years. The story goes that on the Monday when the very first Mini-Med was announced to the public, more than 1,200 people called to register by day's end.

About 10 years ago, the idea took off nationwide. With the whittling down of the time physicians can spend with each patient, and the simultaneous flowering of health and medical information on the Web (but for most of us, minus a filter to sift out what is inaccurate, dated, extraneous or poorly explained), this was an idea that took root at precisely the right time. Mini-Med schools are flourishing at the University of Virginia, the University of Arkansas, Johns Hopkins, the University of Chicago Medical Center, Washington University in St Louis, Boston University,

in fact, at roughly half of the country's medical schools and academic health centers.

Although the NJMS Mini-Med is based on the same premise as the others (that the public has an intense hunger for medical knowledge and is willing to travel and give up an evening of TV to gain this knowledge), it is also strikingly different. It's longer (nine sessions rather than the usual four or five); each session is more intense (there are two to four speakers each night plus an hour of small group discussion); the medical students help to plan each year's curriculum and serve as group discussion leaders, guiding conversation and sharing their expertise (they are simultaneously learning how to explain complex medical information to those not as well versed in this lingo); and the program encourages participants to take the next step and learn basic medical skills, such as CPR, so that they, in turn, can be a resource in their communities.

While each year's line-up of lecturers and topics is different, the 2008 roster will give you some insight into what you can expect if you decide to take the Mini-Med challenge in 2009. And while attending every session is truly encouraged and well worth the effort, all of this year's lectures are available (for the first time) on the Web on the iTunes University site. If you want to access any of them, go to the New Jersey Medical School home page and click on the Mini-Med iTunes button. You can also use this Web address: <http://njms.umdnj.edu/minimed>. ●

BY MARYANN BRINLEY

THE

This almost sounds like a riddle but it's no joke.

What do you get when you combine the expertise of a membrane elasticity theorist, an optical physicist, mathematicians, specialists in solar flare activities in outer space, biomedical engineers skilled in computational fluid dynamics, and an NJMS associate professor of neurosurgery?

And, the answer to the puzzle is?

A more accurate way to predict whether aneurysms will break, bleed and wreak havoc on victims.

Charles Prestigiacomo, MD, is the NJMS leader of this eclectic mix of extraordinary talent culled from within UMDNJ, as well as collaborations with researchers at New Jersey Institute of Technology (NJIT) and Delaware State University. "I just love science. And there is so much to learn if you look outside your own field," he says. Which is exactly why he sent an e-mail to the head of the biomedical engineering department at NJIT in August 2002, shortly after he arrived to practice, research and teach at NJMS.

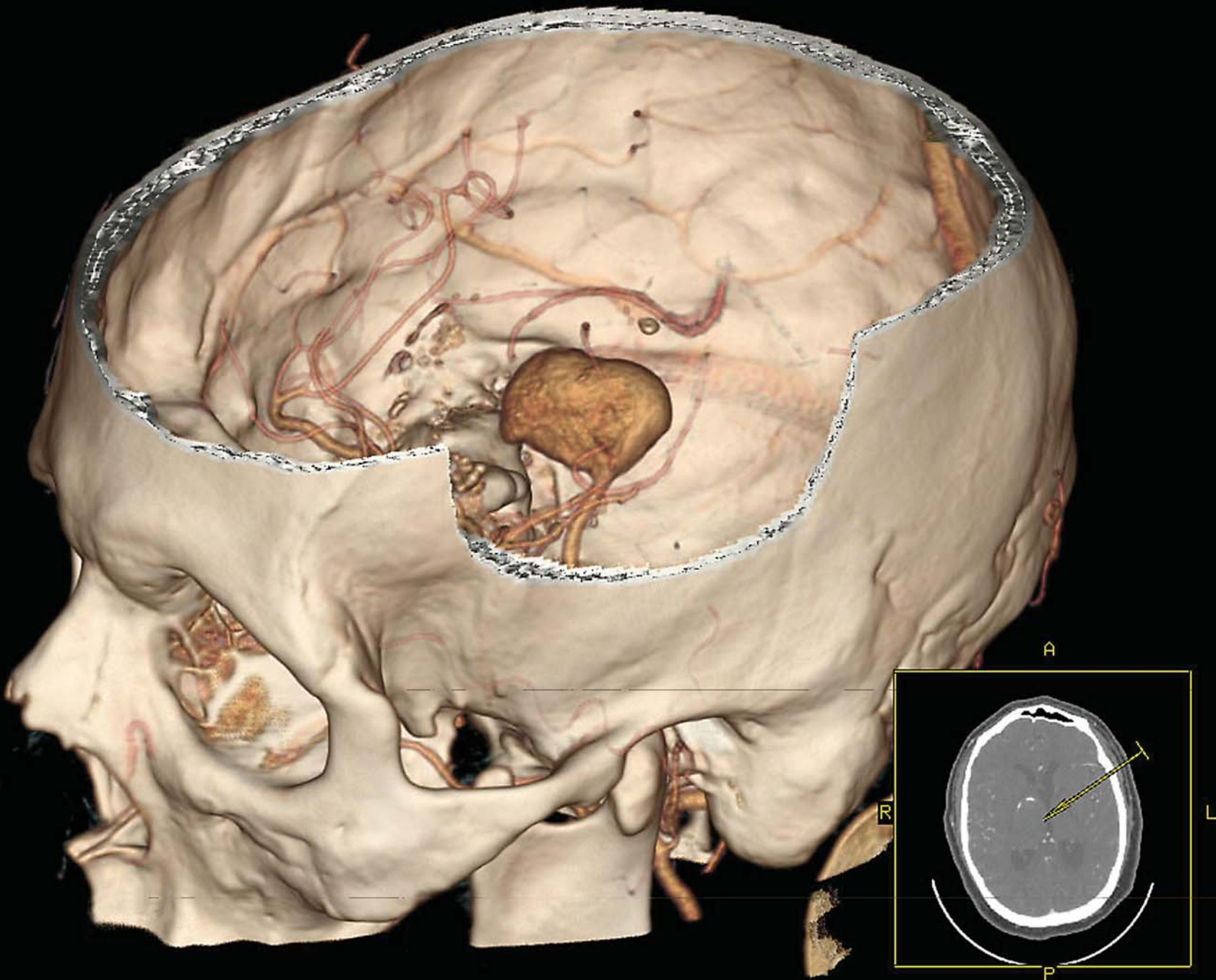
A specialist in neuroendovascular surgery as well as cerebrovascular microsurgery, Prestigiacomo doesn't have an engineering background but has always been interested in how aneurysms form and why they rupture. This is his passion. "Not all aneurysms bleed," he explains. In fact, bleeding from a brain aneurysm, or subarachnoid hemorrhage, occurs in a relatively small proportion of the population, but it affects patients, about 30,000 a year, during the most productive years of their lives, between ages 30 and 65. And there is a 50 percent chance of dying from these strokes. Even if the patient doesn't die, "He or she could be debilitated somehow from this bleeding. Aneurysms hit you early and they hit you hard." Signs and symptoms of an aneurysm can be non-existent until it ruptures or grows large enough to impinge on surrounding physical structures of the brain. And aneurysms are often discovered by accident in routine physical examinations during an X-ray, ultrasound, or CT scan being done for another reason. "The best thing we can do is find them and figure them out before they pop like a blister," says Prestigiacomo.

Meanwhile, his simple e-mail to David Kristol, PhD, chairman of the NJIT Department of Biomedical Engineering, asked, "Is there anyone in your department who might be interested in aneurysms?" Within an hour, he had his answer from Driscoll and Hans Chaudhry, PhD. "Love to talk to you."

Soon after, he was on his way down the street in Newark to NJIT for meetings, collaborations and entrée into a world of pure mathematics, computational fluid dynamics, elasticity and biomechanical properties of membranes. "It was great. I like math and I like engineering though I was a biology major and a classics minor back in college. These guys are pure mathematicians." His excitement about the fruit of the collaborations is still evident years later as he recalls how serendipitous the conversations became. "At one point during a discussion, someone said, 'Hey, a friend of mine is an optical physicist with a machine that can calculate the thickness or springiness of tissue by how it reflects light and the levels of tension. Maybe we can apply this to aneurysms.'" That machine, by the way, is still too big to drag into the operating room at University Hospital. However, plans are underway to size it down. This neurosurgeon is even working with experts who study solar flare activity using mathematics to predict eruptions on the sun's surface. The belief is that this predictive technology can be applied to the understanding of volatile aneurysms inside the body.

These exchanges were electric. Prestigiacomo taught the biomedical engineers everything he knew about aneurysms and soon, the team was giving back, studying the alveoli of the lungs as a simple model for aneurysms, looking at anatomic features, shapes, dimensions, all kinds of parameters applicable to aneurysms, and posing all the right

ANEURYSM ANSWER



A 22-year-old patient's scan showing the large aneurysm in the center.



Charles Prestigiaco, MD



theoretical questions. The pulsations and pressures along the inside of a blood vessel's wall can cause weaknesses that result in a bubble or blister. "That's an aneurysm," explains Prestigiaco, who soon added research professor of biomedical engineering at NJIT to his list of academic titles. "I started lecturing to their students," he says.

There are four types of aneurysms: abdominal aortic, thoracic aortic, cerebral and peripheral. Each of these has different mechanisms of formation and different risks for bleeding. However, all can have catastrophic consequences. Imagine blood flow beating at this weak spot in a vessel at a pressure of 120, 130, 140 mmHg, at least 60 times a minute, over the course of an entire lifetime. "It's an interesting disease process and frightening to a lot of people because there is a genetic component. Yes, you can be born with this weakness in a blood vessel wall." But 95 percent of the time, a ruptured aneurysm is not due to heredity.

Other, possibly more important, environmental components affect the outcome of this fragile spot in the vascular system, including high blood pressure, excess emotional or physical stress, the physics of blood flow and of course, cigarette smoking which deteriorates connective tissue. "There is definitely an association between smoking and ruptured aneurysms."

HE CALLS THE MATHEMATICAL FORMULA A "MAGIC ALGORITHM."

In general, an aneurysm has about a one percent per year chance of bursting, but the likelihood of this happening is also dependent on the location, as well as things like size and shape, according to Prestigiaco. The debate in the medical literature about what counts most in this rupture risk is ongoing and this neurosurgeon is right in the middle of the deliberations. In fact, it was the impetus for his seeking out his dream team. "Some people say that size is the most important factor," he says. "The bigger the aneurysm, the higher the chance of bleeding." Others believe that location is more important. Those in the back of the brain are said to have a higher chance of bleeding than ones in the front. And shape is a factor as well. For instance, an aneurysm with two piggy-backing blisters resembling Mickey Mouse's

ears would be more imminently dangerous than one looking like a smooth-shaped sphere.

Unfortunately up until now, too often such issues have been examined independently or not at all. "No one else has looked at so many physical factors," Prestigiaco explains. His aneurysm answer is "not a simple linear equation but a combination of statistical analysis with pure geometry." Size, location, configuration and shape should all fit together into a mathematical formula, or what he calls a "magic algorithm." By putting together all this critical information, all the biomorphometric data about a patient's aneurysm, the team believes their model can save lives and become the standard of care. "We can now create the person's aneurysm on the computer, and we are developing routines to submit these models to flow studies, watch for shifts in weakness and predict potential to rupture." In the future, this will only take moments to do. And in his research, Prestigiaco is already up to a sensitivity of 80 percent accuracy. He's created a database, applied a predictive scale and is putting so much information into the formula that he can safely say, "We're going for near-perfect accuracy."

When a patient is identified as having an aneurysm, "The treatment we offer now is surgery, but that carries a risk, so why would we want to expose someone to this risk if I could say comfortably, 'You've got nothing to worry about. I've done the calculations and I'm 100 percent sure that your aneurysm will not rupture.' This is a big deal. I could tell a patient, even someone with a 2 mm bubble, let's just follow this."

A scientific paper, coauthored with Jeffrey Catrambone, MD, and Wenzhuan He, MD, both NJMS neurological surgeons, has just been accepted for publication and the team is also exploring patent options for the equation. Information about Prestigiaco's aneurysm work was also distributed in the press kits for physicians gathered for a national meeting of the American Association of Neurological Surgeons in 2006. He explains, "What was published in the press kit is the fact that we can detect aneurysms with 99.6 percent accuracy by using a safe, non-invasive technology called CTA. What is usually done now is catheter-based angiography which is invasive and carries a risk of vessel injury and stroke." Pleased with the national feedback so far, he wants to change the way aneurysms are assessed.

Hundreds of patients' histories have gone into generating the data-



WHO'S WHO IN THIS ANEURYSM COLLABORATION

Hans R. Chaudry, PhD • research professor, NJIT, Department of Biomedical Engineering

John Federici, PhD • professor, NJIT, Department of Physics

Dawn A. Lott, PhD • professor, Delaware State University, Department of Mathematical Sciences

Demetrios T. Papageorgiou, PhD • professor, NJIT, Department of Mathematical Sciences

Michael Siegel, PhD • professor, NJIT, Department of Mathematical Sciences

NEUROLOGICAL SURGERY RESIDENTS

Paul Schwartz, MD

Aria Sabit, MD

James Thurmond, MD

Koji Ebersole, MD

Daniel Yanni, MD

Gaurav Gupta, MD

Lana Mitchel, MD

Reza Karimi, MD

Alexandrios Zousia, MD

Antonios Mammis, MD

Krystal Tomei, MD

James Barrese, MD

Jethwa Pinakin, MD

base for this new mathematical tool. Some remain quite unforgettable for this doctor. While he can't yet use current patients in this study at this stage, rescuing real people in the midst of trauma is what this clinical researcher does best. Sitting at his bank of computers on the eighth floor of the Doctor's Office Center, he quickly pulls up the scan of a 22-year-old from south Jersey. Oh, does he remember this young man!

He was in his car when the call came in describing a grade V aneurysm measuring 3.18 centimeters in diameter. "You mean millimeters, don't you?" he recalls asking. It wasn't millimeters, however. It was centimeters. That's almost an inch and a half. "This young man had gone to bed the night before with a headache and never woke up," his doctor explains.

The visual proof of this event still looks like a bomb has exploded inside an unsuspecting brain and is stark and center there in Prestigiaco's computer files. He points out the massive hemorrhage that made the patient so unstable and his pulmonary status so bad that placed on his back, he'd develop edema immediately. Rushed to UH—because the emergency team in southern New Jersey knew exactly where the right experts were—"he was almost dead. I said to the mom, 'I don't know if there is anything I can do.' But she insisted, 'This is my child. He's my boy. Do whatever you can. I'll understand if he doesn't survive. I'll let him go. But I can't let him go now without at least trying. I'd like you to try.'"

In describing this case, Prestigiaco can't stop referring to the dedication and expertise of the best neurological surgery residents in the country: his own. "Our residents are amazing." Under Peter Carmel, MD, this NJMS Department of Neurological Surgery program has expanded from "6 to 14 residents in just 5 1/2 years," he explains. "They are devoted to patients."

Unable to do anything but try to stabilize the patient for three long days, the team managed him in a 45 degree, semi-seated position. Finally, "We got him to a point where we could lay him flat and keep him oxygenated enough so I could do an angiogram." The hemorrhage was so huge that the entire damaged artery had to be blocked off in his brain and filled with tiny metal coils, which are still quite clear on the CT scan on the computer. "I just kept shoving them in, one after another, sacrificing the whole vessel," he explains.

Though this patient survived the procedure and was sent off to recovery, miracles were hardly expected by anyone. "We were always on the same page," Prestigiaco recalls. And the family's willingness to let him go had "clinched my decision to do everything possible." He could have been paralyzed. He could have been brain dead. He might not ever wake up. "You can't grow new blood vessels in your brain, especially when the one which was destroyed was as big as this one."

Three weeks into recovery, this mom insisted that her son was wiggling his thumb in response to her coaxing. "I usually discount family members who report things like this. But I told her, 'Let's go see him together and I'll just watch. I'll let you do the talking.'" And right there in his room, with a little gentle cajoling, he did move his thumb, indicating that he was there inside mentally, trying to communicate.

"I saw it myself," Prestigiaco says, remembering his surprise. Perhaps even more amazing about this story is that the patient got well enough to go on to college. "He's not perfect but he would have died."

Becoming just one more of those sad aneurysm statistics Charles Prestigiaco is determined to change. ●



Lee B. Reichman, MD, MPH

THE BATTLE TO STOP A
CATASTROPHE IN THE MAKING

INSIDE OUR GLOBAL TB POWERHOUSE



Quick: Can you name the disease that kills 1.7 million people a year and causes 9.2 million new cases annually—yet is preventable and curable?

By Florence Isaacs

The disorder may come as a surprise. It's tuberculosis, which traces its history as far back as ancient Egypt but constitutes a worldwide public health crisis today.

"It's a catastrophe in the making," according to Lee B. Reichman, MD, MPH, executive director of The New Jersey Medical School Global Tuberculosis Institute (GTBI). "More people die of TB than any other infectious disease, and it is the leading killer of people with HIV. There is a global threat because countries are missing their TB control target. Interest is waning. Detection of new cases has slowed worldwide, and there's a \$2.5 billion deficit in TB control funding."

In the U.S., new TB cases declined at a rate of 7.3 percent a year from 1993 to 2003. The Centers for Disease Control (CDC) report-

ed 13,293 cases in 2007 vs. 25,000 in 1992. But that rate of decline dropped to 3.8 percent annually from 2003 through 2007. "And today's cases are harder to treat due to increased multiple drug resistance," says Reichman.

The Institute is an international player in this TB emergency. Reichman spent six months last year as senior advisor to The Stop TB Partnership housed at World Health Organization (WHO) headquarters in Switzerland—and as technical advisor to George Sampaio, former president of Portugal and the UN Secretary General's special envoy on tuberculosis. They traveled extensively together to raise TB awareness.

Current TB treatment involves a combination of four drugs (isoniazid, rifampin, pyrazinamide, and ethambutal), usually taken for six months in order to kill all *Mycobacterium tuberculosis* bacteria and prevent mutation into drug resistant organisms. However, the CDC is supporting research at the Institute into new drug regimens that would lower treatment time from six months to two months, and be less toxic.

These four drugs are given under direct observation five days a

week. Reichman explains, “The trouble is most people stop taking their medicine, which results in a relapse and drug-resistant TB. Multiple drug resistant (MDR)-TB is caused by inappropriate prescription of medication by practitioners or inadequate drug taking by patients. At our Institute, adherence rates for clinic patients are 98 percent to 99 percent, despite the fact that many are homeless, alcoholics, drug abusers, or HIV-positive.”

Another reason for the rise in MDR-TB in the U.S. is the increase in foreign-born populations from countries where TB is common. “More than 58 percent of TB patients are born elsewhere,” says Reichman.

In 2005, the CDC charged the Institute with strengthening the public health response to TB in the northeastern U.S.

CDC has funded GTBI to

expand pro-

grams and build a regional network of TB consultants. This Northeastern Regional Training and Medical Consultation Center (RTMCC), one of four throughout the country, covers 16 states from Indiana to Maine and the cities of Philadelphia, Baltimore, New York, and Detroit. GTBI is also New Jersey’s stipulated consultant on MDR-TB and the state’s medical professionals are required to call the Institute about all cases of MDR-TB.

The GTBI toll-free number—1-800-4TB-DOCS (482-3627)—is answered Monday through Friday, 9 a.m. – 5 p.m., with voice mail available 24/7. Calls are taken on a rotating basis by Reichman; Reynard J. McDonald, MD, medical director of the Institute; Bonita T.

Mangura, MD, director of research; Alfred Lardizabal, MD, assistant director of research; George McSherry, MD, co-director, pediatrics; Kevin Fennelly, MD, MPH, interim director, Division of Pulmonary & Critical Care Medicine, NJMS; and John Bernardo, MD, medical director, Division of TB Prevention and Control, Massachusetts Department of Public Health.

In 2007, this Infoline received 331 inquiries from medical consultants in health departments, doctors, nurses and other healthcare workers; and 46 calls from the public. “Typical calls relate to treatment, screening or diagnosis. For example, a provider may ask how to handle side effects like nausea in someone being treated for active tuberculosis, or want to know which alternative drugs are best for an MDR patient,” says Chris Hayden, retired director of communica-

tions and education at CDC’s Division of Tuberculosis Elimination, who is now a GTBI consultant.

Because some physicians rarely see TB, they may not understand recommended procedures for confirming diagnosis. In one case, a father of three young children was hospitalized with active infectious TB. His children had tuberculin skin tests to screen for TB infection and when all three tested positive, the next step should have been a chest X-ray to rule out active disease.

Instead, their pediatrician ordered a gastric aspirate of stomach fluid, a less reliable and invasive diagnostic procedure that requires restraining the child. Tests on the initial aspirates were negative. The infection control expert on the case called the Infoline when the pediatrician wanted to repeat the procedure a few weeks later. The question was whether the ordeal

was necessary. GTBI’s pediatric TB specialist indicated it was not, and neither was the first procedure. So, the call saved the children from another trauma, and got them the X-rays they should have had initially.

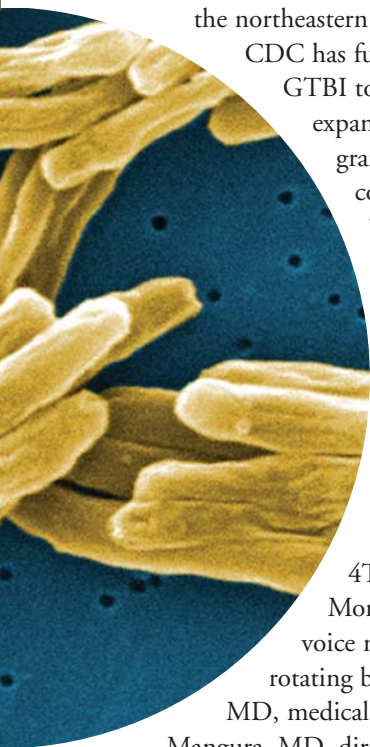
GTBI provides workshops, courses, downloadable training materials for health professionals, and educational information for the public. “Sixty-one percent of our training, including Web-based training, is off site. We train doctors, nurses, nurse practitioners, disease investigators, and outreach workers,” says Nisha Ahamed, MPH, GTBI’s education and training director.

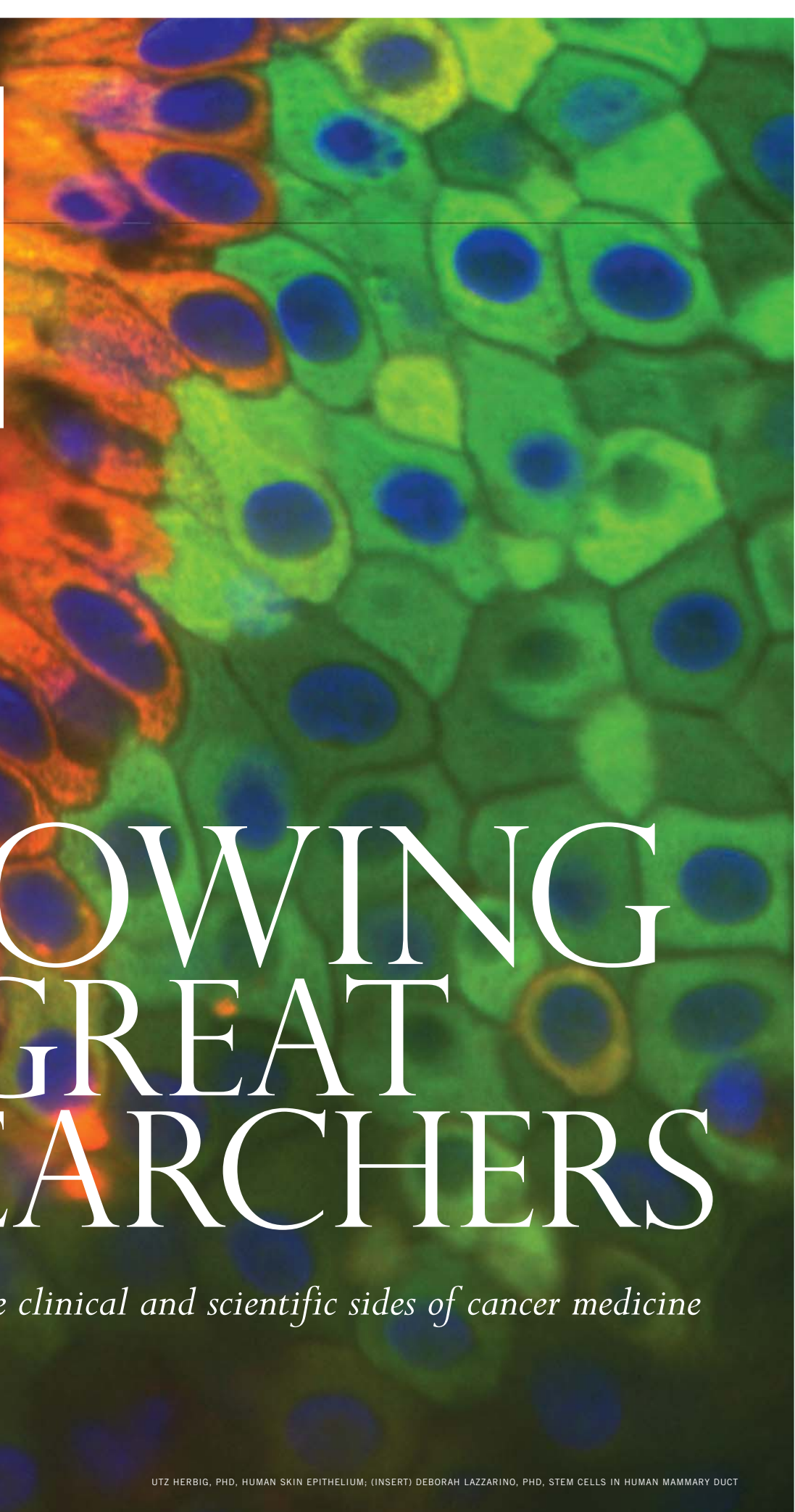
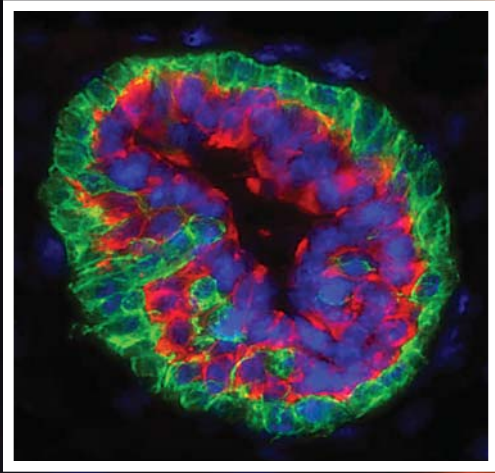
Originally established in 1992 as the New Jersey Medical School National Tuberculosis Center, GTBI offers outpatient services in the Waymon C. Lattimore Practice. The clinic specializes in pediatric cases, MDR-TB, and HIV patients with TB. Recently, a grateful patient treated by McDonald anonymously endowed an annual lectureship, and the first Reynard McDonald World TB Day Lecture was delivered at NJMS on March 25 by Michael D. Iseman, MD, a leading international TB authority, who trained with McDonald at Harlem Hospital Center more than 30 years ago.

Meanwhile, GTBI’s international activities are growing. The Institute offers program development, education, training and research to ministers of health in other countries. And supported by a grant from the Johnson & Johnson Foundation, the Institute has developed free courses on TB for journalists in Russia, the Philippines, Romania, Germany, Lithuania, and Latvia.

There’s no time to waste. Extensively drug resistant XDR-TB, which is even more serious than MDR-TB, is now found in 45 countries. South Africa is battling an epidemic. “We need people to recognize that TB can be stopped, and it’s in our best interests to support global control,” says Reichman, “But we have to act now.” ●

The Institute offers program development, education, training and research to ministers of health in other countries.



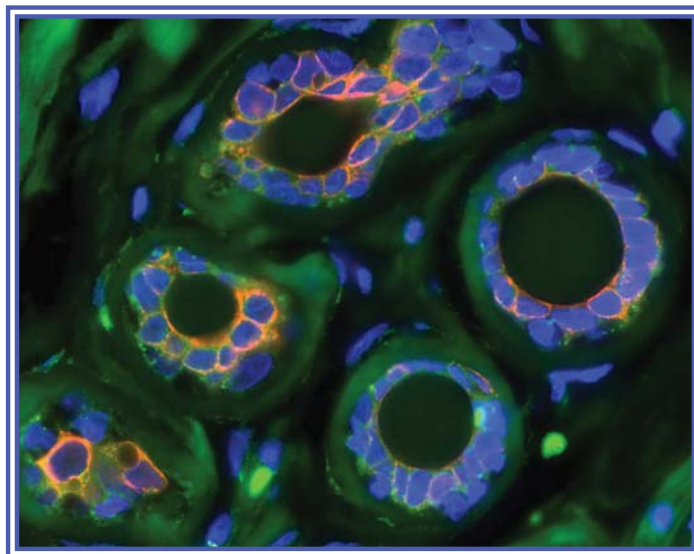


GROWING GREAT RESEARCHERS

The art of mixing the clinical and scientific sides of cancer medicine

By Mary Ann D'Urso

Gwen Mahon, PhD, looks up from her desk and sees a whale swimming, its body awash in circles and swirls. Inuit-inspired, she calls her painting “Ode to British Columbia,” a fanciful appreciation of the mammals seen from the ferry which crosses between Vancouver and Victoria.



On another wall is another bridge to her native Canada: a framed scene of sheep, luminous and grazing under starlight in a field of deep blues and oranges—a reminder of her sister’s place in Chilliwack, about 100 kilometers east of Vancouver. On other walls, other images shine brightly. A faculty administrator at the New Jersey Medical School – University Hospital Cancer Center, Mahon loves painting, creating images from nothing and vibrant colors.

Outside her office in Newark, artful images of human cells hang on a corridor wall. Their colors—the result of staining, when a scientist attaches dyes to antibodies that light up red, green, blue as they recognize different proteins in a cell’s architecture—are striking, almost fluorescent, like Mahon’s paintings. She has pulled together this hallway art exhibit by calling on basic scientists, students and clinicians to submit their work, turning scientific applications into art and forming a bridge to the paintings of Newark artists, which hang on the opposite wall. The outpouring from Mahon’s scientist-artists and their Newark neighbors prompted plans for a gallery opening held in late spring.

Enthusiastic and energetic, Mahon relishes when people come together. She is the anti-stereotype of an isolated researcher alone at her bench in the lab—work she pursued for 15 years before becoming director of research program development and planning for the NJMS-UH Cancer Center.

Her colleague Charles Cathcart, MD, NJMS assistant professor and medical director of radiation oncology at the Cancer Center, is a study in über organization. His day goes something like this: Up at 5:30 a.m. for a short run, he makes lunch for his six kids—though the 17-year-old is on his own—before showering and sharing school

drop-offs with his wife, also a cancer doc. A clinician as well as a teacher, Cathcart sees radiation oncology patients and students all day. In late afternoon, he picks up the kids and piles them back into the minivan, shuttling to points like dance, basketball and soccer before gathering the troops for nightly family dinner at 7 p.m. Dishes are not as daunting as pinning down nimble children for

baths, books and bedtime. While others, he said, might be bored to tears by the routine of his typical day, he loves every second of it. His life is fun, alive and maybe the antidote to radiation oncology, where he doesn’t see many happy endings.

Mahon and Cathcart are people-driven. Called by science, medicine and the humanity of cancer patients, they are also the point in the road where the bench meets the bedside. Stemming from the tradition of physician-scientists, this bench to bedside idea is also referred to as translational research and is gaining ground across the country through innovative programs like the one Mahon and Cathcart tested this past spring with graduate students and NJMS faculty members on the Newark campus through the UMDNJ-Graduate School of Biomedical Sciences.

Talk to this duo and they’ll tell you, this translational course is about forming a bridge between scientists and clinicians so each can learn the language and feel of the other’s country. Such interplay between investigators and clinicians is designed to inspire people’s work, to get them thinking even further outside their boxes and to offer a rich connection and understanding of what is happening to a person living with cancer. The hope is that it will lead to innovative science and discoveries, linking biomedical science with clinical applications.

When Mahon was involved in a faculty mentoring program, she realized that both clinicians and scientists felt that something was missing. “Collaboration between the clinic and the lab was something everybody wanted but there was no clear mechanism to do it,” Mahon says.

She got an idea and in Cathcart, she found an ally.



Charles Cathcart, MD, and Gwen Mahon, PhD

Health (NIH) initiatives and funding that began in 2004, translational research training was once aimed primarily at medical students. Back in the day when science was not as sophisticated technologically and medicine not so specialized, a physician could regularly build time for lab research into his or her schedule. Today, given the time spent pursuing careers as either PhD scientists or MDs—on average 18 years from undergraduate through post-doc or residency work—plus money and insurance issues, compartmentalization happens. The opportunity for PhD level scientists to receive training in clinical medicine is gaining ground because a cancer researcher's career could end up spanning academic, pharmaceutical and biotechnology areas.

“By building bridges and demystifying things on both sides, you present the opportunity for something else to happen down the road,” explains Harvey Ozer, MD, director, NJMS-UH Cancer Center. “I feel that the program provides an added dimension for attracting outstanding students and faculty. Its success will provide a further indication that the Cancer Center serves as a force for innovation as well as excellence.”

When she approached him about offering Masters and PhD students a translational research program, Cathcart was all for it. They literally brainstormed for an hour and came up with the framework, including his lecture series, Introduction to Clinical Oncology; attendance at weekly tumor board conferences, where doctors from all oncology disciplines collaborate on patient cases and protocols; and six months of multidisciplinary shadowing rotations, where researchers and docs are paired up.

Having worked in a lab for two years between college and medical school, Cathcart has long favored giving basic scientists a clinical vocabulary and a sense of how physicians think about problems. Several years ago he invited researchers to attend the weekly tumor boards. “People would come and discover that our languages were so different. I think we scared researchers out of the room to some degree,” says Cathcart. He likens translational researchers to engineers who design and refine cars. At the end of the day, these engineers also drive in traffic or get flat tires. “They understand the practical side of what they're trying to fix,” he explains.

Cathcart says he hopes that his course, which will resume next spring as a graduate school requirement for the Cancer Research Training Program, will break down barriers. He wants basic scientists to feel confident approaching clinicians for whatever they might need, from cancer tissue samples to more information and feedback.

Emerging as a field of its own, largely due to National Institutes of

Lawrence Harrison, MD, associate director of clinical services at the Cancer Center, agrees. “The more the clinician and the basic scientist communicate, the more relevant the research becomes,” Harrison says. He ought to know. According to his colleagues, Harrison, who is also chief of surgical oncology and a principal investigator heading one of the center's 12 labs, is one of those rare exceptions on today's medical landscape: He's fluent in both languages. Harrison was recently awarded a \$100,000 grant from the New Jersey Commission on Cancer Research to continue laboratory studies aimed at helping patients with terminal abdominal cancers.

This training program, Harrison says, offers a context for the basic scientists and provides a window into the clinical world where their research will have an effect. “The scientist sees the clinical problem, the clinician has a better understanding of the researcher and most importantly, the patient will eventually benefit from the collaboration,” says Harrison, one of 10 docs who signed up within hours to be a clinician mentor in the shadowing program.

Real and raw is how Mahon describes the lectures and her attendance at the tumor boards. “Literally, for two nights I couldn't sleep thinking about these people and I had done cancer research for 15 years. I was aware of these diseases,” she says.

Cathcart didn't pull any punches.

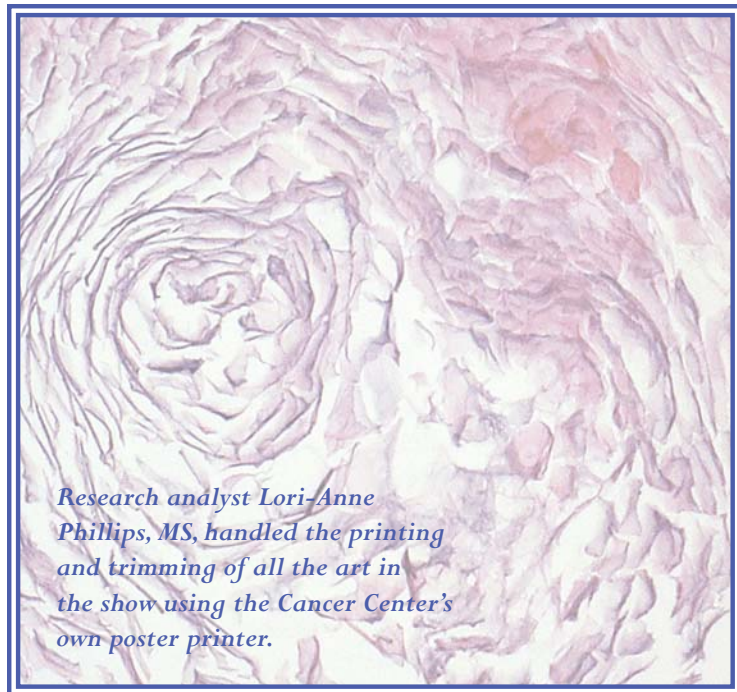
“I love the patients. I wanted to impress these basic scientists with the sheer volume of cancer, with how many people die every minute. Here at UH, we are largely taking care of people no one else wants to

treat. They are diagnosed with cancer in late stages because they don't have insurance coverage for routine screenings, which could have led to an earlier diagnosis with a better outcome. I feel like I'm curing very few people," Cathcart says.

"I wanted to frame how pervasive this disease is in our community and show pictures of patients who are very brave, very accepting. They appreciate anything you can do for them," he explains. Seeing pictures of patients. Listening to their stories. Hearing about Newark's local and ethnic issues. Learning how to tell someone they're going to die. Understanding how doctors speak to each other. All of it is exposure that scientists would not otherwise have.

Pedro Rodriguez, a fifth year PhD student who was in the new program, reports, "In a matter of minutes, you are introduced to a person with a family and a past. In many cases, you learn how the doctors plan to take action in treating these patients and sometimes the prognosis can be dismal.

"To have some connection to the clinical side can be profound. You get motivated and inspired. You remember who you're doing this work for. Sadly, in the lab, people tend to forget this," says Rodriguez, whose research concentrates on cancer cell signaling, the molecular language of cancer cells.



Deborah Lazzarino, PhD, NJMS assistant professor, neurology and neurosciences, also participated in the course and says she became "much more aware of how limited the tools are when aggressive measures don't work." Lazzarino wants to establish an ongoing collaboration with a breast cancer clinician so she can look at gene expression.

Rodriguez also hopes to collaborate with clinicians and obtain real patients' tissue samples. "It's a huge thing to be able to work with

patient samples because they are more relevant," Rodriguez explains. Researchers prefer these real cells because they retain their unique lineage and profile. Over time, commercially available cancer cell lines used most often in labs worldwide become very different from their tumor of origin.

Like the tumor boards, the shadowing rotations will further draw scientists into the world of cancer doctors and their patients. "The impact is almost overwhelming for the non-clinician," Cathcart explains. "Not to overstate it, but I think that a non-clinician leaves the patient's room after face-to-face encounters realizing that they are 1,000 times more powerful interactions than they originally thought." Participants like Lazzarino are often in awe of the positive attitude and psychological balance physicians maintain while dealing with such disheartening real-life situations.

According to Ozer, the course and translational work will form a bridge to the 220,000 square-foot, state-of-the-art Cancer Center, originally conceived as the building that would, in its very design, provide a shared space for researchers and clinicians in which to see patients. Since October 2006, scientists and their labs, which fall under the medical school's umbrella, have set up shop on four of the center's nine floors. About 100 people, including 13 faculty investigators from nine medical school departments and 35 graduate students, call it home. Their funding now totals \$7,695,000 a year. The center also houses NJMS core facilities and common labs.

Course lectures, seminar series and tumor conferences regularly meet at the center, which will eventually be home to clinical oncologists and staff who will treat patients there.

Receiving a Best of 2006 award for its innovation in architecture from *New York Construction*, a publication for the tri-state construction area, the \$79 million center includes features such as open lab design and informal group spaces—infrastructures that support translational work. Designated as an NIH Center of Excellence, the center serves the city of Newark, which is visible, like the natural lighting, from many angles of the building and to many scientists at their benches.

By year's end, two more labs are expected to relocate there and two new faculty recruits doing cutting-edge science will join the Cancer Center. "We have a ripe opportunity to recruit new talent," Cathcart says. "Here, the scientists and clinicians help each other out. We're in the trenches together."

For Mahon, patient-driven research is today's touchstone for bringing basic science to clinical care. "PhD scientists are often isolated working on cures for diseases. They don't necessarily know what it's like to be a patient or what it's like for doctors to treat patients." In Canada, she had trained at the Terry Fox Laboratory in Vancouver where investigators saw patients as part of their education and clinicians routinely attended lab meetings and lectures. The stark cells she investigated as a cancer researcher have a human face, which is never far from her focus and still inspires her work, just like the art on the Cancer Center walls. ●

When we look back, we'll see that this was the year that became the tipping point in medicine. In 2008, we are experiencing the perfect storm. Many of our citizens are moving into their retirement years and planning on Medicare for healthcare needs. At the same time, Medicare Part A has gone into the red zone, collecting only 94 percent of the funds needed to pay bills. Starting July 1, 2008, there is a 10 percent cut in reimbursements. In addition to this brew, there is a chance for universal healthcare, motivated by election year promises, which can only increase the expectations of the American public's thirst for entitlements.

As healthcare providers—and I hate that name—we are going to be asked to be the executioners for both the government and the insurance companies to deny and ration care. All this is happening when we are being asked to do more for less, while accepting increased liability risk and the misdirected hostility of those we are trying to help.

This is not what I signed up for when I became a physician three decades ago. Ninety-five percent of American citizens are in no position to pay the necessary taxes to fund this operation because in the last 10 years they have lost ground in their quality of life. The remaining top 5 percent are not about to pick up this tab, especially when no one has ever been asked to be responsible for their medical and lifestyle decisions.

Will the healthcare system crash and burn? I doubt that. Yet, we have reached the point where there will have to be a change in direction and acceptance of responsibility sooner, rather than later. How we react in the next two years will set the tone for the next 25 years, in my opinion. As physicians, now is the time to be proactive, so take the time to write to your congressmen and senators. Let them know why the system is not working and why they will be responsible when it fails. Between us and our patients, we can make a difference!

— *Joseph V. DiTrollo, MD'79*

A Message from the President



NJMS CALENDAR OF EVENTS

Summer/Fall 2008

August 10

SHARE's Annual Cares Day

Covenant House, Newark
Contacts: Mamoona Khokhar, khokhamt@umdnj.edu
Shashi Kapadia, kapadisn@umdnj.edu

August 11

Orientation for Class of 2012

August 14

White Coat Ceremony

MSB, Courtyard at 4 p.m.

September 23

Annual "History of Medicine" Lecture

Featured speaker: T. Jock Murray, MD
"History of Multiple Sclerosis"
MSB/B-610 at Noon
Contact: Allen B. Weisse, MD, 973-379-2322

September 25 – 27

Pavlovian Society Annual Meeting

Sheraton Suites on the Hudson, Weehawken
Contact: Richard Servatius, PhD
servatrj@umdnj.edu

October 28

Scholarship Awards Dinner

Grand Foyer at 6 p.m.
Contact: Dianne Mink, 973-972-6864

December 6

Autism Gala / Concert benefitting NJMS Autism Center and NJDS Special Care Treatment Center

Featuring the Soweto Gospel Choir
NJ Performing Arts Center, Newark at 6 p.m.
Contact: Andrea West, 973-972-1039

December 10

Bridging the Gap: Model Systems to Pathogens

New York Academy of Sciences, New York at 4 p.m.
Contact: Barry Kreiswirth, 973-854-3100
kreiswba@umdnj.edu

January 29 and 30

Symposium on Human Variation: A Driver of Personalized Medicine

Hyatt Regency, New Brunswick
Contact: Peter P. Tolias, PhD, toliasp@umdnj.edu

THE WHO, WHAT, WHEN & WHERE IN

A Ballroom Tradition

A beautiful spring evening at the Sheraton Parsippany Hotel served as a wonderful backdrop for the Alumni Reunion and Golden Apple Awards Dinner Dance on April 5. More than 325 students, faculty, staff, alumni and guests filled the ballroom.

Michael Ivan '08, Student Council President, and NJMS Interim Dean Robert L. Johnson, MD'72, opened an evening of dining, dancing, honoring the award recipients, and reminiscing that continued into the wee hours.

The Charles L. Brown Award was presented to Richard G. Pozen, MD'74; the Honorary Alumnus Award was received by Julie Ferguson, MPA, NJMS registrar and assistant dean for student affairs; and Hugh Evans, MD, was the recipient of the Distinguished Professor Award.

Following a tradition that has been continued for many years, the students honored faculty and staff for their outstanding service and commitment to the school and its students.

Golden Apple winners are chosen by each class and in the fourth and fifth years, faculty and residents are picked. An administrator is also singled out.

(Below, clockwise, l. to r.) 1: Heather Platt '08, Thomas Christian, MD, '06, Christina Pisani, MD, '06, and Sean Ciullo '08. 2: First year students. 3: Fourth year students. 4: Natalie Uy '07 with her mom, Constanca S. Uy, MD, pediatrician and Golden Apple winner.

Golden Apple Winners

First Year: David Defouw, PhD, Richard Feinberg, PhD, and Shamshad Gilani, PhD

Second Year: Richard Howland, PhD, Kenneth Klein, MD, and Lester Sultatos, PhD

Administrator: Julie Ferguson, MPA

Third Year Faculty: Alan Beitler, MD, Jo-Ann Reteguiz, MD, and Anand Srinivasan, MD

Third Year Residents: Timothy Mainardi, MD, Nagarani Ramasubramaniam, MD, and Maheswari "Maggie" Senthil, MD

Fourth Year Faculty: I. Thomas Cohen, MD, Ralph Oriscello, MD, Ziad Sifri, MD, and Constanca Uy, MD

Fourth Year Residents: Zeyad Baker, MD, Thomas Christiano, MD, and Christina Pisani, MD



To Send Med Students into Newark

“This is about giving back...and being open to new experiences.”

RICHARD Pozen, MD, '74, along with Ann Silver Pozen, has created The Pozen Scholar Summer Student Community Service Internship which will provide stipends to NJMS students doing community service work in Newark. They will be asked to record their thoughts regarding the organization, the delivery of services and the barriers impeding high-quality local healthcare.

“This is about giving back and giving thanks for the great opportunity that I had in medical school,” said Pozen, explaining his decision to donate \$1 million to fund these community projects.

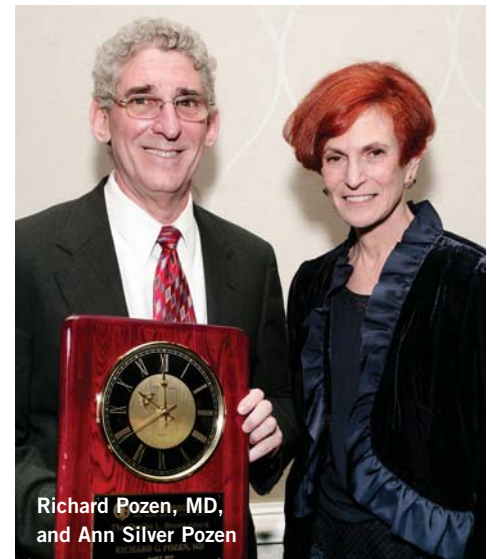
At NJMS, Pozen “thought the education and the caliber of teaching and of my fellow students were excellent. The city hospital and the VA hospital experiences were very hands-on and when I started my internship, my clinical skills were advanced.”

After a residency in internal medicine at Montefiore Hospital and a cardiology fellowship at Georgetown University, he joined the faculty of the University of Miami. Then, he went into private practice for 13 years before leaving to expand the company he had begun five years earlier, which provided management services to insurance companies for cardiology procedures. Pozen later co-founded iHealth Technologies, a cost control management firm that advises insurance companies how to pay claims accurately and consistently.

Pozen has remained grateful to NJMS throughout his life. After his brother's untimely death, Pozen endowed a scholarship in his name, the Michael W. Pozen, MD, scholarship. Because of his commitment to NJMS, he stipulated that this recent gift fund a program of social relevance that actively involves medical students. He hopes the endowment will give others access to the kind of experiences he felt were so valuable. “I'm interested in mak-

ing sure other students have that great education, and at the same time, I want them to understand the social responsibility that goes along with the profession.”

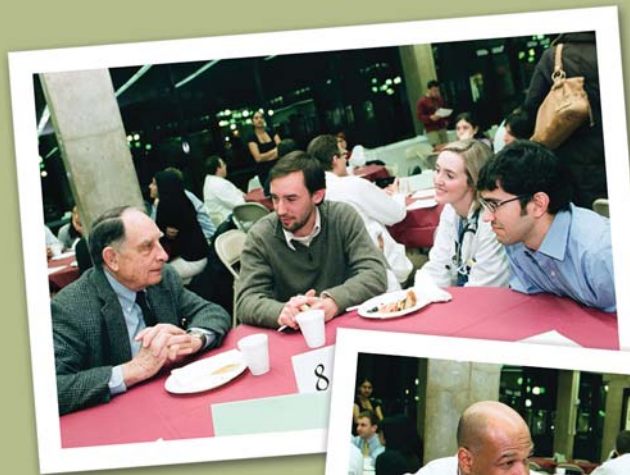
Pozen has found his career path to be both “stimulating and rewarding,” and he is happy to be able to continue giving back. “My advice to those starting out: Focus on what you're interested in and what makes you happy. If you're enjoying your work, that's good. Be open to new experiences.”



Richard Pozen, MD,
and Ann Silver Pozen

Oh, The Places You Will Go...

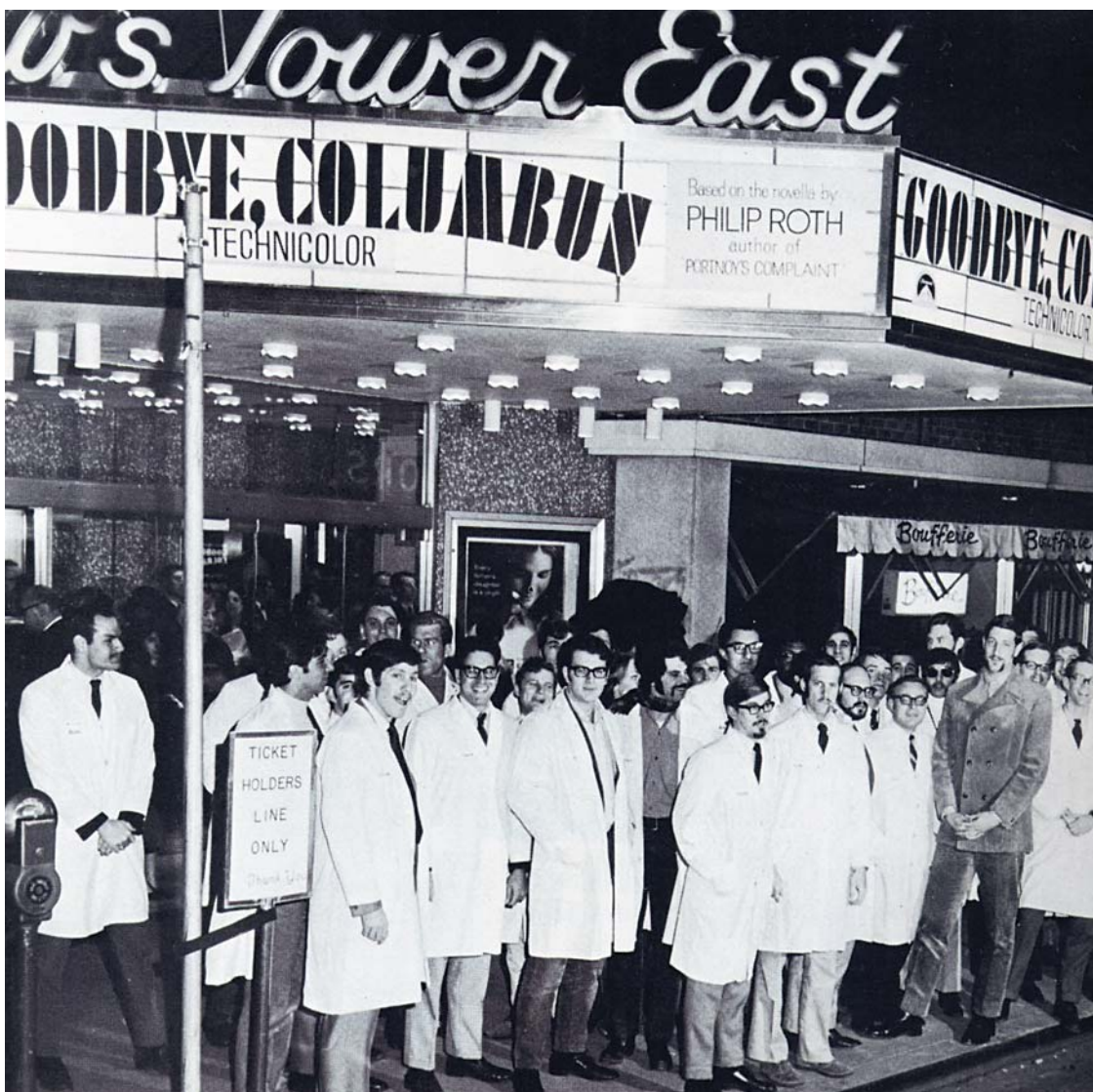
Fifty dedicated doctors showed up for the Alumni Association-sponsored Career Nights on February 18 and 21 to share their professional wisdom with students.



Kenneth Swan, MD, general surgery and vascular surgery, has suggestions for Tomas Walsh'11, Paige Luhn'09 and Joseph Weiner'11.

Dorian Wilson, MD, a liver transplant surgeon and director of the Healthcare Foundation Center for Humanism and Medicine at NJMS, gives Gaurav Gandhi'11 the inside story.





Are You in this Picture?

So what is the real story behind this photograph? How did a group of NJMS medical students and faculty, wearing their white coats, find themselves in front of a movie theater showing *Goodbye Columbus*, which made its debut in 1969? And who is the tall guy in the double-breasted suit standing to the right? If you have answers, please let us know. This, of course, is a new photo-feature designed to take you back in time.

Email: njmsalum@umdnj.edu

1960'S

Daniel D. Cowell, MD'60, serves as senior associate dean for graduate medical education and professor of psychiatry at the Marshall University School of Medicine, Huntington, WV. His wife, Diana, is a hospice social worker and his son Dana, who graduated from West Virginia University in May 2006, taught overseas and is planning a career in law enforcement.

Michael A. Parmer, MD'64, resides part-time in FL and part-time in VT and works two weeks each month as a surveyor. He and his wife Margaret are enjoying their four grandchildren.

Milton Armm, MD'65, was selected by the Greater Bridgeport Medical Association as recipient of the 2008 Physician of the Year award. Physicians are selected for this award in recognition of their dedication to improving the quality of life and healthcare within the greater Bridgeport, CT, community. Dr. Armm is a urologist practicing at Bridgeport Hospital and St. Vincent's Medical Center.

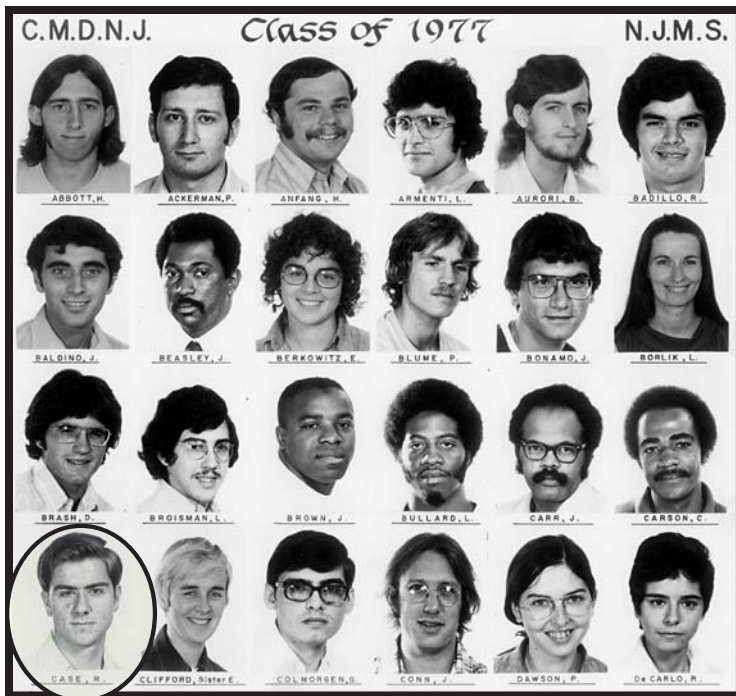
Frank A. Mitros, MD'69, is pleased that his son Joe, a first-year resident, and his son Chris, a second-year medical student, have joined him in the pathology department at the University of Iowa Medical School.

1970'S

Richard W. Huss, MD'71, writes that he is practicing clinical allergy/immunology at ENTAA Care with offices in Glen Burnie, Annapolis and Odenton, MD.

John Kindzierski, MD'72, is the residency program director, Department of Obstetrics and Gynecology, at St. Barnabas Medical Center, Livingston, NJ.

John Bach, MD'76, professor in the Department of Physical Medicine and Rehabilitation at NJMS, is the author of "Tracheostomy for Advance Neuromuscular Disease," published in *Chronic Respiratory Disease* 2007.



Randall Case, MD'77, (above), has left his position at IBM, where he led the Clinical Transformation Consulting Service, to join T-System, Inc., a clinical documentation and care coordination information system company, where he is vice president of product management and chief solutions officer.

Scott B. Baron, MD'79, is currently chairman, Department of Cardiovascular Services, and director, Cardiac Emergency Services at Mercy San Juan Medical Center in Carmichael, CA.

Andrew Freedman, MD'79, presented a poster at the Academy of Sleep Medicine's national meeting in June 2007 entitled "Mandibular Advancement Titration in Sleep Apnea."

1980'S

Robert P. Rubens, MD'80, is vice president of medical affairs for Myriad Pharmaceuticals, Inc., in Salt Lake City, UT. Dr. Rubens also holds an MBA from the University of Washington.

Linda J. Griffith, MD'81, announces that her article, "Good Palliative Care for a Patient with Schizophrenia Dying of Emphysema," was published in *Psychiatry* in August 2007. A compan-

ion piece appeared in December 2007. Dr. Griffith is medical director, Consolidated Care, Inc., Champaign, Logan, and Union counties, OH, and a clinical assistant professor, Boonshoft School of Medicine, Wright State University, Dayton, OH.

James M. Jeffries, MD'83, opened his practice in plastic surgery at Licking Memorial Reconstructive and Cosmetic Services in Newark, OH. Dr. Jeffries volunteered with Healing the Children, a nonprofit group that provides services to children in Nairobi, Kenya. He also devoted time to the Philippine-American Group of Educators and Surgeons.

Henry M. Ushay, MD'86, is now medical director of the Pediatric Intensive Care Unit of the Children's Hospital at Montefiore Hospital, Bronx, NY.

Jock Nash McCullough, MD'87, a cardiothoracic surgeon, has left Hackensack University Medical Center to join his mentor and former partner, Dr. M. Arisan Ergin, chief of cardiothoracic surgery at Englewood Hospital and Medical Center. They will work with Dr. James Klein at Englewood's Heart and Vascular Institute of NJ.

Paul E. Kovatis, MD'89, an orthopaedic surgeon, was featured in *NJ Monthly's* Top Doctor edition as one of the top orthopaedic surgeons in NJ and one of only two orthopaedists selected from Hackensack University Medical Center. Dr. Kovatis is also a member of the Board of Governors, Medical Board and Credentials Committee at Hackensack University Medical Center and is the past president of the Bergen County Medical Society, the youngest physician to ever attain that position.

1990'S

Patrick Foye, MD'92, associate professor in the Department of Physical Medicine and Rehabilitation, co-authored "Osteoarthritis and Therapeutic Exercise," with Todd Stitik, MD, professor, and Greg Gazzillo. The article appeared in the

American Journal of Lifestyle Medicine, September–October 2007.

Kimberly Odell, MD'93, is busy juggling her career as a part-time faculty member at JFK Family Medicine in NJ, parenting two sets of twins: Joseph and Olivia, 7; Alexa and Marissa, 2; and being a wife to Chris.

Sean Studer, MD'93, recently joined the staff at Newark Beth Israel Medical Center as medical director of the new lung transplant program.

Ron S. Bakal, MD'95, practices general urology with primary emphasis on oncology, kidney stones and incontinence, with offices in the Bronx, Brooklyn and Manhattan.

Beth Belof-Jasko, MD'98, announces the birth of Nathaniel Lewis in January 2007. Dr. Belof-Jasko and her

Your News from Old Friends

How are you? What are you doing with your life? Send us an update, a photo, a story idea or just your latest address. *Pulse* magazine is your way to stay in touch. Mail this form to: Alumni Association of New Jersey Medical School, 185 South Orange Avenue, MSB-B504, Newark, NJ 07101-1709. Photos are welcome. You can also send your news via e-mail to: njmsalum@umdnj.edu or fax us at (973)972-2251.

Name _____ Graduation Year _____

Home Phone _____ Office _____ Fax _____

E-Mail Address _____

Mailing Address _____

What I Have Been Doing (enclose photos) _____

I would like to be a representative for my class.

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The Lifetime Membership is being offered to our alumni as a means to perpetuate the goals of the Alumni Association and enable its members to sustain their support in a more meaningful way. All categories of membership will afford you the opportunity to keep connected with us. You will continue to receive all membership benefits, including *NJMS Pulse* magazine, information about upcoming events and reunions, and library privileges.

IN MEMORIAM

The Alumni Association and the NJMS community extend deepest sympathies to the families and friends of:

Christine Haycock, MD, professor, surgery, in January at the Center for Hospice Care at St. Joseph's Hospital in Wayne. Haycock graduated in 1952 from the State University of New York, Downstate Medical Center, and served in the U.S. Army during WWII in the U.S. Cadet Nurse Corps. The first female intern at Walter Reed Army Medical Center, she was also the first woman to transfer directly from the U.S. Army Nurse Corps to the U.S. Army Medical Corps.

Robert Hobson, MD, professor, surgery, in January. A Vietnam veteran and graduate of the George Washington School of Medicine, Hobson completed a residency and fellowship at Walter Reed Army Medical Center. He joined the NJMS faculty in 1975 and held various leadership positions in the Departments of Surgery and Physiology.

Kavita Patel-Joseph, physician assistant in the musculoskeletal oncology division of the orthopaedic department, in January. She graduated from Penn State in 2002 and received her physician assistant degree in 2005 from Arcadia University. The Orthopaedic Department and the Patel-Joseph Family have created an award in her honor that will be presented annually to a physician assistant or nurse who exemplifies her excellence and dedication to patients.

James P. McLean, MD'02, in a snowboarding accident in January in Breckenridge, CO. McLean practiced rehabilitation medicine at the University of Kansas Hospital and resided in Leawood, KS.

Conor Michael Moran, '10, second-year student, last December. A summa cum laude graduate of The College of New Jersey, Moran was remembered in a service sponsored by the Alumni Association. His father, Robert Moran, MD, said the best way to pay tribute to his son's memory was to "live as fully as you can." This student is also survived by his mother, Ann McNeal, MD, a sister, and a brother.

husband opened their own medical practice, Riverview Family Medicine, P.A., in June 2007 in Riverview, FL. They are both board certified family physicians.

David Greenspun, MD'99, a board-certified plastic surgeon, is residing and practicing in New York City. Dr. Greenspun specializes in microsurgical breast reconstruction. He was recently married to Rachel Schneider, a psychotherapist and clinical social worker in NY.

Susan Walsh, MD'99, writes that in 2006 she began her position as clinical instructor in pediatric emergency medicine at Yale University School of Medicine in New Haven, CT.

2000'S

Julie Yeh, MD'00, joined the faculty and family medicine residency program in the Department of Family, Community and Preventive Medicine at Drexel University College of Medicine in Philadelphia, PA. She was married to psychologist Mark Moore in February 2007.

Mary Leigh Ann Daniels, MD'06, competed in the Nike Women's Marathon in a San Francisco fundraiser in October 2007 as a member of the Leukemia & Lymphoma Society's Team in Training. Dr. Daniels ran in memory of Jordan Blair, a young patient she lost to leukemia.

Lowell Gurey, MD'06, and **Keren Bakal, MD'07**, are happy to announce their engagement.

FOCUS ON PHILANTHROPY

Kirby

Continued from page 40

with support from other grants. And it's kept them talking—a factor that may lead to breakthroughs in repairing the nervous system and curing what were once thought to be irreversible conditions.

"By continuing to support us as a group, Kirby has forced us to interact. We might not have kept up that interaction without that gift," Townes-Anderson says. "Out of this has come at least two joint grant applications...It's resulted in multiple joint publications, concrete collaborations, because of a mutual interest in understanding how neurons communicate." For the past three years, the group has held "Kirby Day" to bring everyone together to share information and ideas.

"Basic research support, either for the young scientists who have yet to secure stabilized NIH funding or for the most cutting-edge work, is crucial. It requires patience and persistence," Kirby says.

The gifts from the F.M. Kirby Foundation go 100 percent toward research and have helped provide support for 25 graduate and eight post-doctoral students over the past six years. To date, research done by the Kirby Group has produced more than 40 publications and 70 abstracts, Townes-Anderson says.

Kuzhikandathil, who works with the neurotransmitter dopamine, underscores the importance of interaction within

the Kirby Group. "While we are all studying different aspects of synaptic plasticity, we use different model systems and different techniques. This has allowed us to see some of the broader and potentially practical implications of the work we do," says Kuzhikandathil, NJMS and GSBS assistant professor, pharmacology and physiology.

Kuzhikandathil's collaboration with Rameshwar, whose research focuses on generating functional neurons from adult stem cells, has advanced the development of a potentially novel method to treat Parkinson's disease.

Townes-Anderson is developing a drug that would prevent blindness after retinal detachment, a condition that is usually caused by a blow to the head. The drug works by stopping photoreceptors from destroying their synapses when retinal detachment occurs. "We are currently testing it," she says.

The synapse is the place where a signal passes from a neuron, like a photoreceptor, to another cell. "In the last 10 to 15 years it has been found that those points of contact are not static. The communication between the nerve cells is plastic, it can change, and that's a good thing," Townes-Anderson explains. "When you learn something, you have to create new connections."

—JENNIFER S. DOKTORSKI

How Kirby Makes All the Right Connections



(Clockwise from left): Ellen Townes-Anderson, PhD, Joseph McArdle, PhD, Annie Beuve, PhD, and Eldo Kuzhikandathil, PhD

A MEMORY triggered by a song on the radio. The ability to take one step or run a marathon. The taste of ice cream on a summer day. It's all about connections.

“The communication between neurons is the absolute key to living, all of our behaviors, everything,” says Ellen Townes-Anderson, PhD, UMDNJ-New Jersey Medical School (NJMS) professor, neurosciences and ophthalmology, and associate professor, UMDNJ-Graduate School of Biomedical Sciences (GSBS), in Newark. Life experiences, big and small, depend upon the signals passed through cells in our brain and other parts of the nervous system known as neurons.

For the past six years, gifts from the F.M. Kirby Foundation, Inc. of Morristown, NJ, totaling nearly \$1 million, have been the key to fostering communication and connections between Townes-Anderson and a team of four other neuroscientists, who all run their own labs, as they seek to understand the often devastating results when the nervous system is damaged—a condition that affects 50 million people in the U.S.

“Lots of diseases cause a break in communication between neurons. We are trying to

understand how these diseases cause a disruption and how you can repair it—make them grow back together again,” Townes-Anderson says. Creating new connections, or synapses, between neurons is critical in treating and curing such disorders as Huntington’s, Parkinson’s and Alzheimer’s, and reversing the effects of spinal cord, head injuries or stroke, she says.

Dillard Kirby, the F.M. Kirby Foundation’s executive director, explains that for more than 10 years his family’s foundation has had a “keen interest in basic neuroscience, both as it relates to neurodegenerative diseases but also in regard to injury and repair.” In addition to Townes-Anderson’s group, other gifts (beginning in 2000) bring this foundation’s support of neuroscience research at NJMS to more than \$1 million. “We recognized that on a relative basis neuroscience, broadly, has been underfunded both via public and private dollars. Certainly the tighter NIH (National Institutes of Health) budget of recent years has caused an even more dramatic gap and we felt it important that private philanthropy be there to help,” Kirby says. The foundation has also supported UMDNJ’s Cancer Institute and the Scleroderma Research Fund.

The Kirby Group of NJMS researchers also includes Annie Beuve, PhD; Pranela Rameshwar, PhD; Eldo Kuzhikandathil, PhD; and Joseph McArdle, PhD, plus their respective students. Faced with waning federal dollars, Townes-Anderson says the foundation’s support came at a critical time. But the gifts have also given the Kirby Group room to be creative and try riskier approaches to research, options that are not always possible

Continued on page 39



Endowing Health... to make a

The Foundation of UMDNJ is helping to make New Jersey a healthier place to live and work. Thanks to the generosity of the Foundation's many donors, future clinicians receive outstanding educations, today's patients receive the best medical care and researchers work to fulfill the promise of tomorrow's cures.

We would like to express our gratitude to the following donors, and the many others, who have contributed to the Foundation's success through their gifts to New Jersey Medical School:

- The Angel Family Foundation, for ensuring that needy children with asthma have the medications they depend on

difference...

- Dr. Richard Pozen and Ann Silver Pozen, who established the Pozen Community Scholars program at New Jersey Medical School to enhance and expand community service opportunities for NJMS medical students
- Marie Toohey and Gerard E. Toohey, Sr., for investing in groundbreaking neuroscience research

They realize that the Foundation of UMDNJ, as a New Jersey Health Foundation affiliate, has the financial strength and ability to build partnerships between medical school resources and interested donors to make a real difference in the lives of New Jersey residents.

Learn how you can help endow the health of New Jersey. Contact Elizabeth Ketterlinus, vice president of development, at (973) 972-2486 or at ketterel@umdnj.edu.



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