

New Jersey Medical School

Volume 5 Number 2 Winter 2007–2008

# pulse

University of Medicine & Dentistry of New Jersey

*What If Your* DNA  
*Turned* SUNSHINE *Into A*  
KILLING FORCE?



# Message from the Dean

**L**ET'S go back to the summer of 1967. The place is Newark, NJ. A thick, suffocating tension between minority residents and white elected officials permeated the city like black, toxic smoke. City residents, fed up with years of limited economic opportunities, inequality and unjust treatment, were becoming restless. Word had circulated throughout the city that the state's medical school—which would later become the UMDNJ–New Jersey Medical School—was moving to the Central Ward. Thousands of residents would be displaced. Then news came that John Smith, a black taxi-cab driver, was arrested. Rumors swirled that he had been beaten and subsequently killed by the cops. These events set the stage for a dark period in the city's history that would become known simply as The Newark Riots.

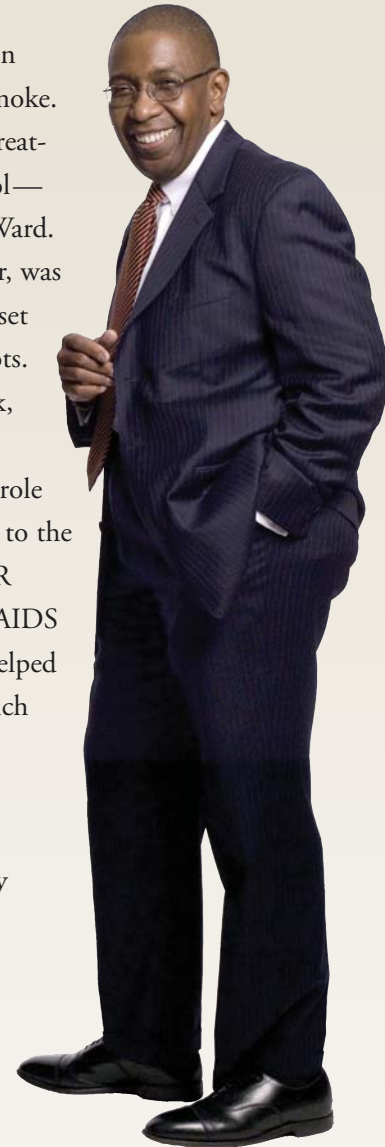
The events of the summer of 1967 not only impacted the political and social landscape of Newark, it also served to establish NJMS as more than a medical school, but also as a community resource to residents for healthcare services and education. NJMS faculty, students and staff have embraced this role by leading such initiatives as the Student Family Health Care Clinic, which provides clinical services to the medically underserved (and which, as a young NJMS student, I had a hand in starting); the POWER program, which sends teenage peer educators into the community to share information about HIV/AIDS and Sexually Transmitted Infections (STI) prevention and risk reduction; Project Vaccinate, which helped to improve immunization rates among Newark children; Pedestrian Injury Partnership Program, which works to reduce the number of children struck by motor vehicles in Newark; and dozens of other programs geared toward empowering and improving the health status of the community.

NJMS is playing a major role in organizing events to commemorate the 40th anniversary of the Newark Riots. We hope you will join us in recognizing the role we play in healing Newark—literally and figuratively.

In Health,



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



## pulse

VOLUME 5 NUMBER 2 WINTER 2007–2008

UNIVERSITY OF MEDICINE & DENTISTRY OF NEW JERSEY

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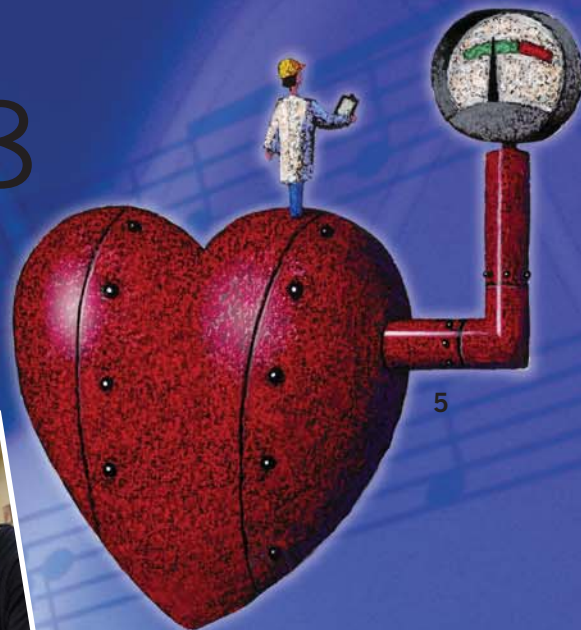
You won't find James Patrick Murphy'66 retiring on a Florida beach. He's practicing medicine in Ghana.

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## White Coat Tradition Continues

**NJMS WELCOMED ITS NEWEST CLASS** of medical students in August during the annual Barbara and Norman Seiden White Coat Ceremony where members of the Class of 2011 recited the Hippocratic Oath and were cloaked in their first white coats. Described as a “psychological contract for the practice of medicine,” the ceremony has become a time-honored tradition at NJMS and was first established in 1993 by the Arnold P. Gold Foundation to emphasize the importance of compassionate care for the patient as well as scientific proficiency. NJMS’s first White Coat event took place in August 1994, making it the second school in the country to establish the tradition. Today, more than 90 percent of schools of medicine in the U.S. conduct similar rites of passage.



Waiting in line, above left (l. to r.): Lloyd Webster, Tim Walsh, Greg Villalobos, Ravi Verma and Danetza Velazquez.

Reciting the oath, at left (l. to r. including the second row): Young Chun, Kristyn Brandi, Gustavo Churrango, Alvin Bulahan and Luis Collar.

Trying on his new white coat, above: Luis Collar.

## A Pedestrian Injury Partnership to Save Little Lives



**T**ROUBLED by the amount of life-threatening pediatric pedestrian injuries in the Level 1 Trauma Center at University Hospital (UH), Director David Livingston, MD, is leading a desperately important campaign to reduce the number of children struck by motor vehicles in Newark.

Livingston sees up to 70 children each year brought to the Level 1 Trauma Center at UH with life-threatening injuries from such accidents. On average, six children a month are transported to the Trauma Center with brain injury, broken bones and internal hemorrhaging after being hit by vehicles. The Newark area has been identified by the National Highway Traffic Safety Administration as having one of the highest pedestrian injury rates of any U.S. urban area.

“There is a crying need to safeguard our pediatric pedestrians in this city. Hopefully, our program will translate into fewer patients that we have to treat,” Livingston says.

This Pedestrian Injury Partnership Program focuses on educating elementary school-age children and their families about safety on the streets. Through a coalition that also includes the American Automobile Association, the New Jersey Division of

Highway Traffic Safety, and the New Jersey Department of Law and Public Safety, Livingston hopes the effort will reach thousands of local children, ages 5 through 12. Part of the plan is to categorize and map vehicle accidents involving children while looking at these potentially dangerous sites.

Geared toward children in grades K through 5, the curriculum includes safety videos, classroom lessons, and student participation in a simulated exercise which puts kids into a virtual street obstacle course.

“The feedback has been so positive from parents, teachers, administrators and the children,” says Sharon Clancy. As the grants and communications coordinator for the divisions of Trauma and Emergency Medicine, Clancy spent many hours with school faculty, administration and children to create the curriculum and conduct a pilot of it with 500 elementary school children. The program is now being taught throughout Newark’s public schools. “We knew this would be a huge success.”

Funding was provided by the American Trauma Society, the New Jersey Division of Highway Traffic Safety, and State Farm Insurance Company. ●

## KUDOS

**JOHN CAPO, MD,** and **VIRAK TAN, MD,** in the Department of Orthopaedics, have co-edited the new *Atlas of Invasive Hand and Wrist Surgery*, published by Taylor and Francis, the only book devoted exclusively to new percutaneous and minimal access techniques for the treatment of chronic and traumatic conditions of the hand and wrist.

**RICHARD LEVANDOWSKI, MD,** clinical associate professor, Family Medicine, is the recipient of the 2007 American Academy of Family Physicians (AAFP) Volunteer Exemplary Teaching Award. The award was presented to Levandowski during the 2007 AAFP Scientific Assembly in Chicago, IL, in October.

**R. DANIEL PELUFFO, PHD,** assistant professor, Pharmacology and Physiology, was invited by South American authorities to organize and chair the symposium “Kinetic and Thermodynamic Aspects of Transporters and Pumps,” at the Sixth International Conference on Biological Physics in Montevideo, Uruguay, this past summer. A native of Uruguay, Peluffo also presented his research, “Stereoselectivity and trans-stimulation of cationic amino acid transporters: playing with the CAT,” during the conference. Sponsored by the International Unions for Pure and Applied Physics and Biophysics, the event was officially opened by Uruguayan President Dr. Tabaré Vázquez, an oncologist.

**RICHARD WATSON, MD,** Department of Surgery and **STANLEY H. WEISS, MD,** Department of Preventive Medicine and Community Health, were honored during Prostate Net’s Third Annual “In the Know” Awards ceremony in New York on September 21st. Watson was named by Prostate Net as “Clinician of the Year,” and Weiss, a professor of preventive and community health and a medical oncologist, was the recipient of their 2007 “In the Know” award for his epidemiologic accomplishments and public health service. These “In The Know” awards are presented to individuals, agencies and/or corporations that have made significant strides in helping to eliminate disparities in healthcare delivery.

## Psychiatric Research Makes Top 10 Most-Read List

**A**n article by collaborating researchers in the Department of Psychiatry was ranked fifth on a list of the “Top 10 Most Read and Clinically Relevant Psychiatry & Mental Health Journal Articles of 2007” in *Medscape’s Best Evidence* newsletter. “Continuation of Electroconvulsive Therapy vs. Pharmacotherapy for Relapse Prevention in Major Depression” was published in the *Archives of General Psychiatry* and later featured in a commentary in the July 18th issue of *JAMA*.

The topic focused on a trial designed to compare the efficacy of electroconvulsive therapy to pharmacological treatment in the prevention of depression relapse. Charles Kellner, MD, chair Department of Psychiatry and Assistant Dean for Clinical Research, is the first author with Georgios Petrides, MD, Chitra Malur, MD, and Kevin O’Connor, MD, as co-authors. ●



## First-Year Students Care About Covenant House

**F**IRST-YEAR students kicked off the school year with a trip to Covenant House in Newark where they repainted the non-profit agency’s gymnasium as part of annual Cares Day.

The event, sponsored by SHARE (Student Health Advocacy for Resources and Education), is geared toward incoming stu-

dents and held in August to coincide with new student orientation. Covenant House provides shelter and services to the homeless.

Class of 2011 students Joseph Weiner and David Crawley saw their painting session as a way to give back to Newark. “Every medical student has an obligation to serve the community that allows and aids our education,” Weiner said. “Every positive relationship we have with the city is an attempt to make this place, our new home, a better place. Cares Day seemed like the obvious first step for me to get acquainted with Newark and NJMS while trying to make an impact.”

“I decided to participate in the day because I thought it would be a good opportunity to meet new classmates and help a good cause at the same time,” Crawley said. “I was glad we were able to contribute in a small way to the work of Covenant House and I think the more important part of the day was that we were able to witness the selfless work people are doing to improve our community. I hope our class is inspired to help make Newark a better place.” ●

## NJMS Remembers 1967

**UMDNJ—AND NJMS IN PARTICULAR**—was one of 21 participating organizations to focus on the fortieth anniversary of Newark’s summer of discontent. From July to November, panel discussions, historical lectures, radio and television broadcasts, and free movie screenings of films like *City of Promise* and *The Slow Road Back* helped to shed light on the events surrounding the Newark rebellion and the subsequent arrival of the medical school in the Central Ward. A forum in February and Community Day in April will also mark this milestone.

# Multiplying Project Vaccinate's Success

**B**UILDING on the success of Project Vaccinate, an award-winning program that improved vaccination rates in Newark preschoolers, project leader Peter Wenger, MD, has set his sights on children in surrounding communities with a new initiative.

RKIDS (Reducing Kids Immunization Disparities) is an expansion of Project Vaccinate's strategy, which includes automatic telephone calls using speech recognition technology to remind Newark parents about age-appropriate vaccinations, explains Wenger, an associate professor of Preventive Medicine and Community Health/Pediatrics. Made possible through a grant from the Centers for Disease Control and Prevention (CDC), RKIDS is using the same automated telephone reminder system for families with children ages 2 months through 15 months in East Orange, Irvington and Orange. Working with the local health departments and the



Peter Wenger, MD

Eliza Corp, manufacturer of the speech recognition software, Wenger explains, "We applied for funding from the CDC to emulate what was successful in elevating childhood immunization rates in Newark."

Recognized by the CDC earlier this year for achieving the greatest improvement in children ages 19 to 35 months, Project Vaccinate led to a 30 percent increase in immunizations among pre-schoolers in Newark over a three-year period. The program is a collaborative effort administered by the Newark Department of Health and Human Services. ●

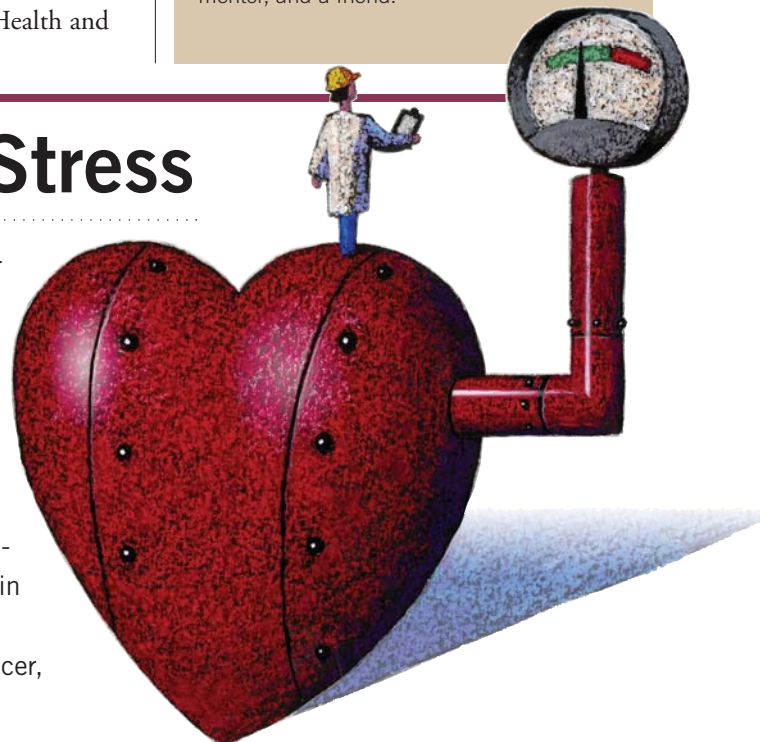
## KUDOS

**STANLEY COHEN, MD**, chair of the Department of Pathology and Laboratory Medicine, assumed the role of vice president of the American Society for Investigative Pathology (ASIP) this past summer. As vice president, Cohen will automatically succeed to the ASIP presidency in 2009. Cohen serves as treasurer-elect for the Federation of American Societies of Experimental Biology, the largest coalition of biomedical research associations in the U.S., and also sits on the executive committee of the Association for the Accreditation of Human Research Protection Program, the accrediting body of institutional review boards, which approve, monitor and review biomedical and behavioral research.

**RAJENDRA KAPILA, MD**, was presented with the Department of Medicine's Lifetime Achievement Award in recognition of his 40 years of service at NJMS. A 1965 graduate of the University of Delhi, Kapila is an associate professor of medicine. In presenting the award, the Department of Medicine's chair, Bunyad Haider, MD, described Kapila as "one of our most esteemed colleagues, a physician's physician, a student and faculty mentor, and a friend."

# The Science of Age-old Stress

**S**TEPHEN VATNER, MD, chair, Department of Cell Biology and Molecular Medicine, and his research team were awarded \$10.1 million by the National Institute of Aging to continue their study of lifespan and stress resistance. The project entitled "Longevity and Stress Resistance" has been focusing on an enzyme, Adenylyl Cyclase Type V (AC5), in the sympathetic nervous system and its potential effects on heart and cardiovascular function. Using genetically altered mice in which the gene encoding AC5 has been deleted or "knocked out," investigators in Vatner's group are able to examine the role of this AC5 enzyme in aging. Their findings were published in the July 27th edition of *Cell*, and suggest that Adenylyl Cyclase could have far-reaching implications in cancer, osteoporosis and other diseases. ●



## Looking Back to Graduation 2007

**C**OLLEEN Donovan, MD, NJMS class of 2007 and a student speaker at the May 21st convocation, put 166 graduating students' years of study into wonderful perspective: "In these past four years, we have dissected, sutured, scribed, studied, somnambulated, lost a server, gained a server, experienced a blackout and worked harder than ever before in our lives."

Another brand-new doctor, Carlos Machado, MD, former president of the Student Council, looked back and laughed about how this class started their medical careers, telling the audience: "Day One: The Blackout of '03! Maybe the blackout was an elaborate metaphor, symbolizing how little we knew about what we were getting ourselves into. Maybe it was meant to symbolize the turning off of our social lives?"

Awards, distinguished guest speakers, honorary degrees, presentations, cheering family and alumni marked the day along with Interim Dean Robert L. Johnson, MD, who congratulated the class, saying, "I know you will represent the New Jersey Medical School with great honor, pride and distinction."



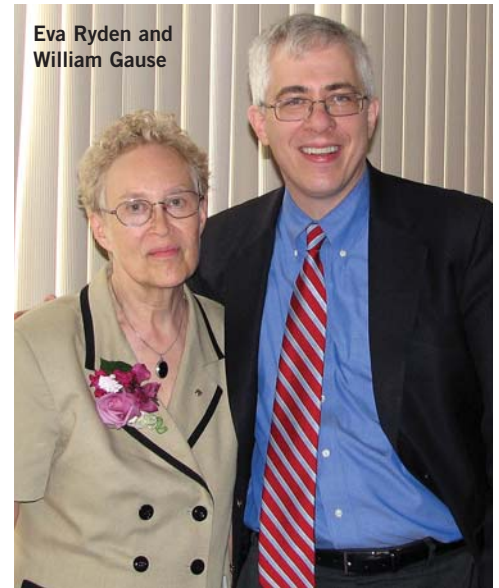
Members of the NJMS Class of '07

## A POWER-ful Plan

**T**HE success of Peer Outreach Workers Educating Risk-Takers (POWER) was rewarded by The Healthcare Foundation of New Jersey with a new grant of \$92,440 to continue training minority teens in HIV/AIDS and STI prevention and risk reduction. Administered by NJMS's Division of Adolescent and Young Adult Medicine (DAYAM), this program recruits

13- to 18-year-old, civic-minded teenagers and trains them so they can share safe sex messages with families, friends and the community. After learning the facts about HIV and STIs, these teens are ready to reach out to teach. When they complete a training session and pass a basic HIV/STI test, participants are given a certificate recognizing them as Community Peer Educators. After three months, follow-up sessions determine their mentoring effectiveness out in the real world. ●

Eva Ryden and William Gause



## Ryden Retires

**W**ITH her sights set on spending quality time with family and pursuing other personal and professional interests, Eva Ryden, PhD, DVM, retired this summer after 12 years of service as director of UMDNJ–NJMS's Comparative Medicine Resources (CMR). The plaque in her honor describes her "outstanding dedication for the humane care and use of animals in biomedical research" and the CMR Library was renamed the Eva B. Ryden Library.

Ryden began her career at NJMS in 1995 and helped transform CMR, known then as the Research Animal Facility, from a small department into an organization that oversees four research animal facilities.

"I have rarely seen an individual as committed and motivated as Dr. Eva Ryden," said William Gause, PhD, senior associate dean for research. "She has played an essential and leading role in the development of effective research animal facilities at our institution during the last decade."

"Being a laboratory animal veterinarian has been an exciting and fulfilling career," said Ryden, who plans to consult, teach and spend more time with her family. Meanwhile, Bruce Scharf, DVM, took over as the new CMR director. ●

## In Philadelphia with Dean Johnson

**R**OBERT L. Johnson, MD, Interim Dean of NJMS, joined forces this past summer with comedian Bill Cosby to bring attention to a not-so-funny topic: violence.

More than 100 educators, administrators and students attended the seminar including Temple University's President Ann Weaver Hart. Johnson, a professor of pediatrics and psychiatry, also serves as director of the Division of Adolescent and Young Adult Medicine at NJMS.

During the seminar in Philadelphia hosted by Cosby, one of Temple University's most famous alums, 60 educators and aspiring teachers learned all about the experiences faced by students and faculty who live and work in violent communities.

Cosby's own 27-year-old son, Ennis, was shot and killed in January 1997. Cosby, who has a doctorate in education, feels that there is a "genius" in even the most troubled person.

Johnson, a well-recognized expert on adolescent issues including youth violence, answered questions posed by the audience on the behavioral and emotional effects of violence on children and their teachers. ●



## Advancing Genetic Medicine

**A**MONG the winners of this year's Thomas Alva Edison Patent of the Year Awards presented by the Research and Development Council of New Jersey was Peter Tolia, PhD, a professor of pediatrics, and the new Executive Director of New Jersey Medical School's Institute of Genomic Medicine. The patent, "Delivery of Metered Amounts of Liquid Materials," developed jointly with Timothy Chang, PhD, a professor of electri-

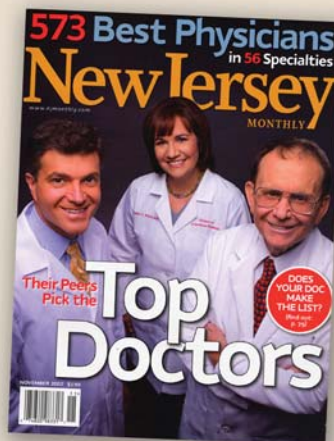
cal and computer engineering at NJIT, provides a new liquid dispensing/aspirating system capable of producing tiny droplets of a substance for research and analysis. Among its many potential applications, the invention could significantly impact the health-care research infrastructure by offering low-cost, reliable and high throughput genetic analysis and screening for disease and drug identification. These Thomas Alva Edison Patent Awards commemorate the inventive spirit of the man who received more U.S. patents than any other single person.

The Institute for Genomic Medicine includes the Center for Human and Molecular Genetics and the Center for Applied Genomics. Committed to translational research and personalized medicine, it offers services including genetic counseling, newborn screening and patient assistance to University Hospital and outside medical facilities, as well as pharmaceutical and biotechnology companies. Its three certified, accredited laboratories can conduct more than 100 different tests for diseases. ●

COMPILED AND WRITTEN BY GENENE MORRIS

## More Than 100 Top Docs

**W**HEN *New Jersey Monthly* magazine published its list of the state's "Top Doctors" in the November 2007 issue, 122 NJMS faculty-physicians made this prestigious cut. Compiled by the Polling Institute at Monmouth University and culled from more than 30,000 ballots, the winners were chosen by New Jersey's own licensed physicians who were asked to whom they would send someone they loved for medical care. "It is particularly gratifying to know that our physicians' commitment to excellence has been so resoundingly recognized by their peers," said UMDNJ President William F. Owen, Jr., MD.



# When the President Becomes a Patient

A young stroke specialist shares the inside story of UMDNJ President William F. Owen's experience at University Hospital.



**R**UMORS were flying on Monday morning, August 27th. A very important person would be arriving in the University Hospital Emergency Room and the BATeam was being summoned. This “Brain Attack Team,” led by the director of UH’s cerebrovascular program Jawad F. Kirmani, MD, ordinarily receives specific text message details on special pagers about any new incoming patient.

“Mine went off saying, ‘Please come to the ER.’ This was so non-specific, so different from others I get.” His team of specialists treats close to 1,000 stroke patients annually. And UH, recently designated a Comprehensive Stroke Center by the New Jersey Department of Health and Senior Services, is considered the Center for Stroke Care Excellence in the state. “Only Harvard, Duke, University of Pittsburgh, University of Wisconsin, University of Minnesota and UCLA have similar neurology-based intervention programs,” Kirmani explains. Proud of their efficient system of response time to acute stroke patients, the team has a logo: *Time is Brain*.

So on that Monday morning, he called the ER as he raced there from his office and was simply told that a very important person had a stroke and was coming in. Kirmani, an assistant professor in the NJMS Department of Neurology and Neurosciences, recalls wondering if it might be New Jersey Governor Jon Corzine. Later, someone in the ER added the suspicion: “This may be the president.”

“The President?” Kirmani remembers worrying, “the President of the United States?” After a call to Suzanne Atkin, MD, UH chief of staff, he learned that it wasn’t George W. Bush, Jr., but the new president of the University of Medicine and Dentistry of New Jersey (UMDNJ), William F. Owen, Jr. MD, a 51-year-old kidney specialist who had only been on the job for about eight weeks.

“I was nervous,” Kirmani admits. A few minutes later in the ER, Kirmani found Owen to be personable, confident, and not happy about his circumstances. “He is one cool guy but he knew the gravity of the situation because he’s a physician.” The day before, after walking more than 20 city blocks in Manhattan with his wife, his right foot had felt clumsy but he soon chalked it up to dehydration. “He even blamed it on taking a vacation from work,” Kirmani says laughing. That afternoon, after sitting down in a restaurant and drinking a pitcher of water, he felt better and dismissed the symptom. It wasn’t until he awoke the next morning and the weakness had extended up his body into his arm that he realized he needed fast medical attention.

Kirmani had missed the new president’s UMDNJ town meetings earlier in the summer so it was there in the ER that the two came face to face for the first time. Of Pakistani-origin, the young British-born doctor was impressed with his new president from the start. “He has an aura of compassion and control about him. Dr. Owen is

someone you can connect to immediately.” But the two were in a scene that could have come straight out of an episode of television’s ER. Surrounded by specialists and senior physicians, the BATeam attendings and support staff, including Ammar Albadi, MD, “were working very fast, taking his history, putting in IVs, blocking out the CT and the angiography rooms for possible stroke needs. My first impression, however, because of his symptoms and medical history was that the trouble was a lesion within a very tiny blood vessel in the back of the brain,” says Kirmani.

Although they knew they were taking care of a VIP, they understood the value of treating Owen like every other stroke patient. “We said to ourselves, ‘OK, let’s keep on doing what we always do.’ The good part about being on a stroke team is that we go through this routine every day.”

Quickly and methodically, they ruled out various reasons for the tiny blockage of blood flow in what they suspected was a small vessel in the brain—all the while worrying that a bigger clot, piece of plaque, bleeding or a blockage might be lurking elsewhere in his body. Within a few minutes, with the results of an MRI in hand, “We were able to see just how tiny this stroke was—no bigger than the tip of a pen, a millimeter, in fact.” Their course of treatment: administer blood thinners or platelet inhibitors, give him “a huge amount of fluid in a saline solution,” and at first, simply monitor his blood pressure closely. With no



Jawad F. Kirmani, MD

apparent bleeding anywhere in the brain, he didn't need to undergo angiography.

The extra water in the saline drip was important because dehydration can slow blood flow. A clue had been right there in his most recent medical experience on Sunday's walk. In his case, because of a hereditary trait, the blood was actually sickling, or changing from ordinarily rounded cells to sharply edged, sickle-shaped ones which were getting stuck or clogged in a tight spot at the back of the brain in an area controlling motor skills on the right side. To rule out a source of clot from the heart, however, consultations with Mark Klapholz, MD, director of cardiology at UH and associate professor of medicine at NJMS, and Bunyad Haider, MD, NJMS interim chair of medicine and a professor of medicine, were arranged.

Throughout his hospital stay, "Dr. Owen was probably the calmest of us all. He is a pretty amazing person and never panicked,

kept thinking things through, wanted to be treated like any other patient and not once did he ask for someone older to take charge," Kirmani laughs. "He didn't want a second opinion. He didn't tell us, 'Get someone from Columbia or Mass General in here.'"

The BATEam knew that if they could keep the artery open with blood flowing through this tight spot in his cerebral vessel for five to six days, his own body would start to heal the lesion. Because his symptoms showed fluctuations, a worrisome aspect, during one long night the nursing staff had orders to wake the president up every hour on the hour to check his vital signs. Another medication was also added to regulate blood pressure. "He got no rest that night," Kirmani admits. The next day, Owen was sleepy but improving.

Early in the week, when too many well-wishers were dropping by the ICU, Kirmani decided to limit visitors to Owen's wife and children only and to cut out all

bedside conferences. The president soon grew bored and begged for work which would arrive via Denise Rogers, MD, his executive vice president for academic and clinical affairs. The quiet time, however, allowed Kirmani to enjoy "sessions of long conversation. I really got to know him. He also got the chance to study the hospital and the day-to-day problems we face. He'd tell me, 'I don't want to break any structures or any rules. Shouldn't there be more residents in here?'" (Kirmani had been trying to spare the president by limiting the number of residents flocking to his bedside.)

Physical therapy began right there in the hospital. "He's a determined fighter"...so determined that it took only days to regain the full use of his right arm and hand. As he told a *Star-Ledger* newspaper reporter, "I remember quite poignantly not being able to comb my hair. And I remembered a patient from my residency describing how good it felt to comb her hair. In her case it was after months of physical therapy but for me, it was only three days later."

Owen—whose career is more than 25 years long with stints at Harvard Medical School, Duke University School of Medicine, the University of Tennessee Health Science Center and 12 years of academic clinical practice at Brigham and Women's Hospital in Boston—has treated thousands of his own patients. As a patient himself this time, he was impressed by the passion of the staff and the quality of care. His "wonderful" experience on the inside of UH changed him. "I like to think it has made me more humanistic, more humble as a person. You learn in a first-hand way how wonderful and elegant God's design of the body is." —**MARYANN BRINLEY**

*P.S. The president's staff of physicians, nurses and dedicated professionals at UH also included Hosseinali G. Shahidi, MD, MPH, vice chief, Division of Emergency Medicine and assistant professor, surgery; Leo Wolansky, MD, professor, radiology, Department of Neuroradiology; and Mark Johnson, MD, MPH, chair, Department of Family Medicine.*



## Mapping the Brain for Music

Could tones, tunes and melodic sounds actually light up specific cells and regions of your gray matter? Physician-musicologist **Eric Altschuler** went searching for answers.

**A**SERIES of chance emails from a fan who was an undergraduate student at Indiana University led Eric L. Altschuler, MD, PhD, a cellist and research musicologist, into a mystery more than two and a half millennia old.

This assistant professor in the NJMS Department of Physical Medicine and Rehabilitation explains that Pythagoras, the ancient Greek philosopher/mathematician known as the father of numbers, proposed a simple but powerful rule for combining pairs of tones in music. “It’s striking,” Altschuler says, “that all Western classical and popular music, including rock, is based on these ancient Pythagorean ratio rules, intervals of pleasing or consonant sounds,

paired with harsher or more dissonant ones.” Simple harmonic ratios—an octave with a ratio of 2:1 or a fifth with a ratio of 3:2, for instance—are pleasant sounding,” he explains, while chords with complex ratios like a major seventh with a ratio of 243:128 are always going to be hard on the ears. “The question was always: why? What’s the basis for these ratio rules?”

Altschuler, whose eclectic interests in science and human life have often taken him into uncharted territory of the clinical, cognitive, neuro-scientific kind, believed that a different way to study these Pythagorean ratio rules would be through functional MRI (fMRI) brain scans of people hearing consonant and dissonant tone combinations.

What was happening inside the brain? His Indiana email correspondent, Alexander H. Foss, was intrigued as well. Foss was also interning in the fMRI laboratory of psychologist Karin H. James, PhD, there in Bloomington, IN, at the time.

Altschuler explains, “Alex had read a book I wrote when I was in college about the composer J.S. Bach.” Yes, this NJMS professor became a published author at age 26 with *Bachanalia, The Essential Listener’s Guide to Bach’s Well-Tempered Clavier* (Little, Brown and Company) with a preface by his mentor, the esteemed Harvard professor Stephen Jay Gould, now deceased. “It’s a baseball statistics book about the fugues of Bach. We met every week for three years. After Professor Gould died, I was reading a book about Bach’s Mass in b minor—a piece we had never discussed together. One night after seeing a rerun of an interview by Charlie Rose of Gould on PBS, I had a dream that Professor Gould and I were discussing the b minor Mass, like we had talked about the well-tempered fugues. Very vivid.”

Meanwhile, the emails between Foss, who is now at Yale, and Altschuler, set the collaboration in motion. The scientists, including Professor Karin James too, decided to use simple passive listening to study the neural activation patterns in the brains of musicians and non-musicians focusing their attention on the perfect fifth, the major sixth and the major seventh. How and where would these living brain maps light up? Would there be a difference between people who had studied music for many years and novices who merely listened for pleasure?

To avoid any extra mental effort on the part of participants which might skew the results, the subjects would be kept in the dark about the real purpose of the study.

Two runs of their easy listening tasks were secretly squeezed into another study on the perception of music syntaxes and chords. “This was a very straightforward test and not something contrived at all,” he says.

On October 8, 2007, the results of their collaborative efforts were published in *NeuroReport*, a cognitive neuroscience and neuropsychology journal, with Foss named as the lead author. Titled “Neural correlates of the Pythagorean ratio rules,” the study showed the neurophysiological places in the brain that respond progressively to consonant and dissonant sounds. As predicted, musicians experienced increased blood flow and oxygenation in at least three areas of the left front side of the brain while non-musicians responded in the right front side. Meanwhile, harsh-sounding intervals appeared to recruit more areas in the brain in processing the music. “It looks like musicians approach listening to music using their language centers,” Altschuler says. “In a typically right-handed person, the language center is on the left while the right brain is the affective or emotional side.” The mentally relaxed non-musicians showed significant brain activation in the right side demonstrating that music is turning on some of the brain’s chemistry in everyone.

“We took an age-old question and studied it in a controlled scientific way to come up with some very interesting answers.” They believe that the basis for the Pythagorean rules “may lie in the cortical activation patterns” they discovered.

This increased blood flow and oxygen generated in areas of the brain simply from hearing music raises a host of unanswerable questions yet to be tested, according to Altschuler.

Should all children be given music lessons to strengthen their brains? Should music be



Eric Altschuler, MD, PhD

played for brain stimulation as well as pleasure? Could a love for music add mentally sharp years to life? Researchers suspect and some evidence shows that increased oxygen and blood flow in an aging brain could possibly help prevent diseases like Alzheimer’s. In the meantime, what about all those musical conductors who outlive the majority of us? Leopold Stowkowski lived until 95, Toscanini until 90, Sir Thomas Beecham to 83 and Eugene Ormandy to 86. What’s that all about? Why did they live so long? Was it the music itself or something about the physical activity of waving their arms in front of an orchestra that stirred up the upper body with its heart and coronary arteries? No one really knows.

“These are interesting hypotheses,” Altschuler agrees. “I think it’s important to test things,” he argues. “Just because you think something makes sense doesn’t mean it’s true. The world out there looks flat, doesn’t it?” he asks laughing. “It took some work to prove it was round.”

In the meantime, it might be a good idea to turn on the music when you want to wake up and get to work. — **MARYANN BRINLEY**

JENNIFER GILLEN AND KARL COUTINHO

# Real World Medicine

## for a Science Nerd and a Globe-Trotter

They say the journey of a thousand miles must begin with a single step. For Jennifer Gillen and Karl Coutinho, co-directors of NJMS's Student Health Advocacy for Resources and Education (SHARE), this old Chinese proverb could easily be used to describe their philosophy of life.

These second-year students' journeys through medical school have been defined by more than going to classes, meeting with patients and studying. They are also taking action and getting involved in the communities they hope to serve one day as doctors. As SHARE co-directors, they take far more than that proverbial single step in overseeing the operations of several outreach programs geared toward helping the community and enhancing classroom learning.

The pair recently took a moment to discuss what drives them, their decision to pursue careers in medicine and their hopes for the future.



## Jennifer Gillen

CLASS OF 2010

**J**ENNIFER Gillen knew by the time she was 8 years old that she wanted to be a physician. “I had health problems in the third grade and had to see several doctors. I got to see how medicine worked and was fascinated by it,” says the self-described “science nerd.”

Although she comes from a family of educators—more than half of her immediate and extended family, including her mother, father and sister, are teachers—Gillen knew she’d follow a different calling. Raised in Hazlet, NJ, Gillen majored in biology at Saint Peter’s College in Jersey City. Even as an undergraduate student, a sense of needing to help others and to be “hands-on” drove her to get involved in community projects. It also played a role in her decision to attend NJMS.

“I was very impressed by NJMS when I came to the interview,” Gillen says. “I was always involved in a lot of activities at Saint Peter’s and saw that NJMS offered that kind of opportunity as well.”

Gillen, a tenor drummer in one of the nation’s top bagpipe bands, doesn’t know what kind of medicine she wants to practice yet, but one thing is certain: Whatever field she pursues, it will help her maintain a connection to her community.

## Karl Coutinho

CLASS OF 2010

**A**T a time when most 6-year-olds were watching TV’s *Teenage Mutant Ninja Turtles* and *Sesame Street*, Karl Coutinho was already traveling the world, courtesy of the Gulf Spirit, a quarter-mile long container ship that brought him to such far-off locales as Europe, the Mediterranean, the Middle East, and parts of Africa.

“My father was the ship’s captain,” explains Coutinho, recalling the six to eight months out of each year that he and his family spent sailing around the world. “We’d



be in a new port every three to five days. As a kid, I got to see and appreciate a lot of different kinds of cultures.”

His years on the ship, from ages 1 to 6, and his family’s subsequent move to the U.S. taught the New York University (NYU) graduate valuable lessons in tolerance, humility, sacrifice and how to adapt. When Coutinho was 6, his parents abandoned life on the open seas to pursue better educational opportunities for him and his sister. For Coutinho, a native of Goa, a former Portuguese colony located in India, his new life was certainly different from the shipboard years, but he adjusted. The family eventually settled in Plainsboro, NJ.

When he was at NYU, Coutinho, an economics and biology major, was moved by the 9/11 terrorism attacks and joined the Army. He was only 17 years old. “I fell in love with infantry life,” Coutinho says. “I thought that’s where my future was. I liked it and was good at it.”

Now, as an Army Reservist and a medical student, he finds that a lot of the qualities expected of soldiers—loyalty, honor, respect, sense of duty and compassion—are also required of medical students. He hopes to practice medicine in Newark but has no plans to trade in his uniform entirely for scrubs and rubber gloves, so he’ll remain in the Army Reserve after graduation.

—GENENE W. MORRIS



The SHARE Center is located on the Newark campus in the Medical Science Building (MSB), B 525, on the anatomy hallway and has office hours Monday through Friday from 10 am to 4 pm.

Under the SHARE umbrella are seven major student initiatives including COMMUNITY, which aims to restore Newark physically through construction, clean-up, and reaching out to the homeless, ESMP (Early State Mentoring Program), New Moms, PINACLE (Partnership in Newark Advocating Community Leaders’ Empowerment), SFHCC (Student Family Health Care Center), STATS (Students Teaching AIDS to Students), and Unite for Sight.

VINCENT BARBA, MD'93

# To Master the Magic of Patient Safety

Hospitals are supposed to be safe places but statistics show that errors and exposure to dangerous infections can make them downright dangerous. That's why **Vincent Barba** has been charged with the task of taking University Hospital to the top of the safety charts. "It starts at the bedside," he says.

**T**HE statistics from the Institute for Healthcare Improvement (IHI) are alarming: Across America, more than 98,000 hospitalized patients die each year due to medical errors and another 15 million are harmed simply because they happen to be in the wrong place—a hospital—at the wrong time.

According to the IHI, medical errors that occur in hospitals expose patients to a host of life-threatening conditions, including drug-resistant bacterial infections, pressure ulcers, blood clots, and preventable heart attacks. There've been cases of surgeries conducted on the wrong person—or the wrong body part—as well as misinterpreted drug or treatment orders stemming from an attending physician's indecipherable handwriting.

Tragically, many of these incidents might have been avoided, says Vincent Barba, MD,'93 who recently accepted the newly created position of Medical Director for Quality Improvement at University Hospital (UH) and New Jersey Medical School

(NJMS). In his dual position, Barba will work to ensure that fewer patients are exposed to unnecessary harm during their stays at UH and while receiving outpatient care. An assistant professor of medicine at NJMS, Barba previously served as the hospi-

tal's Chief of Hospital Medicine and championed the medical school's academic hospitalist program.

"Look, there's no such thing as error-free healthcare. We're human and we are going to make mistakes," Barba concedes. "But what we can do is build multilayered systems that protect patients from harm. We need to help doctors and nurses make the right decisions more often than not, and we need to help protect patients from errors that inevitably will occur."

Among new quality-care initiatives ongoing at UH under Barba's leadership is an effort to enhance the prognosis for suspected



Vincent Barba, MD



heart-attack victims through such simple, institutionalized acts as handing out aspirin upon admittance and expediting a patient's transfer to the catheterization lab. Another new and potentially life-saving initiative is the establishment of hospital-based rapid response teams, specially trained to assess patients presenting early signs of critical illness, including cardiac or respiratory arrest.

Other proposals seek to formalize hospital processes for diagnosing and treating patients displaying symptoms of pneumonia and for reconciling a patient's medications to avoid dosing conflicts. There's also an educational campaign called "Stamp out Staph" (SOS) underway. Its goal is to wipe out deadly Staph (*Staphylococcus*) infections by stressing hand hygiene and getting hospital staff and visitors to wash their hands before approaching patients.

Many of these strategies were developed in response to the IHI's well-publicized "5 Million Lives Campaign." Launched last year, the program is challenging American hospitals to adopt twelve basic changes in care that can save lives and reduce patient injuries, with the goal of saving more than 5 million patients from medical harm dur-

ing a two-year period concluding in December 2008. Nationwide, more than 4,000 hospitals have taken up the challenge, including UH.

According to Barba, UH's quality and safety awareness programs are being carried out at all levels of the hospital—from NJMS faculty who provide patient care and the students they teach—to nursing and clinical staffers as well as members of the hospital's Board of Directors. At the hospital level, multidisciplinary performance teams comprising hospital staff and faculty, led by "physician champions," have been deployed to begin implementing the goal areas targeted by the "5 Million Lives Campaign" and other quality initiatives.

"What we're trying to develop is a complete culture of patient safety from the top down and from the bottom up," Barba says. "I can't do this by myself, sitting in my office. It doesn't happen by authoritarian edict. It has to be done by multidisciplinary teams who celebrate the successes of these programs and see how they work.

"Patient safety starts at the bedside," he adds. "That's the magic. That's the way it works." — **JONI SCANLON**

## *In Memoriam*

**VINCENT LANZONI, MD**, NJMS dean from 1975 to 1987, died on June 28, 2007. A graduate of Tufts University, Lanzoni served in the U.S. Air Force from 1954 to 1956 and received his MD from Boston University in 1960. Following his tenure as NJMS dean, he became dean of GSBS.

**CARROLL M. LEEVY, MD**, died on Sept. 5, 2007. He was chair of the NJMS Department of Medicine from 1978 to 1991, graduated summa cum laude from Fisk University in 1941, received his MD in 1944 from the University of Michigan, and joined NJMS (then Seton Hall) in 1957. A trail-blazing scientist, physician, educator and friend, as well as a prolific author and editor, Leevy was also director of the NJMS Liver Center, training thousands of physicians.

**MITCHELL ROSENTHAL, PHD**, professor, physical medicine and rehabilitation, chief operating officer at the Kessler Medical Rehabilitation Research and Education Corporation, died on May 31, 2007. A fellow of the American Psychological Association, he was on the Council of Representatives of the American Psychological Association, president of the American Board of Rehabilitation Psychology, president of the American Congress of Rehabilitation Medicine, and on the American Board of Professional Psychology. His awards include the 2002 Gold Key from the American Congress of Rehabilitation Medicine. In his memory, the Kessler Foundation has endowed a training program for senior doctoral scientists.

Chief Clerk in NJMS's Department of Pathology and Laboratory Medicine, **SUSAN K. LAIBOW**, died on August 8, 2007. A member of Hadassah since 1964, Laibow was past president of the Newark chapter and the first member in New Jersey to join the Golden Wreath Society of Major Donors.

CHANTAL BRAZEAU, MD

# Practicing What She Teaches

A Canadian who has blended psychiatry, family medicine and teaching, this new Master Educator pays attention to everything about her students, especially their stress levels.



“What a wonderful teacher, physician and mentor. During our small group meetings she offered us just enough instruction to make sure that the session ran smoothly and we accomplished our goals. She also gave us enough freedom so we could learn to problem-solve, organize our thought processes and cooperate with each other without having faculty hover over us at all times. Not only did we get feedback, but we gave her feedback as our facilitator, which proves that she is always seeking ways to improve her own skills. She really cares and is very dedicated to providing high quality education to medical students.” —*Urszula Wierciszewska*

“Dr. Brazeau has a great way with words and was able to give our group a dynamic in which we were all constantly learning new material and evaluating ourselves and our peers in a productive, professional manner. I learned how to be comfortable giving and taking constructive criticism which is a great tool to take with me on my journey through medical school and into my future career. She is a terrific coach.” —*Shrita Smith*

• • •

“In class we’d discuss clinical cases and sometimes role play the doctor-patient interaction. We also had to research topics to present each week. At first it seemed a bit tedious, but I realized how important this was when I was in a clinical setting. Later, I actually volunteered to present a case to the attending. I was a bit surprised at myself. It sounds very cliché, but it was Dr. Brazeau who taught me to have confidence. She also helped me realize that what I thought was a flaw of being overly sensitive was actually me being a patient advocate and that this was not a flaw but a strength. Dr. Brazeau is a true educator, a motivator interested in her students’ growth.” —*Ljeoma Jennifer Njoku*

These are just a few student descriptions of Chantal Brazeau’s work—demonstrating perfectly why she is the newest member of the NJMS faculty inducted into the Stuart Cook, MD, Master Educators’ Guild on September 18, 2007, during University Day ceremonies. Brazeau joins a group of master teachers chosen by their students, voted on by peers and approved by their respective deans.

Brazeau, a 1983 University of Ottawa graduate, moved to NJ in 1985 from Canada when her husband took a job in New York City. She is an associate professor of psychiatry and family medicine.

This dual specialty came about in a natural flow of events typical of the way the educator works. “I chose family medicine because it’s a very holistic discipline,” she explains. “Then, as a young physician in my twenties, I discovered that people were ask-

ing my advice even about non-medical things, by virtue of my medical training. It was especially surprising because they were older than me and wanted my advice even though they had more life experience. I found I enjoyed counseling people and wanted to learn more about it.” So, five and a half years into her family practice in Hasbrouck Heights, NJ, she started a psychiatry residency at UMDNJ. And when the family medicine department wanted to include a mental health provider, she was a natural for the spot. “I’m able to blend both my loves,” Brazeau says.

She hit the NJMS ground running in July, 1995, and in the time since has, according to former colleague Linda Boyd, DO, past acting associate dean for curriculum and faculty development, “participated in all aspects of education at NJMS, pushing herself to excellence in everything she does.” Clearly,

Brazeau’s great love is finding better ways to grow new doctors of a very specific sort. Early on, she worked with colleagues to bring what are known as “Balint” groups—innovative at the time, now more commonly used—to NJMS. Her goal for those small-size meetings in which new doctors discuss difficult doctor-patient relationships was to underscore and emphasize the human aspects of the profession. “Ultimately that’s the central part of being a physician,” she says. “I tell the students that as difficult and challenging as their training is, there’s going to come a time when all this is going to be easier. What will make their experiences unique are their patients. I want them to be skilled at developing these relationships.” In keeping with this, Brazeau has been a leader of the humanism and professionalism section in the new first year doctoring course at NJMS, the Physician’s Core, which started in September 2004.

In classic master teacher style, Brazeau is always evolving. She and colleagues are next turning their attention to “the whole issue of medical student stress, how it impacts the way they take care of patients. If they believe in proper stress management for themselves, they’ll be better able to teach it to patients,” says Brazeau. It’s all about life balance, she says. Does she follow these principles personally? Absolutely. “When I’m with a patient I have to put myself aside and delve into the world of that person, but if I’m not taking care of myself, I can’t do this very demanding job,” she explains. “I think this is true for any speciality.” She exercises regularly, is careful about what she eats and makes sure to have time with her family. Brazeau is the kind of mother who enters important events in her children’s lives—she has a son, 14, and a daughter, 10—on her master schedule.

There’s no mistaking that Brazeau is a gifted educator with a notable passion for maximum impact on the community-at-large: “I still love seeing patients one-on-one,” she says. “But when I influence a student, I’m touching many, many patients.”

—**GAY EDELMAN**





# THE XP PIONEERS

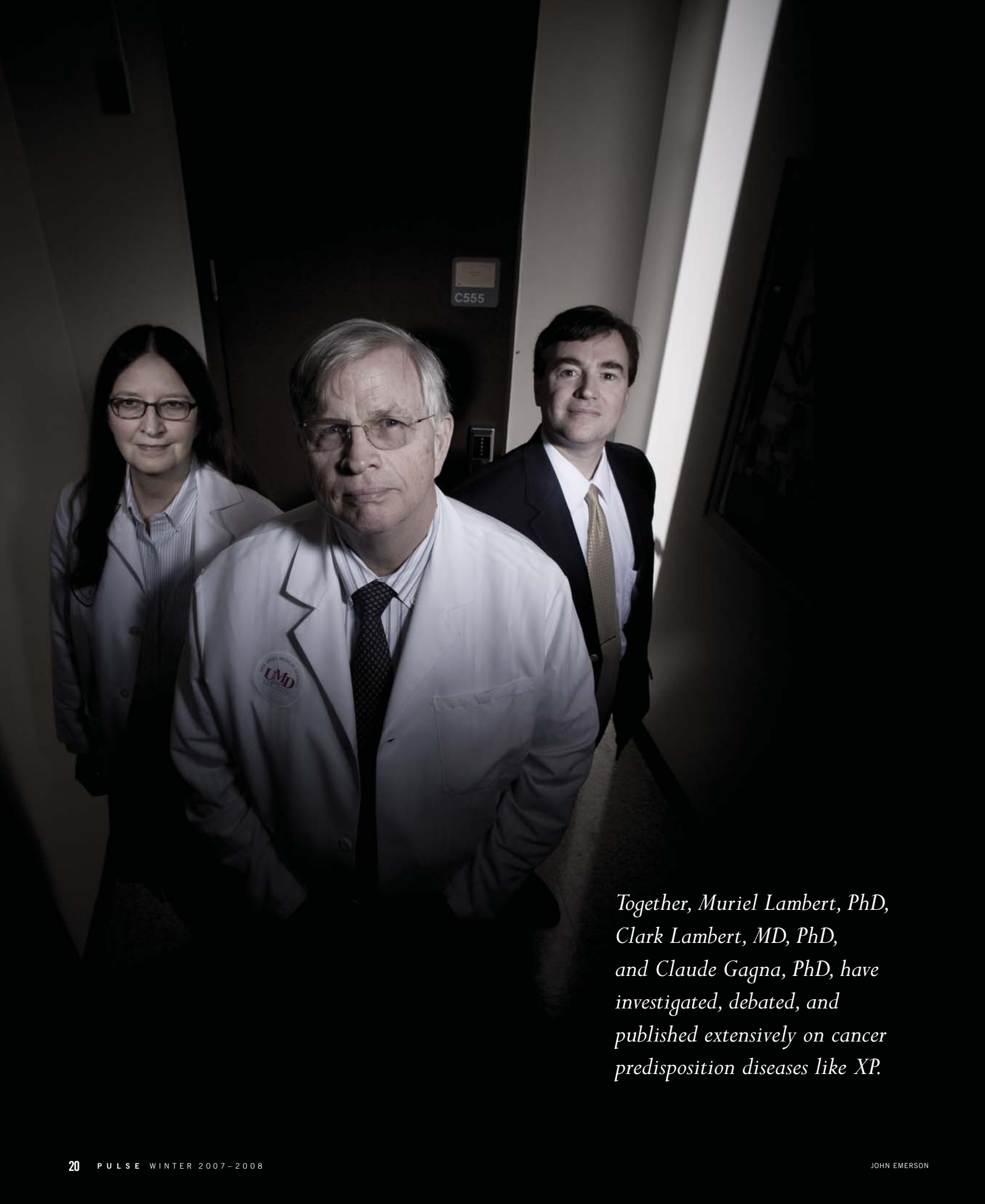
*What if your DNA turned sunshine,  
revered by humans the world over,  
into a deadly force? What if the answer  
to this dreadful dilemma was right  
here in Newark at NJMS?*

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BY MARYANN BRINLEY

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**T**his little girl—reading by flashlight on a California beach in the dead of night because daylight could kill her—is just one of approximately 2,000 patients worldwide who depend upon W. Clark Lambert, MD, PhD, and his pioneering team at NJMS. He was there in the dark that very same night.



*Together, Muriel Lambert, PhD, Clark Lambert, MD, PhD, and Claude Gagna, PhD, have investigated, debated, and published extensively on cancer predisposition diseases like XP.*

Lambert knows that his life in research would make a great medical detective story. “Definitely,” says this UMDNJ–New Jersey Medical School (NJMS) professor of medicine and professor of pathology at the UMDNJ–Graduate School of Biomedical Sciences (GSBS). As one of the world’s leading experts in xeroderma pigmentosum (XP), he will soon have the only laboratory in the Western Hemisphere able to diagnose this rare genetic disease at a cellular level. Lambert has spent much of his professional career on the biochemical pathways inside the mysteries of diseases like XP. This is an inherited disorder in which the patient’s cells are deficient in ability to repair DNA damage caused by ultraviolet light (UV), so that simple sunshine becomes a killing force. Now, as technology and the genomic revolution take scientists deeper into cells, Lambert is getting closer to XP’s secrets.

But he hasn’t been alone on this trail. In the mid-seventies, when he was a resident in dermatology at Yale University’s Yale-New Haven Hospital, he met his wife Muriel W. Lambert, PhD, on the fifth floor of that school’s Hunter Laboratory. She was a post-doctoral fellow then—following a PhD from Northwestern University and a previous post-doc at Harvard Medical School—but ever since, their personal and overlapping professional experiences have fit together like a “Venn diagram,” he jokes. But it’s true. Venn diagrams are those mathematical illustrations with the little balloons positioned so that they show all possible logical relationships and connections between sets. The couple planned it this way, says this happily married father of three—a daughter and two sons who are all going to be doctors. “One is in med school already and the other two are headed that way.” The Lamberts have been key players at NJMS educationally for more than three decades. Associates point to the high publication rates in the pathology and dermatology departments and the constant flow of research funds to these NJMS areas and give lots of credit to the Lamberts.

An NJMS and GSBS professor of pathology and laboratory medicine, Muriel Lambert has been continually supported in her research with major grants from the National Institutes of Health (NIH) for decades, according to her husband. She also heads her department’s graduate school program. Together, they have investigated, debated and published extensively on cellular responses to DNA damage, molecular mechanisms of DNA repair, and cancer predisposition diseases like XP.

A new book chapter, “Xeroderma Pigmentosum, Its Overlap with Trichothiodystrophy, Cockayne Syndrome and Other Progeroid Syndromes,” will be published this year and includes a third byline, another research pioneer, Claude E. Gagna, PhD, who has been working with them for more than 15 years on this atomic and molecular

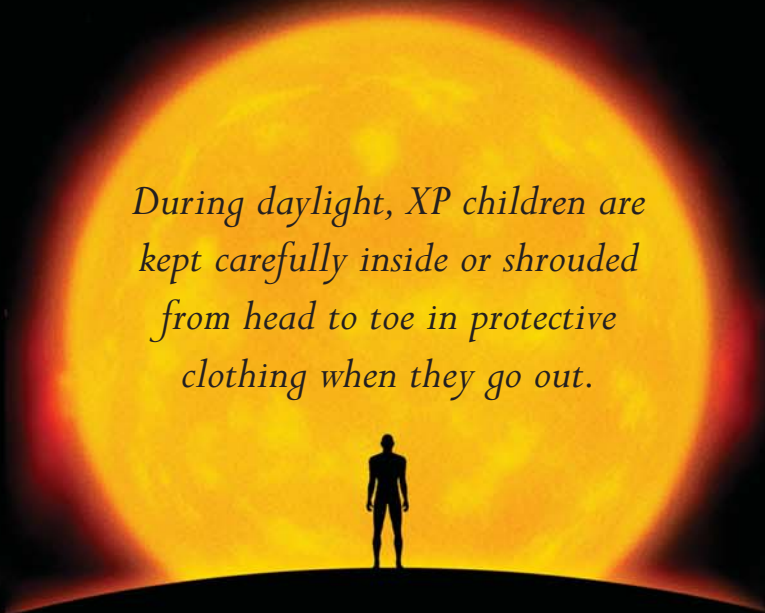
level. “Nanotechnology is going to be the future of medicine and science,” Gagna says. “If you want to think big, you have to think small.”

Lambert is quick to point out that the other Dr. Lambert in the family, his wife, has a large, independent laboratory concentrating on DNA repair, and is responsible for “putting structure to all of this, making sense of how it fits together and showing us how the little balloons on the diagrams come together and can be related” genetically as well as at the cellular level and clinically.

This is important for little lives at stake. Just minimal exposure to sunlight for children with XP can cause severe sunburn—even in the shade—as well as blistering, early freckling with irregular dark spots (called lentigos), and premature aging of skin, lips, eyes, mouth and tongue. Such extreme photosensitivity brings with it red, sore eyes, and blindness can result. They also must face the possibility of progressive neurological complications, including developmental disabilities, hearing loss and eventually trouble walking and talking. “Skin cancers occur as young as 18 months of age,” Lambert explains. It’s not an easy job raising an XP child, according to Lambert. And organizations like the Xeroderma Pigmentosum Family Support Group in Sacramento, CA, and the Xeroderma Pigmentosum Society in Craryville, NY, welcome all the support, information and friendship they can get “under the safety of the stars,” as the latter’s website says. The Lamberts and their children have spent many a summer at Camp Sundown, sponsored by the New York-based society, and at a new camp sponsored by the California group.

“Our database is small and we are still learning. The last call I got from an XP parent concerned urinary tract infections and it turns out that, for reasons that no one understands, these kids also have an increase in this type of infection.” When it comes to XP, the NJMS team is “one of only four referral centers in the U.S., the others being at Brown University, the NIH and at the University of California at San Francisco (UCSF). We get referrals from all over the world, and also work with UCSF, Brown and the NIH,” says Lambert.

Meanwhile, the brand new Genomic Instability and Mutagenesis Laboratory, which should be up and running by the end of 2007, has been made possible by a contract with the National Cancer Institute (NCI) as well as fund-raising by the XP Family Support Group, which recently donated a total of \$55,000. The XP Society has also been generous with a \$25,000 gift made possible in part because of a joint effort with the Family Support Group. The laboratory is run under the watchful eye of Robert Lockwood, a valued senior technician who has worked with the Lamberts for more than 30 years. Equipment is set up and cell lines from the NCI are currently being pre-tested by Lambert’s team. “We’re almost there,” he explains.



*During daylight, XP children are kept carefully inside or shrouded from head to toe in protective clothing when they go out.*

Although there have been laboratories diagnosing XP in the past at UCSF and at the Armed Forces Institute of Pathology in Washington, DC, it was a costly endeavor or one that didn't meet current government regulatory requirements. Lambert estimates that until those labs closed, their tests used to run up to \$35,000 each. The NJMS testing will be more refined and cheaper. In fact, verification of XP has been dependent on what could often be imprecise clinical assessments based on skin, eye and neurological signs. Direct molecular diagnosis has been impractical because the disease can be caused by at least eight separate genes widely scattered over the human genome. Detailed family histories sometimes helped. But there was no approved laboratory test for detecting XP early before irreparable DNA damage occurred in a child who stayed out in the normal light of day without protection.

XP patients have more than a 1,000-fold increased risk of superficial skin cancers and their more serious counterparts, melanomas, in the preschool years. Some patients develop other kinds of internal cancers as they grow up. Lambert suspects a connection. Other overlapping syndromes are possible. Though more common in Japan, North African countries and the Middle East, XP is not defined by skin color or race. Sex is not a factor either. "There is no common physical denominator," he says.

"Most pediatricians don't know about XP or may have read just a short paragraph back in medical school. This is very rare, with just two to four affected persons per one million live births. Soon," says Lambert, "We'll be able to get a clear picture of what is happening in a child." In the meantime, children are kept carefully inside during daylight and behind specially tinted windows, or shrouded from head to toe in protective clothing when they must go out. Yet, "We just had a patient who died of this disease at the age of 76," Lambert reports.

Studies are ongoing to test the effectiveness of topical protective creams, including one called Dimericine (T4N5), a liposome lotion for treatment of solar and UV sensitivity. This medication actually tries to make skin cells behave normally, at least temporarily, following sun exposure.

Yet, it's at the genetic level where the future for XP therapy lies. This disorder is caused by an inborn defect in one of eight possible genes, seven of them critical to a DNA mending process known as nucleotide excision repair (NER). Things like sunlight and cigarette smoke can damage DNA in the normal course of living and most human beings are biologically prepared to repair such problems with proteins produced using the instructions or blueprints right there in the DNA. This is not true for people born with mutated XP genes (XP-A through -G and variant). The out-of-order codes in each of these genes have different consequences. For instance, XP-C is the gene that recognizes the damage itself. Other genes make proteins which ought to be able to fix impaired areas. Some proteins even install new and healthy replacement DNA.

Gagna and Lambert have actually developed a novel DNA microarray, "the next generation of nucleic acid microarray," in a research march aimed straight toward personalized medicine. Their two new techniques—called transitional structural chemogenomics and transitional structural chemoproteomics—can be used to isolate, characterize and manufacture missing proteins: the dream of every XP parent and child. "We are living in an era of giant scientific innovation," the team wrote in their recent publication in *Medical Hypotheses*. (See sidebar: "New Tools for New Medicines.")

Gagna adds "Part of any drug discovery process is to discover drugs that will bind to DNA or RNA and then shut down bad genes." He says that up until now scientists have looked at DNA and seen static, one dimensional entities when in fact, "DNA is very dynamic with many different types," not just the double-stranded so often pictured by the public. "This is going to open up a lot of different approaches by pharmaceutical companies and research scientists who will be able to target very specific regions of DNA."

Gagna laughs about the fact that fellow scientists have bemoaned that, with all the new data from genomics and proteomics, "We need more genomic terminology like we need a hole in the head." He and Lambert can only disagree, of course. The past three decades have witnessed very many advances in molecular biology and the identification of normal as well as mutated genes. "The 'omic' approaches are responsible for this revolution," they believe. And when it comes to XP, the children themselves, forced to live in the dark, are also powerful catalysts. ●

# NEW TOOLS *for* NEW MEDICINES

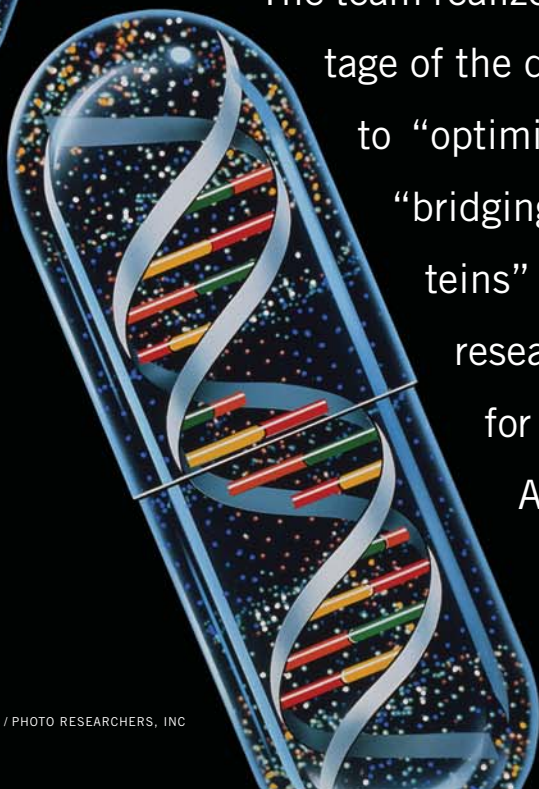
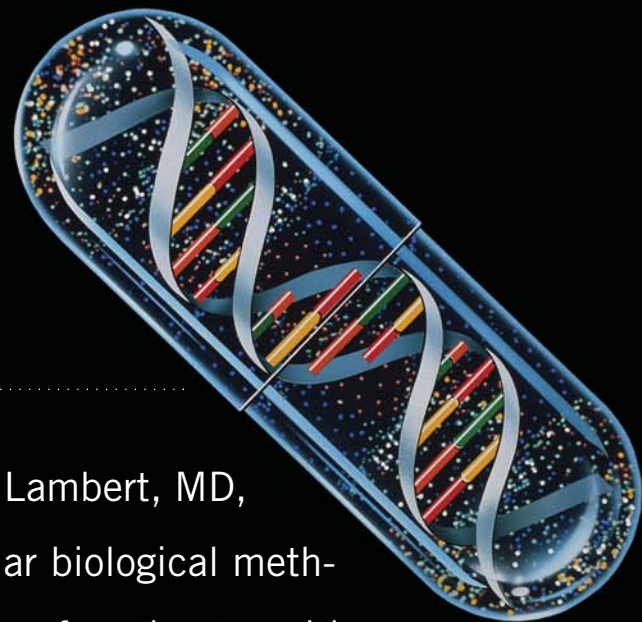
**I**N May, 2006, Claude E. Gagna, PhD, and W. Clark Lambert, MD, PhD, published “Novel drug discovery and molecular biological methods, via DNA, RNA and protein changes using structure-function transitions:

Transitional structural chemogenomics, transitional structural chemoproteomics and novel multi-stranded nucleic acid microarray” in *Medical Hypotheses*. The article

describes their new techniques that would “allow a researcher to characterize drugs that don’t just bind to DNA or proteins in general but take advantage of the little changes occurring,” Gagna says.

A step forward in the journey toward personalized medicine, the novel laboratory techniques represent “the next era of gene expression tools.”

The team realized that by making small changes and taking advantage of the dynamic nature of changeable DNA, they were able to “optimize drug discovery.” They see their inventions as “bridging the gap between thousands of genes and proteins” and tools which will “revolutionize the way researchers try to find cures” not just for XP but also for cancer, AIDS, viral infections, and cardiovascular, Alzheimer’s and autoimmune diseases.

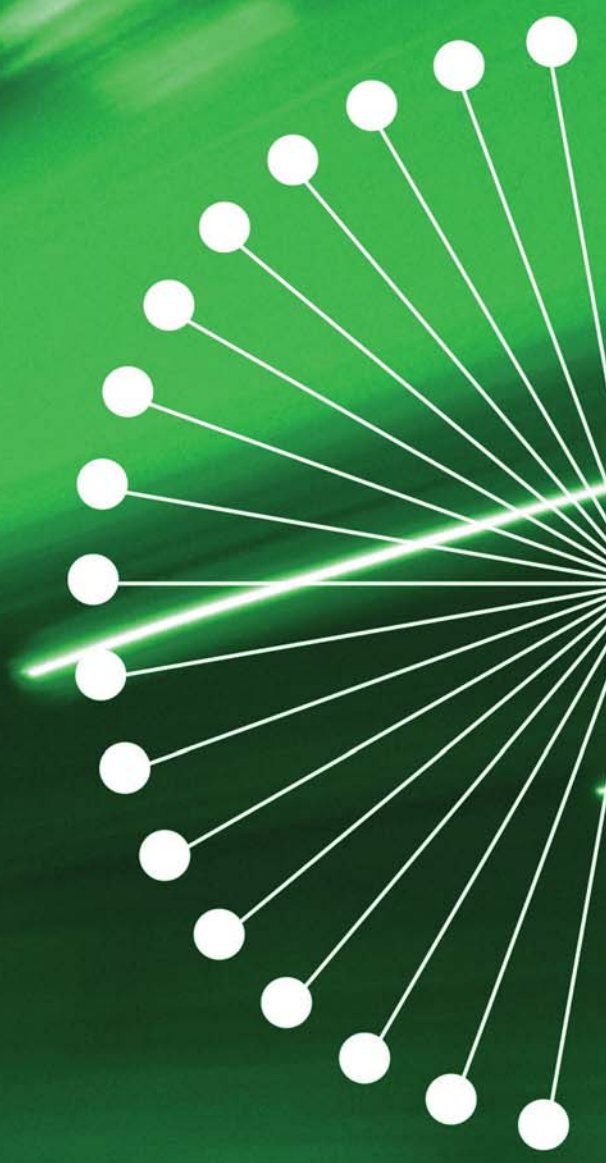


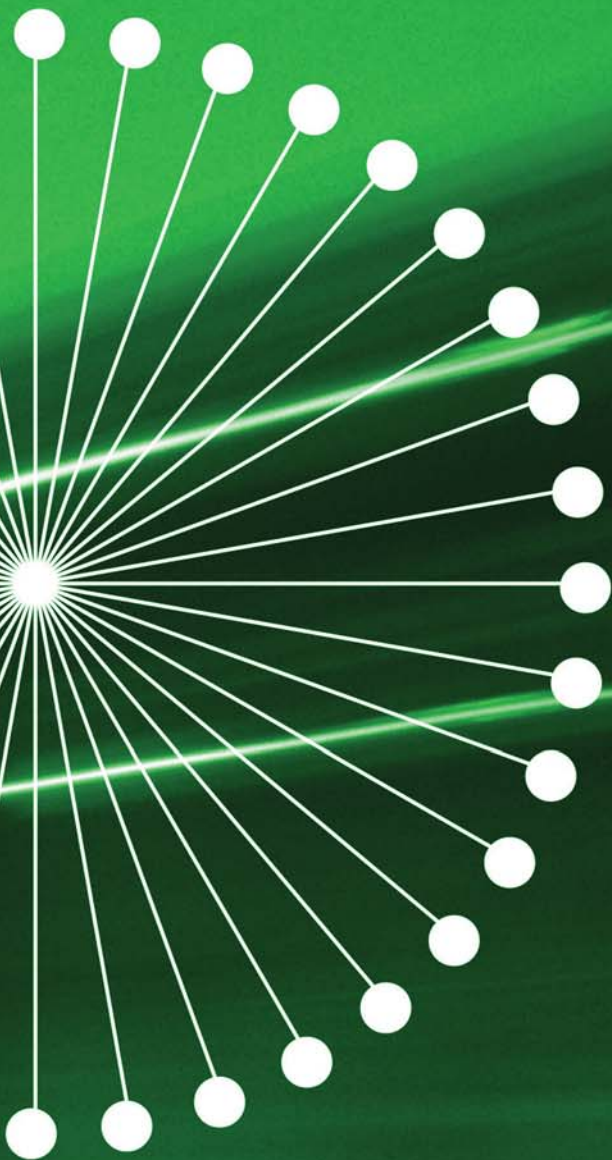
Inside the Spokes of the

# NJMS Research Wheel

BY MAGGIE BRINLEY

It takes a determined administrative office to keep scientists on course in a modern maze of funding obstacles.





**What does Gilla Kaplan's \$1,549,287, David Alland's \$1.8 million, Patricia Flemming's \$4 million, and all the dollars being generated by successful New Jersey Medical School (NJMS) faculty like Andrew Harris, Terri Wood and William Halperin have in common?**

Without the NJMS Office of Research and Sponsored Programs (ORSP), these inspired healthcare experts might not be rewarded with funds at all. Martin Schwarz, PhD, a retired pharmaceutical researcher, review panelist for the National Heart, Lung and Blood Institute at the National Institutes of Health (NIH) and ORSP director since 2005, describes his office as the “hub of a wheel” with spokes leading from every research and health service grant idea, out to the Internal Review Board (IRB), the Institutional Biosafety Committee, the Office of Patents & Licensing, the Office of Legal Management and, of course, to the private, public and governmental funding sources themselves.

ORSP moves the research enterprise wheel for NJMS physicians and scientists. And because of all the regulations, guidelines, and deadlines, Schwarz believes that his office is a focal point for faculty in pursuit of support for their research activities. “Without our effective functioning, grant applications could not be pursued. There is so much creative talent at New Jersey Medical School that it would be a shame if research could not go forward due to a lack of administrative infrastructure.”

Even though federal funding has been down across the country in the past few years, according to ORSP records, this office with its five grant administrators (each focused on different clinical and basic science departments), a coordinator, and three assistants, is optimistic and excited about the success of NJMS faculty in garnering support for their projects. In fact, when the Public Health Research Institute (PHRI) joined forces with UMDNJ this past December, ORSP believes that a powerhouse in research excellence, especially in the area of infectious diseases, was forged. A perfect example of this new strength is the grant just awarded to Gilla Kaplan, PhD, head of the Mycobacterial Immunity and Pathogenesis Laboratory at PHRI. A prestigious prize from the Bill and Melinda Gates Foundation's Global Health Program, the money will support Kaplan's worldwide efforts in tuberculosis research for the next two years.



William Gause, PhD

Under the leadership of William Gause, PhD, senior associate dean for research at NJMS, Schwarz sees his “highly skilled grant administrators able to focus on really enabling the faculty to create competitive applications. Obviously, the science is done by the applicant but the other parts have to be put together in a cohesive form because that’s what’s going to be reviewed.”

When it comes to grant applications, everything is critical, even formats. For example, all applications to a federal or governmental agency must now be submitted electronically, so one grant administrator, Regeane Villarson, MBA, has trained more than 200 NJMS personnel to navigate Grants.gov. Her lectures, booklets, handouts and manuals “streamline this effort,” according to Schwarz. A new database known as COEUS, office manager Sharon McFarlane, and grant administrator Letitia “Lydia” Dean help too. This governmental incentive was in keeping with the need to be more environmentally conscious and “cut down on the large amount of paper” generated by the grant process.

Among its myriad responsibilities, ORSP supports investigators by reviewing their applications for extramural funding before submission, by enabling faculty to remain current with new initiatives that could potentially impact their funding and by creating and conducting training sessions. The office also links investigators to other UMDNJ offices that support research, in addition to running several popular initiatives like the Summer Student Research Programs, the Junior Faculty Mentoring Program, the Biomedical Lectures and the NJMS Internal Research Grant Program.

Under the direction of Lydia Dean, summer sessions give first- and second-year medical students eight weeks’ experience in a laboratory doing “bench” research or conducting clinical studies under the mentorship of an established clinical or basic research investigator. This



Martin Schwarz, PhD

ranks among “the most important training initiatives in the development of a career as a translational investigator,” Schwarz says. He believes that it exposes students to the kind of research that can have a direct impact on their future patients. It whets their intellectual appetites, “giving them a flavor” for a real project and the idea of translational medicine. At the session’s end each August, the program fea-

tures a poster session for displaying work and a chance to win prizes. An annual book of the students’ abstracts is compiled by Dean and offers the added bonus of what may be their first opportunity to get published. Because there is too little time in medical school, internship and residency for research, even the NIH senses that “there is a void in clinician education.” Schwarz says, “This important research initiative” aims to fill it.

Gause, who arrived at the medical school in 2004, has been responsible for several successful new ventures including one “brain child” called the Bridge Grant that “is among the most important initiatives in which I’ve been involved,” Schwarz says. Through the UMDNJ

Foundation and the Dean’s Biomedical Research Support Program, these “bridge grants” now provide principal investigators—who have been denied funding and are in the process of filing renewal applications—fiscal support until proposals can be resubmitted. The Foundation of UMDNJ has played a critical role in supporting this endeavor.

Even established investigators can hit “a bump in the road,” especially in a climate where only one in 10 projects is being fully funded. “The competition for research funding is fierce,” Schwarz says. Amounts of up to \$50,000 are made available to keep labs going and personnel working, pushing them to the next level. “Normally when a grant isn’t funded, there are specific questions from the reviewers for the investigators.” Bridge grants enable NJMS scientists to submit revised applications, addressing specific concerns of extramural panels, and traverse the NIH review process to ultimately obtain a score range that will be funded. In 2005, the program provided “bridge” support to 10 research teams enabling these investigators to keep their research activities alive. Of those 10 investigators, five were subsequently able to accrue more than \$5 million in new research grants.

According to Schwarz, “The energy of our office is fueled by a highly capable professional staff.” Because of Sharon McFarlane, Valerie Trupp, MBA, Cecelia Arceo, Regeane Villarson, MBA, Lydia Dean, MPA, Linda Gallmon, Giovanna Comer and Kheshan Logan, who “energetically focus on the faculty and their research hopes,” the ORSP “is so much more than a door through which grant applications enter and leave. It’s a powerful research wheel.” ●

## Symposium Spotlights Diabetes Epidemic

**SCIENTISTS** certainly need to network in order to expand their knowledge and research goals. This intellectual cross fertilization and exchange of ideas are keys to success and no one is more aware of this than William Gause, PhD, NJMS Senior Associate Dean for Research. He spearheaded the UMDNJ 2007 Research Symposium held on the Newark campus on Dec. 14th. Through lectures, poster presentations, discussions and papers, participants explored “Diabetes: Current Research in the Basic, Clinical and Epidemiological Sciences.”

“Diabetes affects more than 20 million people in the U.S. and these numbers are predicted to increase dramatically over the next two decades. More than ever, we need research to uncover the social, economic, and biological underpinnings of this disease,” Gause reports. According to the International Diabetes Federation, diabetes is a global epidemic, affecting 246 million people worldwide. A leading cause of blindness, heart attack, amputation and kidney failure, diabetes kills 3.8 million people each year. “By bringing together our outstanding investigators for this one day diabetes symposium, we hoped to spur future scientific collaborations and highlight our unique accomplishments in this field.”

Sponsored by the UMDNJ Office of Vice President for Research under Kathleen W. Scotto, PhD, and the UMDNJ Council of Research Deans, the program featured 16 speakers and tackled far-ranging topics including: “How the brain monitors and responds to changes in glucose,” “Diabetic susceptibility to the acute procoagulant effects of traffic generated air pollution,” and “The family’s influence on health: Uncovering multigenerational legacies of diabetes.”

NJMS researchers to address the group were: David Bleich, MD, associate professor, medicine; Joshua Berlin, PhD, professor, pharmacology and physiology; Vanessa H. Routh, PhD, associate professor, pharmacology and physiology; Barry Levin, MD, professor, neurology and neurosciences; Monique Roy, MD, professor, ophthalmology; Leonard Pogach, MD, MBA, professor, medicine; Jesse Crosson, PhD, assistant professor, family medicine at both NJMS and RWJMS; and Chin-Lin Tseng, MPH, DrPH, assistant professor, preventive medicine and community health.

With this conference in mind, the UMDNJ Publications Office devoted an entire issue of *UMDNJ Research* to the topic of diabetes with 11 features including four written by NJMS faculty:

- “Glucose Sensing by the Brain: Implications for Diabetes” by Vanessa H. Routh
- “Obesity: Brain over Body” by Barry E. Levin
- “Preventing Type 1 Diabetes with Helminthic Parasites” by David Bleich
- “Understanding Chronic Illness with Complexity” by Leonard Pogach



Clockwise, left to right: Vanessa H. Routh, PhD; Barry E. Levin, MD; David Bleich, MD; and Leonard Pogach, MD, MBA.

Attended by scientists, clinicians, post-doctoral and graduate students, the program had at least five major objectives: (1) Discuss the mechanisms by which neurons sense glucose and how dysfunction in these mechanisms during diabetes impairs the brain’s ability to detect and respond to hypoglycemia; (2) Be knowledgeable about the complications of diabetes in type 1 diabetic African-Americans; (3) Discuss possible strategies that could be employed to generate/evaluate data from “real world/clinic populations” and to evaluate “performance” and/or target interventions to improve quality of care; (4) Discuss the impact of gestational diabetes mellitus and mild glucose intolerance during pregnancy on maternal-fetal outcome and biomarkers for prediction; and (5) Describe potential mechanistic pathways thought to be involved in the acute response to traffic/motor vehicle generated ambient fine particles.

As Gause says, “The academic community at UMDNJ is committed to expanding our understanding of diabetes through basic science and clinical research efforts.” ●

# *On Stage for Autism*

Could a novel approach to developing social skills work a little magic?

BY LISA JACOBS





At first glance, the very concept of linking autism with acting seems paradoxical. How can someone with impaired communication skills speak before an audience? How can those who struggle with daily social interaction act as part of a cast? Indeed, it is difficult to imagine that anyone afflicted with a bioneurological developmental disability characterized by problems with social interactions, difficulty with verbal and nonverbal communication, and repetitive behaviors or obsessive interests could participate in one of the most challenging, public, social, and verbal activities imaginable.

When looked at in a different light, however, treating autism with acting seems natural, even intuitive. Acting trains people to speak, interact, and project more effectively—the very skills those with autism need to develop through a variety of therapies. Actors learn how to “read” people, respond to an audience, and work as part of a team, all of which are highly relevant goals for those with autism.

It may not be so surprising that autistic teens would gravitate towards acting as an alternative or new way to work on social and communication skills. This is precisely what happened when Madeleine Goldfarb, director of outreach and education at The Autism Center at UMDNJ–NJMS, and Charles Cartwright, MD, assistant professor of psychiatry at NJMS and acting director of the center, gathered a group of autistic adolescents together to discuss what kind of programs would interest them. “I got a lot of hands going up, a lot of interest, a lot of attention and listening. It was really quite astounding. I don’t know how many people have asked them what motivates them, or switched from telling them what they have to do to asking them what they love to do. After the meeting, Dr. Cartwright and I knew we had hit on something,” Goldfarb explains.

In response to the group’s excitement, The Autism Center pursued, and was awarded, a grant by Johnson & Johnson, through its partnership with the Society of Art and Health, to establish an acting pro-

gram for autistic adolescents and young adults in collaboration with Montclair State University. The program was scheduled for 12 consecutive Saturdays and began in September with a group of 16- to 30-year-olds. Participants tried to build consensus and social skills, and developed better communication abilities through monologue and group acting. “It will help them form a community and friendships, and they can take those skills, such as voice projection, with them. These skills will filter into their day to day lives,” says Goldfarb.

The director of the program, Paul O’Connor from Montclair State University, has worked with groups like Very Special Arts and Arts Horizons, which focus on students with disabilities. He believes that the communication lessons learned in acting classes allow students to be more successful in all aspects of their lives. “It’s all about learning to communicate...this is what I tell people, this is what I tell kids, this is what I tell parents: that you are acquiring the skill to read people and to communicate with them as a result of correctly reading their moods and intentions,” he explains. O’Connor has found that students often exceed their own expectations and those of their communities with what they accomplish through acting, which creates a powerful, and lasting, sense of pride and potency.

“I truly believe that once they have the ability to see that they can do this (and it’s not that bad), to create (and not only create but get a reaction and praise from an audience), and to hear, ‘I didn’t even know you had that in you,’ from a parent, a friend, a relative or a coworker (which is priceless), they’ll carry the experience with them for a long time,” he says.

Goldfarb hopes this will be the first of many programs to bring older adolescents and young adults together, groups for which there is often less structured programming. “In a sneaky way, if we can find something that they’re really motivated to do, we can work on their social skills and all of these things that are difficult, but in a framework that’s really motivating for these individuals.” ●

*Joseph V. DiTrollo, MD'79*

## A Message from the President



**T**HE start of a new academic year is the right time to recognize the excellence of the year just past. This one began with the Scholarship Awards Dinner on October 23rd and the awarding of even more scholarships than last year. There was something else that was noteworthy this year which I hope will set the trend for future donations.

In 2007, a lot of good people passed on; one of those was Leonard Dean, who succumbed to multiple illnesses this past July at the age of 81. Lenny was a native New Jersey resident who started working at The Lionel Corporation with my father in 1941.

World War II interceded and Lenny went into service to defend his country. After the war, Lenny was back at Lionel and stayed there through the post war era when, by 1955, Lionel was the largest toy manufacturer in the world. Times changed, as did the toys, but Lenny stayed with Lionel. In the 1970's, Lionel was part of General Mills, and in 1985 it was back in private hands under Richard Kuhn. Finally in 1995, Lionel, which was founded in 1900, was placed in an LLC under WellSpring Investments, where it remains today. Lionel is still quite viable under the excellent direction of Jerry Calabrese. Lenny never changed employers and accumulated almost 65 years of tenure. This was a person of character and integrity who touched many lives in the model railroading field.

Lenny is gone, but will not be forgotten. The Lionel Corporation and the Alumni Association worked together to establish an endowed scholarship in Lenny's memory, and this year the first scholarship recipient was named. I can think of no better way to carry forward one's ideal than an endowed scholarship. The Alumni Association is there to remember the past and to help fund the future, so please keep us in mind when there is someone who has moved you so much that you want them to be remembered.

## NJMS CALENDAR OF EVENTS

SPRING 2008

- January 31** Alumni Association Board of Trustees Meeting  
Rosemary Gellene Room, MSB B515, 6:00 pm

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- February 18 and 21** Career Nights  
The Grand Foyer, MSB, 6:00 pm

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- March 20** NJMS Match Day  
The Grand Foyer, MSB, Noon

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- April 5** Alumni Reunion / Golden Apple Dinner  
The Sheraton Hotel  
Parsippany, NJ, 7:00 pm

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- April 17** Alumni Association Board of Trustees Meeting  
Rosemary Gellene Room, MSB B515, 6:00 pm

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- May 4** Susan G. Komen Breast Cancer Foundation  
First Annual Race for the Cure®  
Branch Brook Park, Cherry Blossom Area, Newark  
Contact: Betty Patterson-Pearson, (973) 972-4965

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- May 16** 20th Annual Stuart S. Stevenson Memorial Lecture  
13th Annual Benjamin F. Rush, Jr. Surgical Society Lecture  
40th Annual Harold J. Jeghers Memorial Lecture  
Speakers, times and locations to be announced

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- May 19** NJMS Convocation

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- May 21** Commencement

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- June 19** Alumni Association Board of Trustees Annual Meeting  
Rosemary Gellene Room, MSB B515, 6:00 pm

# save the date!

**Annual Alumni Reunion Dinner Dance  
and Golden Apple Awards Dinner**

**Saturday, April 5, 2008**

**The Sheraton Tara Hotel, Parsippany, NJ**

We will be celebrating the milestone anniversaries of the classes of 1963, 1968, 1973, 1978, 1983, 1988, 1993, 1998 and 2003, as we gather with our students when they honor their NJMS faculty.

Plan to renew old friendships, make some new ones, and enjoy a gala evening. For more information and to obtain a contact list for your classmates, please call the Alumni Office at (973)972-6864.

# And the Recipients Are...

**T**HIS year, 117 grateful students received named, endowed, class and research scholarships in the presence of their families, friends, faculty and many distinguished guests. The occasion was the annual awards dinner on October 23 where the Alumni Association-NJMS awarded this record number of scholarships to deserving medical students.

Donors made personal presentations that were emotional outpourings which left a lasting impact on all. As the list of donors grows each year, so does the need for such support. Scholarships can be named in honor of, in memory of, or in the name of the donor. Endowed scholarships become permanent tributes to the persons whose names they bear, and earn income which will be awarded each year in perpetuity. (See "The Power of Scholarships" on page 34.) If you would like to contribute to any particular scholarship fund, especially one described in this issue of *Pulse*, or if you want to establish a fund to honor someone you love, contact George F. Heinrich, MD, NJMS associate dean for Admissions and Special Programs and vice chair and CEO of the Foundation of UMDNJ at (732) 235-3311 or [heinrich@umdnj.edu](mailto:heinrich@umdnj.edu). Information about supporting NJMS students in any meaningful way can also be obtained through Dianne Mink in the alumni office at (973) 972-6864 or [minkda@umdnj.edu](mailto:minkda@umdnj.edu).



1. Alumni Association Named and Endowed Scholarship award recipients, flanked by (left) James Oleske, MD'71; and (right) Joseph V. DiTrolino, MD'79 and George F. Heinrich, MD'72
2. Susan Hagen Morrison, MD (left), and Barbara A. Nahas, MD, who are members of the Class of 1981 and are Endowed Scholarship donors.
3. Alumni Association Class Scholarship award recipients flanked by (left) Joseph V. DiTrolino, MD'79; and (right) James Oleske, MD'71 and George F. Heinrich, MD'72
4. Recipient of the Dr. Rosemary Gellene'60 Memorial Scholarship, Michael Ivan'08, NJMS Student Council President
5. Ershad Elahi'08, the recipient of The Endowed Scholarship Fund in Memory of A. Albert Carabelli, MD (See story on page 35.)

*James Patrick Murphy, MD'66*

## A Dream Reclaimed

*By Gay Norton Edelman*

**A**t a time in life when peers are heading for Boca to kick back and relax, James Patrick Murphy, MD, NJMS class of '66, an ear, nose and throat (ENT) specialist from Kearny, NJ, gave up his 25-year practice not to slow down but to embrace a demanding new job in Ghana.

In July this past year, just weeks after his youngest child's college graduation, Murphy and his wife, Cynthia R. Murphy, headed for this small West African country, where Murphy will be the only otolaryngologist for 5 million people.

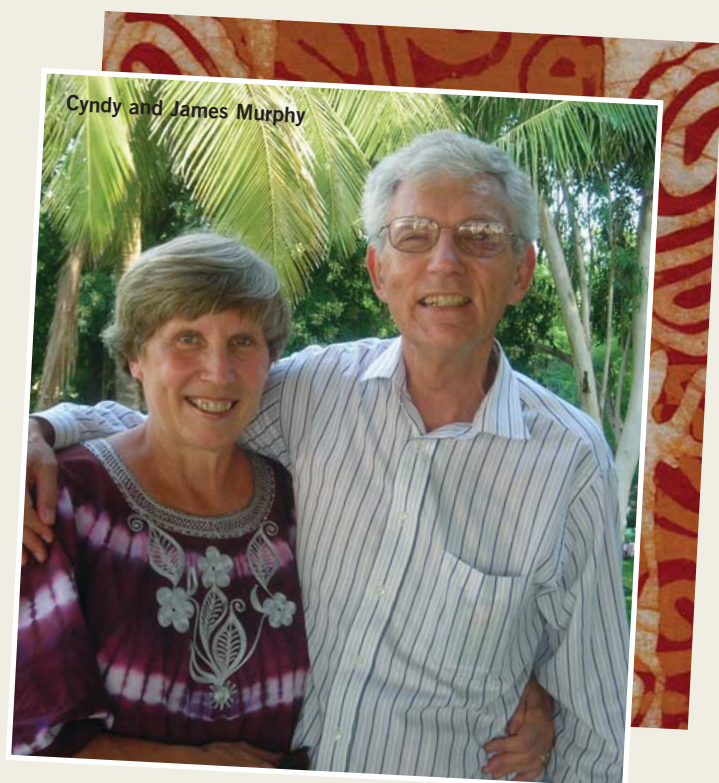
Murphy's work at the Tamale Regional Teaching Hospital is the fulfillment of a dream first conceived while he was in college and medical school more than 30 years ago. "I spent time in Peru and India and saw the urgent need for healthcare in the developing world," he says. "I wanted to work in such an area and was approached to practice in Ghana in 1976." With his board certification, a neuro-otology fellowship and a second head and neck fellowship completed, he spent two years in western Ghana in a Catholic mission hospital.

It was his father's stroke that pulled him back to the U.S. in 1979. And when Cyndy, his childhood sweetheart from Bloomfield, agreed to marry him in 1979, they began creating a life here in the states—four children and the private practice where she also worked as an audiologist. But, says Murphy, "I always intended to return to Ghana. I told Cyndy when I proposed that I wanted to do this. I never forgot my dream." In fact, after his first stay in Ghana, he obtained a Master of Public Health with an emphasis in tropical medicine from Columbia University.

Only slightly less enthusiastic than her husband about the Ghana chapter of their life, Cyndy is also making herself more than just useful. "I'm extremely grateful for this

unique opportunity," she says. "I've been volunteering at a fabric shop which teaches distressed women to sew and do batik. I'll also teach English to a group of seminarians and I may be able to help Jim in the hospital with hearing tests." Cyndy will stay for four months to help Murphy set up, then toggle back and forth between continents, spending a few months nearer their children and several months a year with her husband. He plans, he says, to work in Ghana "as long as I am able, depending on health, family situations and effectiveness."

The Murphys' kids are as supportive as



Cyndy and James Murphy

they are amazed. “When we were growing up, my father always talked about going back to Africa one day,” says daughter Beth. “But to be honest, we all thought he was kidding. I don’t think I ever really understood where my father’s passion and mindset stemmed from until I went to west Africa after graduating from college in 2005. My father and I traveled together though several cities and villages where he lived decades ago.

Walking the grounds of his old hospital, and seeing the eyes of friends and former colleagues light up when they saw his face, it was clear that he had made a difference in their lives. And I understood why he felt the need to come back.”

When the Murphys arrived in Ghana, their biggest concern was luggage—not suitcases, but the 40-foot container filled, says Murphy, “with my own otolaryngology equipment and donations from various U.S. and European medical companies.”

Those materials are vital. “The 300-bed hospital has very little equipment, no working toilets and only intermittent water and electricity,” says Murphy. On August 6, Murphy reported on his blog ([drmurphyghana.blogspot.com](http://drmurphyghana.blogspot.com)) that the container had finally arrived.

Security is a problem, so the unpacking was slow, but Murphy started seeing patients straight off, encountering, he says, “many cases of sensorineural hearing loss secondary to malaria and ototoxic drugs, meningitis, chronic otitis media, external otitis, foreign bodies in the ear, cleft lip and palate, thyroid nodules, and guinea worm abscesses of the face.” Elective surgery had to be postponed until the security situation could be improved and equipment unpacked. “I also plan to visit district hospitals and schools for the deaf which have about 1500 students so I



James Murphy, MD (left), in Ghana reconnecting with friends he first met 30 years ago.



expect to be quickly overwhelmed,” he says.

Like a typical dreamer with his feet also firmly on the ground, Murphy continues to expand his goals. “I think it would be a good idea for a UMDNJ affiliated hospital to become a ‘sister’ hospital to Tamale Regional Teaching Hospital,” he says. “This could provide a wonderful opportunity for U.S. specialists to rotate here for a few weeks or months and be of tremendous service to the Ghanaians.” There’s been no word yet from UMDNJ about Murphy’s proposal but this doctor doesn’t lack support. “The Rotary Club of a college classmate and my hometown Kearny Rotary Club, along with the Tamale Rotarians are applying for a grant with Project CURE to obtain supplies for the hospital,” he says. “The hospital is sorely in need of microscopes for the pathologist who is without one, textbooks, monitors, sterilizers, laboratory equipment and disposable supplies, to name just a few things.”

Meanwhile, he revels in his new role. “The best part about being here is feeling needed as the only ENT in such a large area,” he says. “There is a great need for specialists outside the capital cities of Africa. They lose over 60% of their medical graduates to American and European facilities.”

Despite ongoing obstacles—ranging from the lack of facilities, local drug addiction

and stealing, to his own bout of food poisoning—the man who has deferred his dream for 30 years is not easily discouraged. “My colleagues—Ghanaians, Cubans, Egyptians—are very warm, helpful and a joy to be with,” he says. And, of course, he says, “the patients are very appreciative.”

While only Murphy can fully understand his passion for devoting these golden years to people in Africa, his wife Cyndy reports, “I always felt he was unique.” She was aware of his desire to return to Ghana but had thought that “25 years of marriage and raising four children might change his mind. Obviously I was wrong and here we are! One thing is certain—I would never have had such a special experience if it weren’t for Jim.” ●

*You can also read more about the Murphys’ adventure on Cyndy’s blog at [www.cyndymurphy.blogspot.com](http://www.cyndymurphy.blogspot.com).*

*Stories Behind The Gifts*

# THE POWER *of* SCHOLARSHIPS

BY ANN ROBERTS BRICE



*Scholarships provide a source of tuition support that gives NJMS a way to recognize excellence in its applicants, perpetuate the memory of someone the donors admired, and challenge future students to emulate the exemplary qualities of those memorialized.*

*The moving stories behind two new scholarships give insight into the unique meaning that NJMS has for some graduates and faculty, and the special ways that two individuals found to acknowledge it.*

*The first is about a physician, father, mentor and role model of an alumna who has sponsored an endowed scholarship to perpetuate his memory. The second commemorates the son of a long-time faculty member. The young man, who led an exemplary life and died heroically as a volunteer firefighter at age 21, will be memorialized with a scholarship funded by his father's NJMS colleague.*



## In Her Father's Memory

**T**HE question facing Lisa Carabelli Hurckes, MD, NJMS '93, was how best to memorialize her father. A physician, Albert Carabelli had also been her mentor and role model, and she wanted a permanent way to keep his memory alive.

Her answer was to create the A. Albert Carabelli Memorial Endowed Scholarship. The \$100,000 she and her husband Thomas donated will fund an annual award to a

deserving medical student. This is the 39th endowed scholarship of \$25,000 or more to be sponsored at NJMS since the program began a half dozen years ago.

Sitting in her office in Summit, NJ, near Overlook Hospital, she talks about how she and Thomas arrived at their decision. "We wanted the memorial scholarship to be the most significant gift that we could give at this point in our lives," she says.

"Too many people wait until they're older or until their parents are gone or their kids are gone. For some of us, tomorrow never happens. I encourage people to do what they can do to help others at every point in

their lives whether it's financial or personal."

This daughter had a special feeling not only for her dad, but also for her medical school. In deciding what institution should receive this scholarship, her memories of NJMS made up her mind. "NJMS gave its all to me: the tools to be a doctor and fulfill my dream."

Hurckes is an internist and mother of four, including a daughter who just left home for college. From the start, she wanted to raise a family as well as be a clinician, and

loved his students," Hurckes recalls, "and constantly had residents calling him or coming to his office. He'd spend hours and hours at the hospital, frequently dragging the residents around to see something he thought was interesting." In her teen years, Hurckes was dragged around with him too. "He was a humanitarian and didn't judge people by whether they were male, female, by race, religion, level of intellect or social class. He judged people only by who they were," she says.



Childhood memories of her dad and his patients are interwoven with those of family life.

**"I never met a kinder, fairer person than my father,"** says Lisa Carabelli Hurckes, MD '93. "He was a wonderful clinician."

that consideration pushed her into community medicine. She began at Summit Medical Group and later started her own practice.

Hurckes' childhood memories of her dad and his patients and students are interwoven with those of family life. "I never met a kinder, fairer person than my father. He was a wonderful clinician," she says, "and the kind of person I think a lot of people would like to emulate. His students did emulate him."

As a child, she, her sisters and their mother, a nurse, would sit around the table listening to their father and grandfather discuss interesting cases. "We were sometimes horrified, sometimes mesmerized by the stories they told," she recalls.

After attending medical school at the University of St. Louis, Albert Carabelli moved his family to Trenton, NJ, where he entered his father's medical practice and spent the next 28 years. Ten days before he died of kidney cancer in 1998, he was still caring for patients. A gastroenterologist, Carabelli was also active in the teaching program at St. Francis Hospital in Trenton. "He

"The perpetual scholarship appealed to me. He will never be forgotten by his family, his children, grandchildren or his students. It's a nice thing for him." Hurckes didn't restrict who could receive the scholarship or the area of excellence the individual might pursue. "Each year, it can be a different kind of person, a man or woman, with different career goals in teaching, community practice or research," she explains.

With endowed scholarships, the principal amount is never spent. It is invested and reinvested over the years. As the principal grows, the return does too, and with it the amount of the annual scholarship award can grow. This first year, the A. Albert Carabelli, MD Memorial Endowed Scholarship will provide a deserving student with \$5,000 to be used towards tuition, books or other expenses.

"We're looking to encourage others to establish endowed scholarships to help students deal with the high cost of medical education," explains George F. Heinrich, MD, NJMS Associate Dean for Admissions and Special Programs and the Foundation's

CEO and Vice Chair. "Graduates are faced with a much greater debt load than ever before. Having scholarships to offset some of the potential debt is very important. Students shouldn't be forced to make specialty decisions or what they wish to pursue based on debt." UMDNJ's Foundation *2007 Annual Report* which shows return on other gifts and investments can be accessed online at [www.umdnj.edu/foundweb/](http://www.umdnj.edu/foundweb/).

## To Turn Tragedy into Promise

ON April 11, 2006, responding to an emergency in Somerset County, 21-year-old Kevin Apuzzio and a team of four volunteer firefighters tried to rescue an elderly woman from her burning home. A criminal justice major at Rutgers University's Livingston College, Kevin perished when the main floor of the home collapsed under him and he was trapped in the basement. His father, Joseph Apuzzio, MD, NJMS '73, is a longtime professor of obstetrics, gynecology and women's health, as well as director of prenatal diagnosis and infectious diseases and director of maternal fetal medicine.

Hugh Evans, MD, NJMS professor, former chair of the Department of Pediatrics, is a physician with more than 50 years' experience and a personal history of generosity. He remembers hearing about the Apuzzio tragedy at the time and being profoundly saddened by this loss of life. He also recalls his sense of awe at the enormity of the 21-year-old's courage and capacity for leadership under the circumstances. Kevin had also served as a part-time emergency medical technician (EMT) at Rutgers.

Turning tragedy into promise was a challenge that Evans sought to achieve in sponsoring a full four-year scholarship for an entering medical student in the class of



At right: Joseph Apuzzio, MD, and Hugh Evans, MD;  
below: Kevin Apuzzio

2012 who will be designated The Kevin Apuzzio Memorial Scholar to perpetuate the exemplary heroism, dedication and leadership in a time of crisis. He gave his “last full measure of devotion” to save a life, according to Evans.

Meanwhile, this \$90,000 gift is Evans’ Third Legacy Award in a series of annual grants sponsored by the Hugh E. Evans Legacy Awards. Established in 2005 to provide seed funding to pediatrics faculty, the program presented seven grants last year for projects that varied from obesity control in children to bilingual education for parents of asthmatic children. His first Legacy Awards went to a peer outreach program in childhood diabetes and an injury prevention education course that focused on gun safety. However, this scholarship has a different focus, notes Evans. Kevin Apuzzio, of course, was different.

“There’s an ancient expression which says that ‘to save one life is as if you have saved the world.’

“He clearly etched his own indelible profile of courage,” Evans explains. Just two days after his death, on April 13, 2006, NJ Governor Jon Corzine acknowledged Kevin

Apuzzio’s devotion to public service and the welfare of others by ordering flags in the state to be flown at half-mast. Rutgers also paid tribute by naming a training center after him that prepares public safety personnel for community work.

Last month, Kevin’s name was added to the National Fallen Firefighters Memorial at the National Fire Academy in Emmitsburg, MD, and at an October 5th ceremony, President George W. Bush spoke of the



heroism of Kevin and three other firefighters killed last year. “It takes a special kind of person to be a firefighter,” the President said. “When others are looking for exits...our firefighters are looking for the way in.”

It was a year after the accident that Evans approached his NJMS associate, Joseph Apuzzio, with this idea of sponsoring a memorial scholarship to carry on Kevin’s memory and “the characteristics that he so nobly exemplified.” Grateful, the family is “confident that the recipient will manifest our son’s selflessness and spirit of community service,” says this father.

Among friends and associates, Kevin was always known for his positive attitude and sense of humor in addition to a desire to

help people. Evans has specified that the recipient have this same kind of exemplary record of community service. “Kevin’s profile was one of courage, leading from the front, and staying involved in times of crisis,” says Evans. “The scholarship candidate should personify what Kevin was all about. Nothing can be more critical than a life at stake,” he continues. He believes that this scholarship will set a standard or model for entering medical students who are committed to service and valor especially in times of crisis. ●

*If you would like to contribute to either of these scholarship funds, or establish a fund to honor someone, contact George F. Heinrich, MD, NJMS associate dean for Admissions and Special Programs and vice chair and CEO of the Foundation of UMDNJ at (732) 235-3311 or [heinrich@umdnj.edu](mailto:heinrich@umdnj.edu).*

## 1960'S

**Daniel D. Cowell, MD'60** is professor of psychiatry; former department chair; senior associate dean for graduate medical education at the Marshall University School of Medicine, Huntington, WV. He and his wife, Diana, a hospice social worker, have four grown children living in France, DE, DC and CA.

**George R. Haddad, MD'61** writes that his daughter Kylee completed the

New York Marathon 2006 in the amputee hand crank cycle division in 4 hours, 22 minutes.

**Evelyn Dooley, MD'64** is the Medical Society, County of Kings, 2007–2008 president. Dr. Dooley lives and practices in NY.

**James P. Murphy, MD'66**, an ear, nose and throat specialist, has relocated to Ghana with his wife Cynthia. He is working in a Catholic, government-financed hospital, as the only doctor

with his specialty for about 5 million people, and is raising money for equipment and supplies. (Please see the feature story on page 32.)

**Vincent Oriente, MD'66** writes that he is enjoying his sixteenth year of retirement.

**William Boutelle, MD'67**, a psychiatrist, retired from the Veterans Administration in December 2005 after 33 years. For the last ten years, Dr. Boutelle was chief of staff of VAMC in Northampton, MA. He now works three days a week for private agencies in western MA.

**James DeGerome, MD'68** writes that he retired two years ago from his practice in gastroenterology in Palm Beach, FL. Dr. DeGerome has been elected secretary of the Digestive Disease National Coalition.

## 1970'S

**Richard W. Huss, MD'71** is working for ENTAA Care as one of three allergists in the practice, in addition to eight ENT physicians. Dr. Huss practices in offices in Glen Burnie, Annapolis and Odenton, MD.

**William A. Rough, MD'74** is president of the NJ Chapter of the American College of Surgeons.

**William K. Cors, MD'75, FACPE**, is vice president of medical affairs at Good Samaritan Hospital, Suffern, NY. Dr. Cors, a board certified neurologist, chaired the World Research Group's conference, titled "Optimizing the Role of the Physician Advisor" in March 2007 in Atlanta, GA. He has also been named to the board of directors of the American College of Physician Executives.

**Robert W. Handler, MD'75** and wife Pam are proud to have their son Adam enter the NJMS Class of 2011.

**John F. Bonamo, MD'77, MS** is executive director, Saint Barnabas Medical Center, Livingston, NJ. He received his masters degree in Health Care Management from Harvard University in 2003.

**Eileen M. Clifford, MD'77** is the full-time medical director of care management for St. Joseph's Healthcare System in New Jersey.

**Mitchell H. Rubin, MD'78** has been appointed as Nassau Health Care Corporation's vice president for Ambulatory Services. Dr. Rubin is a fellow of the New York Academy of Medicine and holds academic appointments in the Department of Pediatrics at New York University School of Medicine, Mount Sinai School of Medicine's Departments of Community and Preventive Medicine and Pediatrics, and at New York Medical College in the Department of Pediatrics and the School of Public Health.

**Scott Baron, MD'79** is chairman, Cardiac Services at Mercy San Juan Medical Center in Carmichael, CA.

## 1980'S

**Linda J. Griffith, MD'81** had her first article, entitled "Good Palliative Care for a Patient with Schizophrenia, Dying of Emphysema and Heart Failure," published in *Psychiatry* August 2007.

**Lee F. Allen, MD'82, PhD** has been appointed chief medical officer and senior vice president of Clinical Development by AMAG Pharmaceuticals, Inc.

**Michael Kings, MD'82** is an allergist with offices in Fairfield and Trumbull, CT.

**Luis E. Rios, MD'82** received an MPH in Community Health on May 4, 2007 from the University of North Florida. Dr. Rios was also promoted to associate professor in Emergency Medicine at UF/Shands-Jacksonville and became a facility partner of Southeast Emergency Consultants this year.

**Neil Spector, MD'82**, director of Translational Research in Oncology at Duke University Medical Center, has been appointed to the Scientific Advisory Board of Array BioPharma, Inc. Array BioPharma is a biopharma-

## REMEMBERING OUR ALUMS

*The Alumni Association extends deepest sympathy to the families and friends of alumni who have passed away.*

**John F. Connolly, MD'61**, of Orlando, FL, died on July 30, 2007. Dr. Connolly was professor and chief of orthopedics at the University of Nebraska Medical Center and then became the academic chairman and program director of the orthopedics residency program at Orlando Regional Medical Center. He is survived by his wife Anne, six daughters and fifteen grandchildren.

**Edmund A. Drew, Jr., MD'77**, chief of methadone services at Beth Israel Medical Center, NY, passed away on August 2, 2007. Dr. Drew received his law degree from Rutgers Law School in 1985. His wife, Sandra, and one child survive him.

**Harvey E. Duchin, MD'64** died on July 19, 2007. Dr. Duchin, who practiced obstetrics and gynecology, resided in Plattsburgh, NY with his wife Joan.

**James D. Foster**, Honorary New Jersey Medical School Alumnus, passed away on April 3, 2007. Mr. Foster was an instructor in preventive medicine and retired as assistant dean of minority students at NJMS in 2001. He is survived by his wife Marguerite, two daughters and two granddaughters.

**Medhat F. "Mat" Guirgis, MD'95** died on May 8, 2007. Dr. Guirgis was a pediatric neuro-ophthalmologist at Prevea Clinics in Greenbay, WI. He is survived by his wife Ginger, his mother and a brother.

**Dobrija Vrbanovic-Payan, MD**, passed away on June 25, 2007. Dr. Payan held many distinguished posts during her 55-year medical career, and was the director of pathology at St. Mary's Hospital in Passaic, NJ at the time of her retirement in 1994. She was a clinical assistant professor of pathology at New Jersey Medical School. Payan is survived by her sister, Vera Vrbanovic; four children, John Payan, MD'90, Stephani Scheer, Greg Scheer and Leila Payan; and five grandchildren.

**Nathaniel Yangco, MD'04** died on July 4, 2007 while diving in the ocean near Manasquan, NJ. Dr. Yangco was a third-year resident in the Department of Ophthalmology at NJMS. He is survived by his parents and sister.

ceutical company which develops drugs used to treat cancer and inflammatory diseases.

**Daniel E. Fox, MD'83**, an orthopaedic surgeon and chairman of the Department of Orthopaedics at Community Medical Center in Toms River, NJ was recently honored as the NIKE New Jersey Sports Doctor of the Year. He has been the team doctor for the New York/New Jersey Governors Bowl Football Classic for the past 10 years and the team physician for the New Jersey X-treme Professional Indoor Football Team which plays at the Continental Airlines Arena.

**Barbara Murphy, MD'83**, is associate chief of staff for primary care services at the Wilkes-Barre Department of Veterans Affairs Medical Center and its outpatient clinics in Wilkes-Barre, PA.

**Barbara McDevitt, MD'84**, is director of the Department of Pediatric Emergency Medicine at St. Barnabas Medical Center, Livingston, NJ.

**Douglas C. Wisch, MD'86**, is a member of a six-person practice, Litchfield Hills Orthopaedic Associates. Dr. Wisch has been recertified in orthopaedics and hand surgery.

**Thomas R. Zimmerman, Jr., MD'86**, vice president of Research and Development of Asubio Pharmaceuticals, has been named Executive of the Year in Pharmaceutical Manufacturing by *Cambridge Who's Who*.

## 1990'S

**Alicia Mohr, MD'93**, who is an assistant professor of Surgery at NJMS, was awarded a grant from the National Institute of General Medical Sciences for "Neuroendocrine regulation of Erythropoiesis Following Trauma."

**Elise Butkiewicz, MD'94**, was remarried in October 2006 to John Lorenzo, executive director of the non-profit Franciscan AIDS Initiative to Help (FAITH) Services in Hoboken, NJ. They reside in Maplewood, NJ with Sophie, 6, and Nathan, 4 years old.

**Patricia Morgan-Glenn, MD'95**, was honored by *The Network Journal* at its 10th Annual "40-Under Forty" Achievement Awards Dinner, where leading African-American entrepreneurs, corporate executives and government officials are recognized. Dr. Morgan-Glenn is the medical director of the Metro Regional Diagnostic and Treatment Center for Child Abuse and Neglect at Children's Hospital of NJ Newark Beth Israel Medical Center.

**Ana Natale-Pereira, MD'96**, welcomed triplet girls, Victoria, Sofia and Lucia, on April 17, 2007.

**Richard T. Miller, MD'97**, a thoracic surgeon specializing in minimally invasive thoracic surgery and thoracic oncology, has joined the Southcoast Cardiac and Thoracic Surgery practice in Fall River, MA.

## 2000'S

**Michael Merrell, MD'00**, joined the Collins Family Practice Clinic in Covington County, MS in June 2007. Dr. Merrell completed his internship and residency at the University of South Alabama in Mobile, AL.

**Jan M. Pattanayak, MD'01**, is in his first of two years in interventional cardiology fellowship in Boston and was married on September 1, 2007.

**Chetan Seshadri, MD'01**, was married to Dr. Helen Ying-hui Chu on April 29, 2007. Dr. Seshadri is a fellow in infectious disease at Massachusetts General Hospital and Brigham and Women's Hospital in Boston. In 2004 and 2005 he was a field doctor in the Chiradzulu District of Malawi, where he worked at an HIV/AIDS Clinic.

**Lori Vales, MD'04**, completed her residency at Brown University Internal Medicine Residency Program and is currently in a cardiology fellowship at Albert Einstein College of Medicine at Beth Israel Medical Center, NY, NY.

**Sumit P. Shah, MD'05**, was married on September 2, 2007 to Dr. Mohini G. Patel. Dr. Shah is a third-year resident in ophthalmology at Jules Stein

## Stay in Touch!

You are important to us, and we would like to hear from you. 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](mailto:njmsalum@umdnj.edu) or fax us at (973) 972-2251.

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What I Have Been Doing (enclose photos)		

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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.

Eye Institute in CA, and his bride is an intern in pediatrics at Yale-New Haven Children's Hospital, CT.

**Michelle Tereschuk Davitt, MD'06**, married Liam Davitt in the summer of 2007. Dr. Davitt is enjoying her residency at Children's National Medical Center in Washington, DC.

**Brian G. Prystowsky, MD'06**, received an award at the end of his intern year from the Continuity Primary Care Clinic for "Dedication to Family-Centered Care" in recognition of paying attention to social and emotional needs of the patients. Dr. Prystowsky is an intern at Baystate Medical Center/Tufts University School of Medicine.

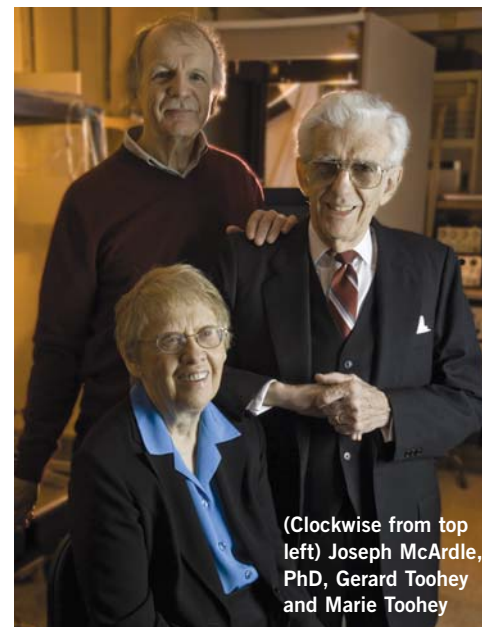
# How “Angels” Bearing Gifts Keep Research Dreams Alive

ON Broadway, “angels” finance theater productions and make it possible for the show to go on. At UMDNJ-New Jersey Medical School (NJMS), Marie and Gerard Toohey of Essex Fells have become angels for medical science. A \$40,000 gift from the brand new Toohey Neuroscience Fund will support the research on amyotrophic lateral sclerosis (ALS) of Joseph J. McArdle, PhD, professor, pharmacology and physiology at the Graduate School of Biomedical Sciences (GSBS) in Newark. The Toohey gift arrives at a critical time for this research on ALS, also known as Lou Gehrig’s Disease, with human umbilical cord blood cells.

The idea of supporting McArdle’s work began last year when the Tooheys learned that lack of funding threatened continuation

of the ALS project. “Two manuscripts we had written for medical journals were rejected, which is not uncommon. The second review said the work showed promise, but we needed more data,” says McArdle, whose team includes Norman Ende, MD, and Kathleen Coakley, a student whose masters thesis was the basis for the ALS research.

Obtaining more data costs money, and the research already operated on a shoestring budget. McArdle tried, unsuccessfully, to get more funding. “We have to do a double blind experiment on mice that carry the human gene responsible for an estimated 20% of ALS cases. Each mouse costs \$200 so starting with 30 mice is \$6000. We couldn’t even continue to pay the salary of Nataliya Krivitskaya, MD, a neurologist



(Clockwise from top left) Joseph McArdle, PhD, Gerard Toohey and Marie Toohey

from Ukraine who works with us.”

To the rescue came the Toohey grant. The donation will fund Krivitskaya’s salary plus supplies. “The goal is to use the grant to get data that will, in turn, allow us to apply for additional funding from private and federal sources,” says McArdle.

McArdle first met Gerard Toohey 15 years ago when he was president of General Valve Corporation, a manufacturer of measuring and controlling devices, which he founded. “Jerry is unique. He is a businessman who visits laboratories and looks around. I never met anyone with such curiosity about the research. He is interested in what investigators are doing and what he can do to help move the work forward,” says McArdle. A poster on the ALS research at a scientific meeting and the conversation about the work alerted the Tooheys to the researcher’s crisis.

As dedicated philanthropists, they wanted to help. “I may be a cockeyed optimist, but I believe you get back what you give,” says Marie Toohey.

Although the media report on megamillion dollar donations for worthy causes all the time, they rarely mention gifts for smaller projects. McArdle believes every dollar counts. “Sometimes a modest amount makes a huge difference. Breakthroughs come out of the blue. Even if we fail we learn other things. That’s how science happens.” — FLORENCE ISAACS

## Clues in Cord Blood

**ALS IS A PROGRESSIVE NEUROLOGICAL DISEASE** that attacks the nerves and muscles and is fatal. Motor neurons in the brain and spinal cord degenerate, causing muscle weakness and eventually complete paralysis. One aspect of the tragedy is that the mind remains intact.

McArdle’s research goal is to characterize the disease in mice and examine the effects of human umbilical cord blood cells on ALS. Mice show symptoms of ALS at 70-80 days after birth and die after 130 days. Meanwhile, McArdle’s colleague Norman Ende found that the onset of ALS symptoms could be delayed in mice treated with cord blood and lives were extended. Moreover, these findings were reproduced by two studies at separate institutions.

“We found that motor nerves in ALS mice progressively lose the ability to carry high frequency signals from the brain to muscles, impairing muscle function. Cord blood slowed the loss, although the mice still died. Any therapy we come up with to help humans has to improve motor nerve function,” says McArdle.

The Toohey gift allows a double blind experiment to go forward, testing mice treated with cord blood vs. a control group. Human umbilical cord blood is available in large quantities as a natural byproduct of birth, and its use has no impact on mother or child. It does not involve fetal stem cells.

For information about contributing to this or any other research topic of interest, please contact Elizabeth Ketterlinus, vice president for development, at (973) 972-2486, toll-free at 866-44-UMDNJ or email: [ketterel@umdnj.edu](mailto:ketterel@umdnj.edu).



# 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:

## difference...

- The Angel Family Foundation, for ensuring that needy children with asthma have the medications they depend on
- Marie Toohey and Gerard E. Toohey, Sr., for investing in groundbreaking neuroscience research
- Janice Mitchell Vassar and Ashby John Mitchell, for supporting research to prevent blindness and visual disorders

They realized that the Foundation of UMDNJ, as a New Jersey Health Foundation affiliate, has the financial strength and ability to build partnerships between University 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 for development, at (973) 972-2486 or at [ketterel@umdnj.edu](mailto:ketterel@umdnj.edu).



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