We’re Teachers | We’re Healers | We’re Explorers | We’re Neighbors

We’re UNIVERSITY OF MEDICINE & DENTISTRY OF NEW JERSEY

NEW JERSEY MEDICAL SCHOOL

2007 annual report
OUR MISSION

The mission of New Jersey Medical School is to educate students, physicians and scientists to meet society’s current and future healthcare needs through patient-centered education; pioneering research; innovative clinical, rehabilitative and preventive care; and collaborative community outreach.

OUR VISION

The vision of New Jersey Medical School is to create, transmit and utilize knowledge to shape the future of medicine and to enhance the quality of life for the people of New Jersey.
In my first months as president of UMDNJ, I have been pleased to see at UMDNJ-New Jersey Medical School a notable reflection of our institutional goal of accelerating success.

To expand our educational mission, a new affiliation agreement was signed with the St. Barnabas Health System. This will further enhance the School's ability to provide exceptional educational opportunities for its students. The School stands among the best medical schools in the nation in providing each student with an outstanding education. Its innovative curriculum focuses on active learning and humanism in medicine to prepare its graduates for service to their patients and their communities, whether it is in a physician's office, a hospital clinic, a mobile van, or a laboratory.

This year NJMS students gave back to our community through many initiatives, including devoting a day to repainting the gymnasium at Covenant House in Newark as part of the annual Cares Day program. I applaud the school's continuing involvement in the Newark community. From S.H.A.R.E., the Student Health Advocacy for Resources and Education, through which students are involved in community education, youth mentoring and more, to the “Ministers of Health” annual breakfast to recruit local leaders and ministers to help spread valuable health information, NJMS has a clear vision of the role it plays in the larger community.

The School also created several new core facilities this year, including: the Institute of Genomic Medicine, the Experimental Histology and Advanced Microscopic Imaging Core, the Flow Cytometry Core Laboratory, and the Biostatistics Core. In addition, the School conducted symposia on neuroscience and diabetes, two areas in which it continues to demonstrate research leadership.

I also congratulate two faculty members who were chosen for leadership roles with the Association of American Medical Colleges, signaling to our country, the depth of expertise residing at NJMS. Dr. Joel DeLisa, professor and chair of the Department of Physical Medicine and Rehabilitation at the medical school, was elected by his peers to serve the one-year term as chair of the association’s Council of Academic Societies. In the 30-year history of the Council, Dr. DeLisa is the first chair from UMDNJ and the first representative of his discipline to ascend to this important academic post. Also, Dr. Maria Soto-Greene, NJMS vice dean, is the national chair-elect of the Group on Student Affairs/Minority Affairs Section of the association, another key appointment.

There is much to look forward to at NJMS, and I eagerly anticipate being an active partner in the continued growth of the School. Indeed, as this report details, the people of NJMS are teachers; they are healers; they are explorers. In each of these roles they commit to the core values of this University and help shape a better future for all they touch.

— William F. Owen, Jr., MD
President of UMDNJ
Robert L. Johnson, MD, FAAP The Sharon and Joseph L. Muscarelle Endowed Dean (Interim), is often called on to talk about NJMS, its mission, achievements and contributions to society at large. As an alumnus and long-time faculty member of NJMS, Johnson is a passionate advocate for the school. He recently pondered some questions asked of him about NJMS’ role as educator, healthcare provider, research facility and community member.
What is NJMS’ philosophy on teaching?

As teachers, we believe students learn by doing. Through our Jubilee Curriculum, which successfully integrates classroom learning with hands-on clinical training — beginning in our students’ first year — and our 40 residency programs we provide our diverse student body with a plethora of opportunities to gain on-the-job experience.

This winter we announced new clinical academic affiliations with three New Jersey hospitals (St. Barnabas Medical Center, Newark Beth Israel Hospital and St. Joseph’s Regional Medical Center), thus expanding clinical opportunities in various specialties for our students and residents. These agreements further enhance our already-impressive line-up of major healthcare partners, which includes: University Hospital; University Behavioral HealthCare; East Orange Campus of the Veterans Affairs New Jersey Healthcare System; Kessler Institute for Rehabilitation; and Hackensack University Medical Center.

Our graduates will undoubtedly play significant roles in charting the future course of medicine through their research activities and the care they provide their patients. It is our job to ensure they are prepared to meet that challenge.

How is NJMS meeting the needs of those who require clinical care?

Our patient-centered approach to medicine stands as a symbol of our commitment to humanism in medicine. That commitment is evident in our clinicians’ offices; at University Hospital, our official teaching hospital; as well as in the training that our students and residents receive.

As healers, NJMS’ physicians use innovative procedures, devices and technology to ensure the best possible outcomes for patients. Indeed, our remarkably dedicated faculty members are among the best at what they do.

At a time when more and more hospitals are closing and charity care funding remains inadequate, we are all faced with sizeable challenges. That being said, we affirm our commitment to providing quality medical care to ALL as we explore the role we can play in lessening the impact felt in the face of fewer health-care options.

NJMS puts a great deal of emphasis on research. Why?

We are not just in the business of educating future physicians. We are also healthcare providers who recognize that clinical care goes hand-in-hand with research. Without advances in research — particularly in translational research — the treatments that save and / or enhance the quality of people’s lives would be non-existent. Our talented scientists are dedicated visionaries who explore cutting-edge treatments and cures for all kinds of maladies.

NJMS’ areas of research excellence cut across a variety of fields, including: brain injury and stroke; cancer/oncology; cardiovascular biology; cellular signal transduction; immunology; infectious diseases; neurosciences; psychiatry and behavioral science; and stem cells.

Additionally, NJMS’ Regional Bio-Containment Laboratory, an advanced research facility for the study of infectious diseases, will open. Its focus will be on newly emerging infectious diseases as well as diseases caused by agents of bioterrorism.

The research programs that exist within the various units of NJMS – whether at the New Jersey Medical School/University Hospital Cancer Center; the Public Health Research Institute; the Institute of Genomic Medicine, or the Autism Center, among others — go a long way in putting NJMS on the map as a place where new and meaningful discoveries are made every day in an effort to eliminate or mitigate threats to people’s health and well-being.

Explain NJMS’ commitment to the community.

For the past 40 years, Newark has been home to NJMS.

Ever since the signing of the Newark Agreements, a document borne out of the Newark Riots of 1967, NJMS has offered high-quality medical services to city residents; worked to lessen the effects of healthcare disparities; and sent students, faculty and staff into the neighborhoods of Newark to provide various services, including health screenings and education, mentoring opportunities and counseling services.

As a member of the community, we strive to be good neighbors. And like any good neighbor, we have worked to build relationships within the community that are based on mutual respect and a shared desire to improve the environment in which we live and work.
The Classroom & Beyond
NJMS Pilots ‘iTunes U’ Initiative

WHEN CIRCUMSTANCES FORCED SECOND-YEAR MEDICAL STUDENT Ronald Zviti to miss a few lectures before an exam, he didn’t panic. Instead, he went to Apple Computer’s iTunes U web site and downloaded podcasts of the missed lectures. Podcasts are digital media files, distributed via the Internet. They can be downloaded and played back over a portable media device, such as an iPod, or via a personal computer. This year, through a pilot program with Apple Computer, NJMS is storing podcasts of some lectures on the iTunes U server. The service is free.
“With the assistance of several faculty members who volunteered to participate in this pilot, we have been able to offer podcasts for some first-year and second-year courses, capturing roughly 14 hours of lectures per week,” says Audrey McNeil, manager, Technology Support Services. The software used to record the lectures synchronizes the audio feed from the professor’s microphone with PowerPoint® slides the professor may be using, so that students hear and see what transpired during a lecture.

“The students are already plugged in — they’re listening to music and books that they download online. This pilot allows us to take advantage of technology that students have already embraced,” says Lawrence Feldman, PhD, senior associate dean for Academic Affairs.

The podcasts include lectures from the Core I, Human Anatomy and Development and Molecular and Genetic Medicine courses, which all first-year students are required to take. Also podcast are Core II and Infection and Host Response, which are second-year courses.

“It’s a nice alternative for students,” says Richard Feinberg, PhD, assistant dean for educational resources and faculty development. “They can see a lecture again, play it back more slowly, revisit and review the material.”

The podcasts also benefit faculty members, says Feldman, noting that younger faculty members can review podcasts of their lectures, perhaps along with NJMS’ senior professors or master educators, to improve their teaching skills. For faculty members, digitizing a lecture is as easy as pressing a record button in one of the school’s technologically equipped lecture halls.

But for all their benefits, podcasts should never be considered a replacement for a live lecture, notes Feinberg. “There is something about being in a lecture that can stimulate you more. If you’re sitting at home, you may not be absorbing the material at the same pace and with same density as in a classroom. It’s like the difference between watching a baseball game in a stadium and watching it on TV.”

Student Ronald Zviti agrees. “Viewing the podcast was really
helpful, because a lot of what comes up on an exam is from the lectures, not just the textbook. I know that nothing can replace going to class,” he says. “But for those times when I’m not able to, it’s the next best thing.”

Radiology Residents Pursue Public Health Degrees

NEW JERSEY MEDICAL SCHOOL AND THE SCHOOL OF PUBLIC HEALTH HAVE LAUNCHED a joint-degree program that allows radiology residents to earn their master’s in public health. The intensive new program exposes students to the emerging field of medical informatics, which is offered as an MPH program concentration.

Stephen Baker, MD, professor and chair of Radiology, predicts radiologists grounded in medical informatics will soon be in high demand: “It will be one of the most important developments in radiology in the next 20 years,” Baker said. “People with informatics skills, who are trained to transport and manipulate information, will be highly prized in the field of radiology.”

The decision to partner with the MPH program, rather than simply add informatics courses to the radiology curriculum, was deliberately made, Baker said. “We wanted our students to understand informatics in the realm of public health,” he said. “We thought it important that they view informatics through the lens of providing care,” he added.

First-year radiology resident Ellie Pack, MD, who had previously earned an MPH concurrent with her medical school training, developed the new program as a research project for her public health degree, Baker said.
To date, two residents are pursuing the joint program. They are third-year radiology residents Jason Mitchell, MD, and Jonelle Petscavage, MD, who also serve jointly as chief residents in the program.

“I believe this program is one that will make me a leader in the future of radiology, which lies in information and technology,” said Petscavage, who expects to finish her MPH program in January 2009 and her radiology residency in June 2009. In addition to developing a special skill set in radiology informatics, Petscavage said the MPH program component will also help her develop additional skills in epidemiology and biostatistics.

Residents fulfill the MPH requirements by taking courses on evenings, weekends and during school breaks, said Baker. “Candidates have to complete all the requirements of the master’s program within the four years of their residency by taking courses and pursuing research in three of those years. They begin six months into their residency and must complete the MPH program six months before their residency ends.

“It’s a very demanding program,” he added. “It takes a special person to be able to pursue both a graduate degree and residency training.”

Virtual Microscopy Comes to NJMS
*Used in Histology Classes, the Technology Promotes Group Learning and Interaction*

MICROSCOPES, A ONCE-UBIQUITOUS FIXTURE IN HISTOLOGY CLASSES at New Jersey Medical School, have now taken a backseat to computers — at least for first- and second-year NJMS students.

“PEOPLE WITH INFORMATICS SKILLS, WHO ARE TRAINED TO TRANSPORT AND MANIPULATE INFORMATION, WILL BE HIGHLY PRIZED IN THE FIELD OF RADIOLOGY.”
In 2007, NJMS began employing virtual microscopy technology in Integrative Structure and Function (ISF) as the primary means of examining tissue samples. Beginning in the fall of 2008, the technology will also be used in Disease Processes Prevention and Therapeutics (DPPT).

Used by medical, dental and veterinary schools throughout the country, virtual microscopy is a method of posting microscope images on and transmitting them over computer networks. To ensure the program’s success, NJMS purchased four servers to accommodate the more than 180 images for both courses. NJMS also contracted with Bacus Laboratories, Inc., the leading supplier of virtual microscopy products, allowing it access to the company’s extensive library which includes thousands of virtual slides.

Once the program was rolled out, the benefits were immediately apparent to instructors and students alike, according to Richard N. Feinberg, PhD, NJMS’ assistant dean of educational resources and faculty development.

For starters, the program eliminated concerns over slide quality and malfunctioning microscopes because there are no glass slides or microscopes to use. Instead, every student is provided the exact same histological image, hand-picked by the instructor, to study on their computers. The capability to view images on a computer screen has stimulated classroom discussion and made delivery of information more efficient. The laboratory sessions are now more interactive and engaging; and students developed a higher level of mastery, Feinberg reports.

“The uniformity assures instructors that everyone is seeing what they want them to see and therefore, there’s no excuse for not finding a particular structure if it, in fact, exists on the slide,” Feinberg explains, adding that the technology has been particularly helpful when it comes to developing exams. “Virtual microscopy has leveled the playing field.”

For David O. DeFouw, PhD, a course director for ISF, virtual microscopy has helped with faculty/student ratios.
WHEN ASKED WHAT THEY LIKED MOST ABOUT VIRTUAL MICROSCOPY IN A RECENT SURVEY, STUDENTS CITED SPEED, ACCESSIBILITY, EASE OF USE AND CONVENIENCE AS AMONG SOME OF THEIR REASONS.

David O. DeFouw, PhD,
a course director for Integrative Structure and Function, says virtual microscopy has helped with faculty/student ratios.

“Previous student concerns about faculty/student ratios in the lab have been greatly diminished by the use of virtual microscopy,” DeFouw says. “Questions can now be addressed for groups of students rather than repeating the same answer multiple times to students using individual microscopes.”

Feinberg, who also teaches in the ISF course and who was instrumental in implementing this technology at NJMS, notes other advantages to using virtual microscopy to teach histology: portability and the constant access students have to the images through special software loaded onto their computers and laptops.

In fact, when asked what they liked most about virtual microscopy in a recent survey, students cited speed, accessibility, ease of use and convenience as among some of their reasons for liking the technology.

“It’s available to students 24/7,” Feinberg says. “If you want access to the virtual slides in the middle of the night or on a Saturday afternoon; in the privacy of your own residence or at your favorite eatery, you can. That’s a terrific component for studying.”

Feinberg further credits virtual microscopy with bringing about a “heads up” vs. “heads down” approach to learning. No longer are students’ heads down peering for long lengths of time into microscopes. Their heads are up interacting with the instructor and fellow students while studying the structure on the computer screen.

Virtual microscopy “lends itself really beautifully to group discussions and team studying,” says Feinberg. “You can take the image off the screen because it’s a digital image. Then you can do what you want with it. You can put it into a Word® document; make yourself notes; put it into a PowerPoint® document and make yourself a slide show. You can put up side-by-side images of normal tissue and pathological tissue. You can create your own study guide; your own atlases. You can even hypothesize test questions because you could label structures yourself. This gives the students incredible capability for using the material in ways that they could not have used it before with the glass slides.”
Health Beliefs and Behavior Course

Third-Year Students Learn to Tap into Patient Perception to Promote Healthy Behaviors

WHEN NEW JERSEY MEDICAL SCHOOL’S JUBILEE CURRICULUM was unveiled in 2004, school officials knew they had embarked on an endeavor that would serve as a model for others to follow in the years to come.

Innovative, bold and cutting edge, the curriculum has introduced courses designed to ensure NJMS students are well prepared to meet the modern challenges facing the complex and rigorous field of medicine.

Among the novel courses that have been launched since the rollout of the new curriculum was the Health Beliefs and Behavior Course. Started as a way to better prepare students to address the needs of people with chronic disease, the mandatory, third-year course embraces the notion that to successfully treat an ailing patient — not just the disease — the doctor must take into account the patient’s perspective, perceptions, beliefs and level of health literacy. In doing so, the doctor stands a better chance of getting the patient to adhere to prescribed treatment plans.

In an era when people are living with and managing their disease for decades, the course focuses on teaching students how to educate their patients and motivate them to adopt positive behavioral changes and take their medications as prescribed, says Course Director Cynthia Y. Paige, MD.

“I would say traditionally, the physician would diagnose the disease, prescribe the medication and … for the most part assume that the patient would adhere to the therapy,” Paige says. “Now that’s not taking into account that every patient is coming with a different set of beliefs about their disease; about what is good for them and not so good for them; beliefs about the physician; beliefs about their own autonomy with
ON DAY ONE OF THE FOUR-WEEK COURSE, STUDENTS ARE ASKED TO PARTICIPATE IN EXERCISES DESIGNED TO HELP THEM DELVE INTO THE MINDSET OF PATIENTS AND DEVELOP A HIGHER LEVEL OF EMPATHY TOWARD WHAT PATIENTS GO THROUGH.

regards to their health care and also that patients are coming with a different level of health literacy.”

On Day One of the four-week course, students are asked to participate in exercises designed to help them delve into the mindset of patients and develop a higher level of empathy toward their patients.

For example, in the “student-as-patient” exercise, students are broken into four groups. One group is given the task of taking pills (actually, Tic Tac® breath mints) every six hours, but are not told why they are taking the pills. Another group is asked to keep track of sodium intake; while students in another group are asked to monitor their fluid intake. Members of the last group have to check their urine every day with a urine chemistry dip stick. Additionally, students are asked to identify behaviors they want to change and then carry out the behavior change. At the end of 10 days, students assess how they did.

“They have to keep a journal to talk about what their challenges were,” Paige says. “The students begin to realize … the tasks we think are so little and so simple for a patient to do interfered tremendously with that person’s daily activities. They get a chance to experience from the patient’s perspective what it’s like to have to change their daily routine based on their physician’s recommendations. They’re able to empathize with the patient much more.”

Another unique feature of the course addresses physician burnout.

The Association of American Medical Colleges predicts that by the year 2020 there will be a physician shortage, due in part to physicians retiring early. With increased demands placed on doctors and fewer doctors to meet those demands, Paige says she devotes a significant amount of time discussing physician frustration in the course and the importance of maintaining balance between one’s life and career.

Toward that end, the Health Beliefs and Behavior Course includes a “self-care” portion, featuring a “Mind-Body” day. During that day, students travel off campus to the Eastern School
of Acupuncture where they are exposed to Tai Chi, yoga, massage, acupuncture and Qigong, an aspect of traditional Chinese medicine which involves the coordination of different breathing patterns with various physical postures and motions of the body. Later in the course, Paige also invites a physician struggling with substance abuse issues into the classroom to talk about the stressors that triggered his or her drug problems.

The skills-based course complements the work students are doing in primary and specialty care practices, Paige explains. It uses teaching OSCEs (Objective Structured Clinical Evaluation) to help students hone their communication and interviewing skills and invites actual patients suffering from chronic diseases into the classroom to talk about their experiences and answer students’ questions. At the end of the course, Paige says, students should be able to: practice learned tools to modify unhealthy lifestyles; promote healthy behavior; enhance adherence to therapeutic regimens and arrange for appropriate follow-up care.

“Many times the students come into the course thinking that it’s just this soft, cushy type of experience,” Paige says, adding “and they realize, rather quickly, ‘I learned tangible skills; I’m able to be a more effective physician as a result of this course.’”

FACULTY / STAFF HIGHLIGHT

Dr. Maria Soto-Greene, Vice Dean of NJMS, and Dr. Joel DeLisa, Chair of NJMS’ Department of Physical Medicine and Rehabilitation were elected to leadership posts at the Association of American Medical Colleges. Dr. Soto-Greene was named National Chair-Elect of the Group on Student Affairs/Minority Affairs Section of the AAMC. Dr. DeLisa was elected by his peers to serve the one-year term as chair of the AAMC’s Council of Academic Societies.
Caring Physicians
Keeping Children Alive

TWENTY-FIVE YEARS AGO, ARLENE GRAY WAS ADVISED BY DOCTORS to take her son home to die. Born with Duchenne muscular dystrophy, a disease that wears down muscle tissue, Jeff Gray wasn’t expected to live beyond his teens. Then Arlene and Jeff met John Bach, MD, professor of Physical Medicine and Rehabilitation, professor of Neurosciences, and director of the Center for Noninvasive Mechanical Ventilation Alternatives and Pulmonary Rehabilitation at University Hospital. He has perfected a noninvasive, mechanical ventilation treatment that is keeping patients like Jeff alive for longer than anyone ever expected.

“Jeff’s still here at age 44. He would have lived until his late teens at most, and then probably would have died from pneumonia,” says Arlene. “Bach literally saved his life.”

“The patients I see normally die because their breathing and coughing muscles are weak,” Bach explains. “Instead of intubating them — sticking breathing tubes into their necks — we are using physical aids to support their breathing muscles instead.” He notes that patients who are intubated — or “trached” — run a much greater risk of developing infections. Being trached also interferes with their ability to speak, taste food and swallow, further diminishing their quality of life.

Jeff Gray owns two of Bach’s prescribed breathing devices. One, a portable machine with breathing tube affixed, is attached to his wheelchair. It assists his breathing while allowing him to get around. Another similar machine provides air via a mask positioned to help him breathe while sleeping. He also uses a device that produces vacuum-like pressures to help him cough when he is ill.

Bach sees roughly 500 patients a year, half of them children. They’re afflicted by diseases such as muscular dystrophy, amyotrophic lateral sclerosis (ALS, or Lou Gerhig’s disease) and Werdnig-Hoffman disease (infantile spinal muscular atrophy), which strikes babies. Typical Werdnig-Hoffman babies do not survive one year. Says Bach, “The children I take care of, they say they’ll be dead by age one. I have them living into adolescence, and I believe they’re going to make it into adulthood.”

Today, Bach brings visitors from around the world to meet Jeff Gray, one of his many “miracle patients.” Jeff enjoys sharing what he has learned from Bach, and even maintains his own
web site — www.non-invasiveventusers.net — to help others learn about noninvasive alternatives, says Arlene.

“He is doing very well,” she adds. “He’s in charge of his nurses. He really knows his own body. And he appreciates all that Dr. Bach has done for him.”

New Device Allows Neurosurgeons to Perform “Virtual Surgeries”

HISTOLOGY CLASSES ARE NOT THE ONLY PLACES AT New Jersey Medical School that have gone virtual (See “Virtual Microscopy Comes to NJMS” on page 8). Surgeons within the Department of Neurological Surgery have turned to “virtual reality” to help them prepare for some of their most complex brain tumor cases, according to Jeffrey Catrambone, MD, assistant professor of neurological surgery.

Utilizing a virtual reality workstation called a Dextroscope®, Catrambone and his colleagues are able to import different radiologic studies on a single patient into the device and fuse them into a 3-dimensional image that surgeons can interact with and use to perform “virtual” surgeries.

Used by the department for about a year now, NJMS is one of a few sites in the country that has this technology, says Catrambone, who helped bring the device to the department.

“The Dextroscope helps you to understand the 3-dimensional anatomy in a more intuitive way,” Catrambone says, adding the device allows users to highlight various components of the brain anatomy by making them different colors. “You can plan out your surgeries beforehand, look at where important vessels are to see if your planned surgery is going to run into that vessel, plan the size of the craniotomy and do a practice run before you actually do the surgery.”

The Dextroscope is not only used to prepare for surgeries. When coupled with the Dextrobeam, a screen projection system also purchased by the department, the Dextroscope is also an effective teaching tool, allowing physicians to do virtual surgeries for large audiences.

The equipment has proved to be an invaluable device, says Catrambone.

“There have been several pediatric brain tumors where the images have been studied (using the Dextroscope),” Catrambone says. “The surgeons go in with a greater sense of confidence having a complete and thorough understanding of the anatomy in 3 dimensions. We’ve had some very good results.”
Measuring Quality of Life

A FIRST OF ITS KIND, STANDARDIZED approach for self-reported quality of life measurement in people who have suffered spinal cord injuries (SCI) and traumatic brain injuries (TBI) is being developed by researchers at the Kessler Medical Rehabilitation Research and Education Center (KMRREC), in collaboration with investigators at Evanston Northwestern Healthcare, an affiliate of Northwestern University. KMRREC is a New Jersey Medical School affiliate.

“The model we are developing will revamp the way we measure treatment outcomes for individuals with traumatic injuries, whether they were recently injured and are going through rehabilitation or were injured some time ago,” says Joel A. DeLisa, MD, MS, president of KMRREC and professor and chairman of Physical Medicine and Rehabilitation.

The new model will be more accurate than current methods of evaluation, DeLisa says. Currently, in evaluating someone who has suffered a traumatic brain or spinal cord injury, medical researchers rely on the person’s self-reported evaluation of their functioning, mobility, emotional health and social engagement.

The National Institutes of Health (NIH), the National Center of Medical Rehabilitation Research (NCMRR), the National Institute on Neurological Disorders and Stroke (NINDS) and the National Institute on Disability and Rehabilitation Research (NIDRR) have all provided funding for the research.

The Evanston Northwestern researchers, through a NINDS contract, are developing a core specialized instrument to measure quality of life outcomes for individuals with all types of neurological disorders. KMRREC researchers are focusing on the specific needs of two such neurological populations, SCI and TBI. It is expected the SCI and TBI measurements will be used for future NIH clinical trials for TBI and SCI and NIDRR-funded research, and they will be integrated with the NINDS core measurement system.

The researchers will develop a computerized administered testing (CAT) platform, says David S. Tulsky, PhD, associate professor of Physical Medicine and Rehabilitation, vice president of Outcomes and Assessment Research, and director of KMRREC’s Spinal Cord Injury Research Laboratory. “Through the CAT platform, we’ll be able to have a computer select items relevant to the individual. This will allow us to tailor the assessment to the individual and streamline the process,” he explains.

“For example,” he adds, “if you are assessing depression and someone says they feel sad, the computer will select relevant follow-up questions, asking about symptoms of depression and, possibly, suicidal thoughts.”

Data is being gathered through a focus group approach, in which patients are asked what issues are most important to them, he says.

“People with SCI and TBI face a host of unique problems,” Tulsky notes. “There are secondary medical problems. There are issues related to loss of functioning and dependency on a wheelchair. There are issues related to the suddenness of the injury and abrupt loss of independence. We’re looking at all of these and blowing them up under a microscope.”

At Long Last, Relief for Tailbone Pain

A PROMISING NEW APPROACH originating from New Jersey Medical School’s Coccyx Pain Service is providing answers and relief to hundreds of coccyx injury sufferers whose complaints were previously dismissed by doctors.

“Many doctors don’t take patients’ coccyx pain seriously or don’t know about modern tests and nonsurgical treatments. They tell patients it’s all in their heads,” says Patrick Foye, MD, associate professor of Physical Medicine and Rehabilitation (PM&R) at NJMS and director of the newly established Coccyx Pain Service.

Neglected by medicine and bypassed by human evolution, the coccyx, or tailbone, sits at the lowest end of the spine. A bad fall, cycling, and even childbirth can injure the coccyx.

The Coccyx Pain Service employs innovative tests to confirm
what coccyx pain sufferers have known all along – their pain is real.

“Patients are told that their x-rays and MRIs are normal, but often the wrong tests were done. A lumbosacral MRI does not even show the tailbone,” says Foye. He notes that a French technique of x-raying the tailbone while a patient is sitting can better reveal dislocations. “We may be the only place in the United States performing these x-rays routinely. We find injuries previously missed,” says Foye.

Modern treatments offered at the Coccyx Pain Service, including pain-relieving injections, are helping patients avoid surgical removal of the tailbone, once the primary medical intervention available.

“Over the past few years, I published two new injection techniques that provide impressive nonsurgical relief of tailbone pain,” says Foye. “These injections block tailbone pain being carried with the sympathetic nervous system at the ganglion impar.” A ganglion is a nerve hub, and the ganglion impar, which sits at the coccyx, is the final hub in the sympathetic nervous system, he explains.

The Coccyx Pain Service recommends that patients try its techniques before considering surgery, which carries the risk of complications such as infection, bowel incontinence and sagging of the pelvic floor.

More than 100 patients visit the Coccyx Pain Service each year, traveling from as far as Texas and New Mexico in hopes of finding a cure, says Foye. On average, his patients get about 50 percent relief after a single nerve block injection and additional injections can provide further relief.

“For people who have been suffering for years and were told they were crazy, being able to get answers is so important,” says Foye. Treatment is even better. “I’ve had patients sit up on the table after an injection and say, ‘Wow! This is the first time I’ve sat with no pain in years.’ They cry. They hug their spouses. They hug me. As someone whose practice focuses on musculoskeletal injuries and pain management, this is very gratifying.”

New Hope for Ankle Replacement Patients

WHILE MOST PEOPLE HAVE PROBABLY MET SOMEONE WHO HAS HAD A HIP OR KNEE replacement, they’re less likely to have heard about ankle replacement surgery. That’s because, until recently, attempts to artificially recreate the delicate ankle joint mostly failed.

Now, new breakthroughs have led to the development of replacement ankles far superior to prosthetic implants of the past, according to Sheldon Lin, MD, and Wayne Berberian, MD, both associate professors of Orthopaedic Surgery and directors of the Foot and Ankle Service at New Jersey Medical School.

Especially promising, they say, is the Salto Talaris™ ankle, the newest of four ankle replacement prostheses available in the United States. Lin and Berberian became the first surgeons in New Jersey to perform a Salto Talaris ankle replacement surgery in 2007, on a patient with debilitating rheumatoid arthritis. They have seen their practice grow as word of the new treatment spreads.

“The Salto Talaris ankle mimics the anatomy of the natural ankle,” says Berberian. “After surgery, our patients find they can walk the malls, go to restaurants and enjoy daily living again without pain.”

Lin was involved in the design of the Salto Talaris device as an expert consultant to its manufacturer. Lin and Berberian also train other surgeons to implant the prosthesis, and are involved in a number of research studies exploring foot and ankle reconstruction.

According to Lin, the Salto Talaris ankle, first implanted by French surgeons during the late 1990s, continues to show favorable results over time. “In the last review of patients, the device had a 93 percent survivorship rate after 6.4 years,” he notes.

While ankle replacement surgery is still not nearly as prevalent as knee replacement surgery — according to 2003 Medicare figures, there were 1,000 ankle replacements for 500,000-plus knee replacements — the surgeons look forward to bringing pain relief to more patients in the future. “We’ve now done over five or six surgeries since January 2007, and we have more scheduled,” says Berberian.

“Within six weeks after surgery, our patients can walk bearing their full weight,” adds Lin. “They have minimal pain and they’ve got their motion back. As an orthopaedic surgeon, it gives you a warm, fuzzy feeling.”

FACULTY / STAFF HIGHLIGHT

Suriender Kumar, PhD, professor of Biochemistry and Molecular Biology, was elected president of the UMDNJ, Newark Chapter of the American Association of University Professors.
Joel DeLisa, MD, MS, president of KMRREC and professor and chairman of Physical Medicine and Rehabilitation.

Patrick Foye, MD, assistant professor of Physical Medicine and Rehabilitation and director of the Coccyx Pain Service at NJMS.

Wayne Berberian, MD, and Sheldon Lin, MD, both associate professors of Orthopaedic Surgery and directors of the Foot and Ankle Service at NJMS.
New Frontiers

Applying Stem Cell Research to Disease Prevention

CAN HEALTHY EMBRYONIC STEM CELLS HELP PREVENT SOME OF NATURE’S most debilitating diseases from occurring? It’s a question researchers at New Jersey Medical School are attempting to answer by investigating how diseased cells react when injected with normal embryonic stem cells taken from mice. “Essentially, we’re working with mouse models of human disease, trying to correct them through the injection of embryonic stem cells from mice,” says lead researcher Diego Fraidenraich, PhD, assistant professor of Basic Science, Department of Cell Biology and Molecular Medicine.
Some diseases under investigation include muscular dystrophy, adult cardiomyopathy and congenital heart disease. The research is supported by grants from the National Institutes of Health, the American Heart Association and the New Jersey Commission on Science and Technology.

While Fraidenraich’s approach is straightforward – injecting normal embryonic stem cells during the period of embryonic development to prevent disease from occurring — the results have been quite provocative.

“In our research into congenital heart disease, we discovered that embryonic stem cells are recognized by mutant embryos predisposed to develop the disease,” he says. “They differentiate and populate all of the tissues — including diseased tissue — and are able to prevent the disease from occurring. That has been a major breakthrough, published in the journal *Science* in 2004.”

Working with mouse models of muscular dystrophy (MD) in which the absence of a protein called dystrophin leads to the development of MD, Fraidenraich discovered that when embryonic stem cells carrying the protein dystrophin were injected into early mouse embryos without dystrophin, the stem cells were able to supply the missing protein to the diseased muscle. More fascinating still, in a second experiment, stem cells lacking the critical protein were injected into early mouse embryos also lacking the protein — and the stem cells were still able to partially protect the developing muscle. Fraidenraich was recently awarded a three-year, $300,000 grant from the Muscular Dystrophy Association toward his research.

“In the future, we’d like to identify the proteins responsible for the therapeutic effects of embryonic stem cells,” says Fraidenraich. “While we are still at the very basic research stage, the idea is that some day, instead of injecting embryonic stem cells into the diseased model, we could inject these proteins to prevent disease from occurring. It would be like taking a pill that could replace embryonic stem cell therapy.”

**Professor Wins Prestigious Edison Award**

PETER TOLIAS, PHD, PROFESSOR OF PEDIATRICS AND executive director of the Institute of Genomic Medicine at New Jersey Medical School, with his New Jersey Institute of Technology colleague, Timothy Chang, PhD, were awarded the 2007 Thomas Alva Edison Patent of the Year Award from the Research and Development Council of New Jersey.

The team received the award, in the emerging technologies category, for their patented SmartPin™.
technology, a computer-controlled liquid handling system that allows researchers to dispense tiny spots of liquid, in desired volumes, on any surface. The technology can be applied to any liquid-handling application. These applications include high-throughput drug screening, in which large amounts of data are collected; the production of DNA and protein chips, and clinical diagnostic testing.

The ability to accurately transfer very small, metered volumes of liquid is critical in many areas of medical research, Tolias notes. “For example,” he says, “it’s important in drug screening to accurately transfer small volumes of expensive liquid reagents — which are the substances consumed during a chemical reaction — into tens to hundreds of thousands of assays, or tests.”

“When we began our work, we initially wanted to design a new method dealing with some issues encountered in the manufacturing of DNA chips,” says Tolias. “But this technology can be used to accurately transfer and measure liquids of any viscosity, or thickness. We even see a potential application in the manufacturing of semiconductor components,” he adds.

The research was funded by a grant from the National Science Foundation. That grant covered the cost of designing and building a prototype robotic unit and showing “proof of concept” in manufacturing and using DNA chips. These important milestones helped the researchers obtain a patent in 2006. Next, the researchers will begin work to develop a commercial unit that can be manufactured for widespread use, Tolias says.

**Early Intervention in Vision-Threatening Diseases**

EACH MONTH, SOME 150 MEN, WOMEN AND CHILDREN WAIT IN LINE in their workplaces, places of worship or their schools for the opportunity to be screened by Ben Szirth, PhD, director of New Jersey Medical School’s Applied Vision Research Laboratory, and his colleague, Khadija Shahid, OD, FAAO.

The people Szirth and Shahid see are mostly residents of Newark and Elizabeth. They have limited financial resources, are usually uninsured
and often single parents who are too busy to take time out for an eye exam. And so, the Applied Vision Research Laboratory’s Telemedicine Ocular Program Services (TOPS) traveling clinic comes to them instead, offering free retinal exams.

Through the technology of telemedicine, the subjects’ medical findings are first assessed on site by Shahid and then may be transferred to the Vision Laboratory’s state-of-the-art facilities for a second evaluation. This allows for an on-the-spot assessment of vision-threatening diseases, such as cataracts, age-related macular degeneration, diabetic retinopathy and glaucoma. It also allows for an immediate interactive consultation, when necessary, with University Hospital’s top surgical retina specialists.

TOPS began providing this community service after noting a significant gap in healthcare among its target population, says Szirth.

“There are a lot of people walking around among this population who know they have diabetes, for example, but they see well enough and don’t feel the need to go to an eye-care doctor,” he adds. “Others may not know they have diabetes. But once they have a bleeder, or hemorrhage, which can lead to vision loss, it’s too late. So we’re trying to catch them early enough where it’s still possible to provide alternatives or medical treatment.”

Alarming, the doctors are seeing greater numbers of obese children, some as young as 10, who are already showing signs of ocular hypertension and other eye diseases. “We’re also seeing a greater incidence of Type 2 diabetes in children, which means by the time they’re 25 years old, they may lose useful vision,” Szirth says.

That’s why, in addition to treatment, Szirth and Shahid are also educating their patients about nutrition, not smoking and exercise. “Many of the complications of diabetes can be controlled simply by eating better, exercising and keeping blood glucose and blood pressure under strict control,” says Szirth. “You can live perfectly well with diabetes.”

“The bottom line in what we’re doing is early detection and a campaign of awareness,” he adds. “Because once vision is lost, you cannot bring it back.”

**Battling Drug-Resistant TB**

RESEARCHERS AT THE NEW JERSEY MEDICAL School’s Public Health Research Institute, with their South Africa colleagues, are engaged in a desperate quest to find a treatment for drug-resistant strains of the deadly tuberculosis (TB) bacilli.

Their research, conducted on live patients in South Africa and in PHRI’s laboratories at NJMS, is looking at two distinct possibilities that may explain why some TB strains resist conventional treatment. One theory is that certain strains are more virulent than others because the bacilli do not stimulate a strong immune response in the infected host. Another is that the human immune system’s response to the bacteria may be interfering with the functioning of antibiotics.
As researchers race to find answers, many lives hang in the balance, says Gilla Kaplan, PhD, professor of Medicine, who is directing the PHRI portion of the study.

“South Africa has one of the highest levels of TB, and in addition, is experiencing an outbreak of extremely drug-resistant TB. So there’s an urgent need to understand what’s happening and to put in place some mechanism for responding to this crisis,” Kaplan says.

Although the incidence of TB in the United States is significantly lower, outbreaks of the disease are being reported in alarming numbers here, especially among immigrant populations, in poverty-stricken communities and among HIV-infected individuals, Kaplan says. “The numbers in South Africa may be much different, but the target populations at risk and the manifestations of the disease are quite similar,” she notes.

What differentiates PHRI’s research from other TB studies is that the PHRI researchers are working with clinical strains of the bacteria isolated from infected patients, rather than using laboratory strains of the bacteria, a more common approach. “This will allow us to establish whether different strains of the TB bacilli have different properties,” Kaplan explains.

“The second question we are interested in is, ‘Are there ways one can modify the host immune response to improve control of the disease?’” she says. One theory the researchers are investigating is whether the immune response so effectively drives the TB organism into a temporary, nonreplicative state that it renders the “killing mechanism” of antibiotics powerless. “The nongrowing organism will not respond well to the antibiotics, and then will come back after treatment and reactivate the infection,” says Kaplan. “So we are trying to see if we can modify the immune response so that growth of the organism is not controlled so efficiently, and then see if the antibiotics more effectively kill the organism.”

Kaplan and her research group at PHRI have received funding from the National Institutes of Health and the Bill & Melinda Gates Foundation for their portion and the South African part of the research initiatives.

“THE NUMBERS IN SOUTH AFRICA MAY BE MUCH DIFFERENT, BUT THE TARGET POPULATIONS AT RISK AND THE MANIFESTATIONS OF THE DISEASE ARE QUITE SIMILAR.”

PHRI: Six Decades of Fighting Infectious Diseases

AT THE DAWN OF THE ANTIBIOTIC ERA, a small research operation was formed in New York City to study infectious diseases. Established in 1941 as an independent, not-for-profit biomedical research organization in association with the New York City Department of Health, the Public Health Research Institute comprised luminaries whose work yielded remarkable discoveries and helped to shape modern-day science, according to PHRI Center Director David Perlin, Ph.D.

“If you look at hospitals and what people were dying from (in the 1940s), it was not heart disease and cancer; they were dying from infectious diseases,” Perlin says. “PHRI was established to attract some of the high-quality basic science that was taking place in New York City and direct it toward more health-related areas.”

Today PHRI, which relocated to Newark in 2002, is part of New Jersey Medical School. Its world-renowned scientists have expertise in a variety of fields including virology, immunology,
Gilla Kaplan, PhD, of NJMS’ Public Health Research Institute is the recipient of a grant from The Bill & Melinda Gates Foundation for a study aimed at improving TB treatment methods.

Through the wonders of telemedicine, Ben Szirth, PhD and Khadija Shahid, OD, provide scores of retinal exams to the needy each month.
Matthew Neiditch, PhD, assistant professor of Microbiology and Molecular Genetics, uses X-ray crystallography to study how cells communicate with each other.

David Perlin, PhD, PHRI Center Director, attributes PHRI’s success, in part, to its ability to adapt to the ever-evolving field of science.

FACULTY / STAFF HIGHLIGHT

Franklin Desposito, MD, and Walter Zahorodny, PhD, both of the Department of Pediatrics, were among the honorees at the Autism Center of NJMS’ Fourth Annual Gala held in December 2007.
WE'RE EXPLORERS

Their research in HIV/AIDS, tuberculosis, MRSA, (Methicillin-Resistant *Staphylococcus aureus*) and other infectious diseases routinely bring them to such distant regions as South Africa, Europe, China, and Russia.

Throughout the years, PHRI scientists have been credited with notable discoveries in influenza, staph infections, gout, the molecular basis of learning, bioenergetics, vaccines, nitrogen metabolism and neurological development in children, cancer-causing genes, and multidrug resistant TB.

Perlin attributes PHRI’s success to its collaborative, inter-disciplinary approach to conducting basic and translational research; aggressive pursuit of grant funding, from public, as well as private sources; and its ability to adapt to the ever-evolving field of science.

“As a component of New Jersey Medical School, we are committed to the interests of science and representing the university the best way possible,” Perlin says. ■

For the full interview with Dr. Perlin, visit http://njms.umdnj.edu

Understanding How Bacteria Communicate

PROTEINS TOO SMALL TO SEE WITH EVEN THE MOST powerful microscopes suddenly become visible using a technique known as X-ray crystallography. With this technology, researchers at New Jersey Medical School are exploring how cells communicate with each other, hoping to better understand how some bacteria resist the human immune response.

According to Matthew Neiditch, PhD, assistant professor of Microbiology and Molecular Genetics, researchers know that bacteria communicate with each other by secreting molecules called autoinducers — a communication mechanism that is called quorum sensing. “Quorum sensing enables the bacteria to behave as a population — as a community,” he says.

And it is through this cell-cell communication that communities of bacteria coordinate behaviors that enable them to overpower our immune systems. “If only a few bacteria in a population are producing virulence factors they wouldn’t be very effective in overcoming our immune response,” Neiditch explains. “But if bacteria lay low, and wait until they reach critical cell density before expressing their virulence factors, they can team up and overpower the immune response.”

In his research, Neiditch studies the receptors and signaling proteins that regulate bacterial quorum sensing using a technique called X-ray crystallography to make these tiny particles visible. Using a highly purified protein, he looks for conditions under which the protein molecules crystallize, forming 3-D arrays of protein in a formation called a lattice.

“If you stick just one protein molecule in even the most intense X-ray beam, you wouldn’t obtain useful data because X-rays interact weakly with matter and a single protein molecule lacks scattering power,” he explains. “But by crystallizing the proteins, and creating this 3-D array, the X-rays reflecting off the protein crystal are amplified. The data are collected and processed computationally, ultimately resulting in a high resolution 3-D model of our protein.”

“The more we know about how quorum sensing works on the molecular level — which is what X-ray crystallography enables — the better our chances become of developing new antibiotics that target these pathways,” Neiditch adds. ■
Serving Our Community
Program Gives Essex County Youth P.O.W.E.R. in Fight Against Sexually Transmitted Infections

WHEN TERMERRA FLOURNOY WAS A JUNIOR IN HIGH SCHOOL, she served her community as a peer outreach worker in the P.O.W.E.R. Program at New Jersey Medical School. She never imagined her decision to become a volunteer would lead to a career in health care. In what could be described as a full-circle moment, she now serves as a program development specialist at NJMS who coordinates P.O.W.E.R. and trains high school students to carry on the work she did years ago. She draws her inspiration from the youth who are the heart and soul of the initiative.

Young people like 16-year old Rahmir Chisolm eagerly help to advance the cause. P.O.W.E.R. was established in 1995 at the NJMS Division of Adolescent and Young Adult Medicine (DAYAM). It is fully integrated into the comprehensive clinical services and teaching program in the Department of Pediatrics.

Combating the spread of HIV/AIDS and other sexually transmitted infections in Essex County is a major quest of the program and a team of P.O.W.E.R. workers, who are between 13 and 21, are ready for the challenge. P.O.W.E.R. workers must complete a safer-sex training program.

Now, Chisolm proudly delivers risk-reduction messages with his peers. “I want people to know how to protect themselves. I want them to know that HIV doesn’t discriminate,” says Chisolm, a junior at Newark Vocational High School who earnestly vocalizes the public health messages throughout Essex County and especially to his friends.

Dressed casually, peer educators encourage people to board DAYAM’s RV to be tested by counselors from another DAYAM program called, Spend Time on Prevention (S.T.O.P.). Several tests are offered including: HIV/AIDS, syphilis, gonorrhea, chlamydia, pregnancy and high blood pressure. P.O.W.E.R. participants also distribute literature and condoms.

In this group of P.O.W.E.R. workers, you will find adolescent and young adults who aren’t afraid to take center stage in the battle against these serious public health threats. They even use a little bit of drama to convey their messages. Last year, 42 theatrical skits based on teen issues were presented in schools, health fairs, youth conferences and community centers to give youth suggestions on how to make healthy lifestyle decisions.

Flournoy no longer participates in the educational skits, but
she says, “I love what I do. I love watching the actual presentation. It’s a creative approach to helping adolescents make the right decisions by actually seeing the outcomes of risky behaviors.”

Dr. Paulette Stanford, associate director of DAYAM and principal investigator of this initiative, says New Jersey has the fifth-highest number of HIV cases throughout the nation. Locally, African Americans account for between 75 and 80 percent of the HIV cases in Newark, which is the highest rate in Essex County.

“There is a tremendous need for outreach to people of all backgrounds, especially high-risk populations. Our training was designed to give young people the facts and practical techniques that will put them in a position to help reverse these statistics. We want them to have the necessary tools to encourage others to change or modify unhealthy behaviors related to sexual activity,” says Stanford.

Sixteen-year old P.O.W.E.R. worker Breeasja Crayton feels empowered to share what she’s learned with others, particularly her 13-year old brother. “I want to teach him right from wrong,” says this high school junior, who strongly believes “a lot of your peers can influence the decisions you make.”

Clayton is one of more than 100 youth who participated in POWERFUL Training sessions in 2007, where preventive health and wellness messages were taught. These civic-minded youth referred 54 of their peers for HIV/STI testing and they reinforced peer education to 580 youth. Since the program was established, P.O.W.E.R. has made contact with more than 3,000 youth and has conducted theatrical presentations, group counseling, training programs, and health fairs. Last year, P.O.W.E.R. referred more than 300 adolescents for HIV/STI testing.

Clayton plans to pursue a career as either a forensic scientist or a nurse and she is grateful for the lessons she learned as a P.O.W.E.R. worker. She says, “When I came to the program and sat down and learned the messages, I realized I can take the information with me as I grow.”
Answering the Call to Serve

THE NEW JERSEY MEDICAL SCHOOL community is not just made up of students, faculty and staff. Its extended family also consists of alumni, retired faculty, donors, as well as community members and leaders. Here’s a look at some of the members of NJMS’ extended community.

NJMS Board of Advisors

Since 2005, the New Jersey Medical School Board of Advisors — comprised of 16 professionals who represent a broad spectrum of expertise and interests including the entertainment industry, public relations and marketing, medicine, law, real estate, finance, human resources and university relations — has shared a common interest: advancing NJMS and its programs.

The Board consists of: Larry Branch; Frederick F. Buechel, MD; Ruthi Byrne; A.J. Calloway; Guillermo Cruz; Joseph V. DiTrolloio, MD; Hugh E. Evans, MD; Arnold P. Gold, MD; Sandra O. Gold, EdD; Hervé Gouraige, Esq.; Darrin Henson; Jeffrey Gitterman; Donald M. Karp, Esq; Lester Lieberman, PE; Sanford Lewis, MD; and Joseph L. Muscarelle.

In discussing their reasons for serving on the Board, some members point to NJMS’ strong community ties and academic excellence while others highlight the school’s outstanding faculty and clinical expertise.

For example, Buechel and DiTrolloio, both NJMS alumni, cite their long-time connection to the school as influencing their decision to serve. “I feel a strong sense of pride in the institution that gave me a ‘head start,’” says Buechel, a clinical professor of orthopaedic surgery.

DiTrolloio adds, “I am a long-time affiliate of New Jersey Medical School, as an alumnus, professor and President of NJMS’ Alumni
Association. I want NJMS to be the best it can be.”

Other Board members point to NJMS’ commitment to humanism in medicine as their reasons for wanting to serve on the Board.

“When we first began working to keep the CARE in Healthcare, we found eager and ardent partners in NJMS and UMDNJ,” says Sandra Gold, co-founder of The Arnold P. Gold Foundation, which creates and supports programs and projects which advance humanism in medicine.

While their reasons for serving on the NJMS Board of Advisors vary widely, their commitment to NJMS is one that is rooted in the knowledge that NJMS is an invaluable resource.

“When my husband, Brendan T. Byrne, was Governor of the State of New Jersey, all his medical needs were expertly fulfilled at UMDNJ-NJMS and by the late Carroll Leevy, MD,” says Byrne, Founder and President of Zinn, Graves & Field, a public relations and marketing firm. “NJMS is an unrecognized gem. That’s why I wanted to keep an association and alliance with this excellent institution.”

The Active Retired Faculty Association (ARFA) Allows Retirees to ‘Give Back’

Now that the Active Retired Faculty Association (ARFA) has been formed at New Jersey Medical School, retirement does not have to symbolize a disconnection from academic medicine. In fact, this organization was formed last year to bridge the gap between NJMS and former faculty members, who opt to remain active in academia beyond retirement. ARFA makes it possible for retired faculty members to segue into other educational endeavors at NJMS such as: mentoring junior faculty and students; conducting research; teaching and serving on committees.

Not so long ago when faculty members retired, all of their privileges were revoked. Their e-mail addresses were shut down, notification of upcoming medical programs and lectures were no longer being shared, identification badges were invalidated, and parking privileges, like library privileges, expired immediately. In spite of their many years of service and their strong desire to continue making contributions to NJMS, many faculty members felt cut-off from academic medicine. However, the administration and several retired faculty members decided to make a change. ARFA was established, the first official meeting was held in 2007, and a president was elected to a two-year term.

According to Allen B. Weisse, MD, the founding president of ARFA, there are about 20 active members and the organization was created “to allow and encourage continued academic activities that are of mutual benefit to the Association’s membership and the medical school.” Members’ plans for independent projects may vary widely while they also may be invited to serve on committees.

Weisse retired from his full-time position as a cardiologist and professor of medicine at NJMS in 1997 in order to focus his efforts on medical history and related subjects. Last year he became a member of the university-wide Institutional Review Board. He retired after giving more than 30 years of service, but his commitment to academic medicine is unwavering. His legacy as an educator, clinician, researcher and author is the foundation that allows him to make a difference.

“We believe retired faculty members can serve as a valuable resource to the medical school community even following the cessation of their dedicated full-time service. I think the presence of ARFA is a win-win situation,” says Weisse, who established the endowed Weisse Lecture on the History of Medicine with his wife Laura Weisse, MD.

The Doorway to Passion and Purpose: A Profile on Dr. Kevin M. Barry

NJMS Class of 1987

Before Dr. Kevin M. Barry was a physician, he was a patient. Having experienced an illness and health complications as a teenager, he met a team of health care professionals who treated him and made a difference that would impact his life forever.

Several pediatricians and health specialists, who embodied the principles of humanism in medicine, inspired him to pursue a career as a physician. He especially is grateful for the words of encouragement that Dorothy Pietrucha, MD shared. His experience as a patient, combined with his strong interest in biology, prompted him to apply to the UMDNJ-New Jersey Medical School, a decision that would allow him to treat patients both locally and internationally.

Now, as an anesthesiologist and a member of the Board of Trustees at UMDNJ as well as the Board of Directors at the UMDNJ-University Hospital, Barry reflects on a pivotal point in his medical education. As a fourth-year medical student with pediatrics as his primary career choice.
As part of a six-week elective through the Department of Preventive Medicine at NJMS, he made his first international trip, where he was an instrumental member of a medical team at The Ortum Mission Hospital in Kitale, Kenya. With a mere two-week anesthesiology rotation under his belt, his medical education was put to the test in the midst of challenging conditions: he was asked to administer anesthesia on a patient.

“We had no running water throughout this elective. There was a generator we could run once a week for two hours to take x-rays, and we mixed our own IV fluids on a daily basis and then sterilized the glass bottles. That was the ‘flavor’ of fluid as well as the total amount we had for the day. Suction in the hospital was a manual bicycle pump hooked up in reverse,” says Barry.

He was the only member of the health care team with any experience in anesthesia. Initially, when he was asked to administer anesthesia, his reaction was, “I can’t do this.” Then, following some encouragement from his international colleagues, he put his fear aside and focused on patient care. “Generally what I had done, since I knew nothing else, was rely on the absolute basics I learned in my elective at NJMS.” Otherwise, the patients would not have received surgery.

Anesthesiology had several components that piqued his interest: physiology, pharmacology, one-on-one patient interaction, and pain management. This NJMS graduate is still amazed by the profession he began 21 years ago. “Anesthesiology still fascinates me. The fact that we can render patients unconscious, perform complex surgeries and wake them back up still fascinates me.”

Although he has served as an attending anesthesiologist at the Morristown Memorial Hospital since 1991, he still faithfully...
participates in medical missions annually. His passion for patient care has led him to treat patients in Guatemala, South Africa, Ecuador, Venezuela, and El Salvador.

He is also committed to making a difference locally. Since 1994, he has served as president of Anesthesia Associates of Morristown. Dr. Barry is a Henry Rutgers Scholar who graduated Phi Beta Kappa from Rutgers College in 1983 with a Bachelor of Arts degree in Biochemistry. After receiving his medical degree, he interned at Memorial Sloan Kettering Cancer Center before completing an anesthesia residency at The New York Hospital and at the Hospital for Special Surgery, Cornell Medical Center, where he served as chief resident from 1990 to 1991. He realized business acumen would be an essential part of his career. So, four years later, he earned a Master of Business Administration degree from New York University's Stern School of Business.

Barry is a Diplomate of The American Board of Anesthesiology, The American Board of Pain Management, and The American Board of Medical Acupuncture and is a Certified Physician Executive of The Certifying Commission in Medical Management. He also teaches medical acupuncture to physicians in programs accredited by UCLA and Stanford Schools of Medicine. He is a member of numerous organizations including the American Medical Association, New Jersey Medical Society, Morris County Medical Society, American Society of Anesthesiologists, New Jersey Society of Anesthesiologists, and the American Academy of Pain Management. He serves on the steering committee for anesthesia for Health Volunteers Overseas and is a member of Healing the Children.

He is dedicated to the mission of UMDNJ: patient care, education, research, and community outreach. As a result of his commitment to the citizens of New Jersey, Governor Jon Corzine and Senate President Richard J. Codey asked him to serve the students, residents, faculty, staff, and administration of UMDNJ as member of the Board of Trustees. His term will expire in 2010.

Barry enjoys having the opportunity to give back to his alma mater and he is proud of the profession he chose as a student at NJMS. “I think anesthesiology is the greatest field. There are so many options: teaching, research, patient care, and public health. Medicine is not limited to just being a clinician as many people have been led to believe. As a student at New Jersey Medical School, I found out you don’t close any doors by going to medical school. Instead, the door is open for you to impact your community and people throughout the world.”

S.H.A.R.E. Makes a Difference in the Newark Community

PATIENT CARE, COMMUNITY EDUCATION, AND YOUTH mentoring opportunities await medical students who dare to stretch their grueling schedules by participating in a service-learning initiative at New Jersey Medical School, affectionately called S.H.A.R.E.

Through participation in the Student Health Advocacy for Resources and Education organization, students are exposed to the community-based organizations and families who live in neighborhoods near the Newark campus. S.H.A.R.E. is the umbrella organization that comprises a diverse group of programs that allow first-year medical students to pursue community-outreach activities before classes begin. The incoming students are introduced to S.H.A.R.E. on Cares Day, which takes place every August during student orientation.

Cares Day is a program that promotes community service and class unity. Students visit a non-profit agency and collectively participate in an activity that improves the organization. For example, last year on Cares Day students in the Class of 2011 painted the gymnasium at the Covenant House, a non-profit agency in Newark that provides services to homeless and at-risk adolescents.

S.H.A.R.E. also includes a year-long noncredit elective, known as Voices of S.H.A.R.E., which is a lecture series that addresses health care trends and challenges in the Newark community.

Dr. Maria Soto-Greene, Vice Dean of the NJMS, is the Faculty Advisor of S.H.A.R.E., a highly regarded initiative that received the Outstanding Community Service Award from the Association of American Medical Colleges.

Here are S.H.A.R.E.’s seven initiatives:
THE NEW JERSEY MEDICAL SCHOOL COMMUNITY CONSISTS OF MORE THAN ITS STUDENTS, FACULTY AND STAFF. ITS EXTENDED FAMILY ALSO CONSISTS OF ALUMNI, RETIRED FACULTY, DONORS AS WELL AS COMMUNITY MEMBERS AND LEADERS.

above left: Dr. Kevin M. Barry, an NJMS alumnus who serves as a member of the UMDNJ Board of Trustees and UMDNJ – University Hospital Board of Directors.
above right: NJMS students examine a patient at the Student Family Health Care Center, established at NJMS in response to the Newark Riots of 1967. The student-run clinic offers free health care to the Newark community.

STATS (Students Teaching AIDS to Students)
Children and adolescents, who are affected by HIV and AIDS, have a safe haven within the François-Xavier Bagnoud Center at the UMDNJ-University Hospital and Newark’s Academy Street Firehouse. They also have someone to talk to: NJMS students. Volunteering in this program gives future physicians a chance to mentor, tutor, and educate youth through HIV/AIDS prevention and awareness workshops, activities and field trips. With education and advocacy as a primary objective, STATS participants also organize annual World AIDS Day and Global AIDS Week educational lectures, films, and group discussions.

ESMP (Early Start Mentoring Program)
The Early Start Mentoring Program (ESMP) was designed to promote positive social behavior and non-aggressive conflict resolution in elementary school children. The ESMP training sessions focus on developing self-esteem and social problem solving skills, while offering a caring and supportive outlet for the children. Medical students make weekly visits to local elementary schools where they spend time mentoring youth who have been recommended to the program due to behavioral issues.
THROUGH PARTICIPATION IN THE STUDENT HEALTH ADVOCACY FOR RESOURCES AND EDUCATION (S.H.A.R.E.), STUDENTS WORK CLOSELY WITH COMMUNITY-BASED ORGANIZATIONS AND FAMILIES NEAR CAMPUS.

New Moms Program
Medical students, who participate in the New Moms Program, can serve as advocates, coaches, mentors, and sources of support for teenage expectant mothers. Medical students are paired up with teenage expectant moms to provide access to care and encourage compliance with prenatal and postpartum care. Members of the New Moms program, facilitate educational workshops, attend obstetrics visits with pregnant moms and, when possible, are present during labor and delivery.

C2000 - C.O.M.M.U.N.I.T.Y. (City Outreach: Mentors and Mentees Uniting Newark and Inspiring Teenaged Youths)
Medical students in this sub-organization choose to be part of the health care solution. Through this C2000, medical students partner with adults and adolescents throughout the community, to complete service activities. Previously, they have helped to improve community-based organizations by painting, assisting with construction, cleaning, and providing healthcare resources to medically disadvantaged women and men.

PINACLE (Partnership in Newark Advocating Community Leaders’ Empowerment)
Through PINACLE, community leaders in Newark participate in disease prevention and treatment training sessions. These health advocates disseminate wellness messages about timely public health issues. Last summer, PINACLE hosted the annual Ministers of Health Breakfast to assess how collaborative efforts could increase awareness of its outreach activities. Another outreach effort is the PINACLE Institutes, which are held throughout the year to teach about a variety of health topics such as hypertension and asthma. Following each Institute, community leaders are expected to conduct health workshops and students will provide health screenings at community sites.

SFHCC (Student Family Health Care Center)
Established in response to the 1967 Riots in Newark, the SFHCC aims to meet the needs of medically underserved families. Under the supervision of board-certified family physicians, this student-run clinic offers quality health care to families in the Newark community at no charge. Services include physical examinations, chronic disease management, gynecological care, and psychosocial counseling. While there is no charge for an office visit, patients may be billed for laboratory and diagnostic services. The SFHCC provides an opportunity to enhance clinical skills, focus on the doctor-patient relationship, lead student teams, and interact with a diverse group of attending physicians throughout all four years of medical school.

Unite For Sight
When medical students established Unite for Sight, which is a chapter of the national Unite for Sight® organization at NJMS, their focus was the elimination of preventable eye diseases through vision screening and education. This sub-organization holds eyeglass drives, conducts vision screenings, and provides access to free or low-cost eye care in the Newark area. Previously, students have banded together to raise funds for cataract surgeries.
Financial Overview

For the New Jersey Medical School, the fiscal year ending June 30, 2007 was arguably the most financially challenging in recent years. The New Jersey Medical School administration had the arduous task of managing its academic, research, and other initiatives in the face of certain declining resources and unanticipated increased expenses.

A reduction in total grant overhead revenue in excess of 10%, and the continued erosion of purchasing power related to State funding were key contributors to the fiscal environment under which the New Jersey Medical School had to operate in FY 2007. In addition, a significant unbudgeted increase in salary expense served to impact further on the school’s resources. In the midst of these developments, the New Jersey Medical School administration looked to the work that it accomplished in recent years on the strength of the Mission Based Budgeting process, wherein the school was effectively positioned fiscally to manage and support its missions in the face of significant pressure on resources.

The School’s Mission Based Funding (MBF) budget process continues as the cornerstone for fiscal readiness. FY 2008 marks the school’s fifth year under MBF and its effectiveness remains evident as resource management, structure and efficiency remains high at various levels throughout the organization.

Although there has been a reduction in the research activity from FY 2006 to FY 2007, the school remains optimistic that current efforts to grow the program will yield positive results over the next several years. One of the developments that is projected to contribute to growth is the acquisition of the Public Health Research Institute (PHRI Center) under the New Jersey Medical School. The administration and faculty are excited about this acquisition and expect great things as it relates to future research projects. The construction of the Regional Biocontainment Laboratory (RBL) is expected to be completed towards the end of FY 2008 and it also is expected to have a positive impact on the school’s research mission.

The New Jersey Medical School administration strives to be proactive as it relates to identifying the steps necessary to insure fiscal stability for the school. The school is currently operating under challenging fiscal circumstances and it is projected that this will remain the case for the foreseeable future. The New Jersey Medical School administration will continue to manage its fiscal affairs to effectively provide support for the maintenance of program initiatives and overall operations.

### Externally Sponsored Awards
Includes PHRI Center Grants transferred in FY 2007 (in millions)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total Externally Sponsored Awards</th>
</tr>
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<tbody>
<tr>
<td>2000</td>
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</tr>
<tr>
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<tr>
<td>2006</td>
<td>$104.0</td>
</tr>
<tr>
<td>2007</td>
<td>$59.0</td>
</tr>
</tbody>
</table>

*Includes One Time $20.8 Million NIH Construction Grant (FY 04)
**Includes One Time $4.8 Million NIH Construction (RBL) Supplemental Funds (FY 06)

Note: PHRI Center became a part of UMDNJ on December 19, 2006. As of June 30, 2007, a portion of PHRI grants have been transferred to UMDNJ by the NIH; balance expected in FY 2008.
New Jersey Medical School gratefully acknowledges the generosity of its many donors, whose contributions support countless programs and services that help advance our mission. Listed below are donors who have given $1,000 or more this year through the Foundation of UMDNJ. A complete listing of all donors to the School can be viewed online at:

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