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New York Medical College

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Inside:

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Leading Edge

Highlights of Current Research

Fear of lawsuits may prompt some doctors to overprescribe antibiotics

Methicillin resistance in *Staphylococcus aureus*, or MRSA, is one of the most feared resistant organisms that clinicians treat given its virulence and ability to cause infections in a variety of clinical settings. Its prevalence in hospitals in the United States and around the world is increasing, conferring severe consequences on patient morbidity, mortality, utilization of health care resources, and medical care costs.

In a new study led by **George Sakoulas, M.D.,** assistant professor of medicine, and four other NYMC faculty, the authors hypothesized that medical liability concerns may be playing a role in the increase of MRSA in healthcare settings by encouraging clinicians to prescribe antibiotics more often and more broadly than clinical circumstances and evidence-based guidelines warrant.

The researchers analyzed census figures, statistics on attorney and physician densities, and data on antibiotic utilization for the United States, Canada and 15 European countries, to determine the percentage of methicillin resistance among clinical isolates of *S. aureus*. They found a strong correlation between the prevalence of methicillin resistance and density of attorneys in countries in Europe and North America. They found no correlation between prevalence of methicillin resistance and physician density.

Investigators surveyed 162 healthcare providers to identify that medical liability concerns were as important as antibiotic cost and formulary restrictions in selecting treatment regimens. The surveys also confirmed that physicians were more concerned about medical liability in cases of underprescribing antibiotics rather than by overprescribing them.

The findings suggest that further investigation is needed to evaluate the potential impact of medical liability concerns on the medical care system, and hint toward the importance of medical tort reform as one way to reduce healthcare costs and improve quality. One way might be to foster more judicious prescription of antibiotics based on science and evidence rather than on risk aversion.

"Relationship Between Population Density of Attorneys and Prevalence of Methicillin-Resistant Staphylococcus aureus: Is Medical-Legal Pressure on Physicians a Driving Force Behind the Development of Antibiotic Resistance?" *American Journal of Therapeutics*, September-October 2009.
Online at http://www.americantherapeutics.com.

Targeting the best delivery point for a new spinal cord injury treatment

Due to the hazardous nature of combat, war veterans represent about 22 percent of spinal cord injury (SCI) cases. While the steroid methylprednisolone is considered the standard treatment to restore function, improvement is modest and the treatment is associated with muscle weakness and immunosuppression. Researchers are seeking new treatments for this debilitating injury that affects predominantly younger soldiers with irreversible paralysis.

Before potential new treatments can be studied with human patients, they must show efficacy in an appropriate animal model of SCI. Preliminary data from research led by **Richard J. Zeman, Ph.D.,** associate professor of cell biology and anatomy, shows that targeted stereotactic X-irradiation (SXI) of the injury site increased locomotor function following SCI.

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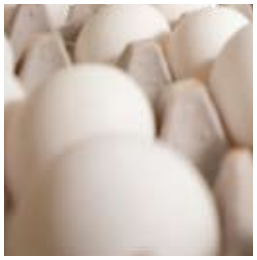
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On the Cover

Doris Bucher, Ph.D., associate professor of microbiology and immunology, illustrates how to make a new vaccine to deal with an old/new influenza virus that's come to call some 30 years after its last appearance. The orange and blue balls she holds represent two different flu viruses. To prepare the 2009 H1N1 vaccine seed virus, special eggs were infected with the old high growing strain, A/PR/8/34 (orange) and the new 2009 H1N1 virus isolate (blue). The genes from the two viruses reassorted to produce high growing seed viruses for the 2009 H1N1 vaccine. Dr. Bucher named the new seed viruses NYMC X-179A and NYMC X-181, in honor of New York Medical College.

(By)passing the Salt

It's not just stress and diet that can cause hypertension. Ashok Kumar, Ph.D., and his team pursue genetic clues in transgenic mice that could account for almost half the risk.

By Dan Hurley

Think you know the causes of hypertension—obesity, too much dietary salt, psychological stress, obesity and testosterone? You're only partly right. **Ashok Kumar, Ph.D.,** professor of pathology, is quick to point out that lifestyle factors typically fingered as culprits account for only about half of the risk related to the disease, which is known to affect some 50 million Americans.

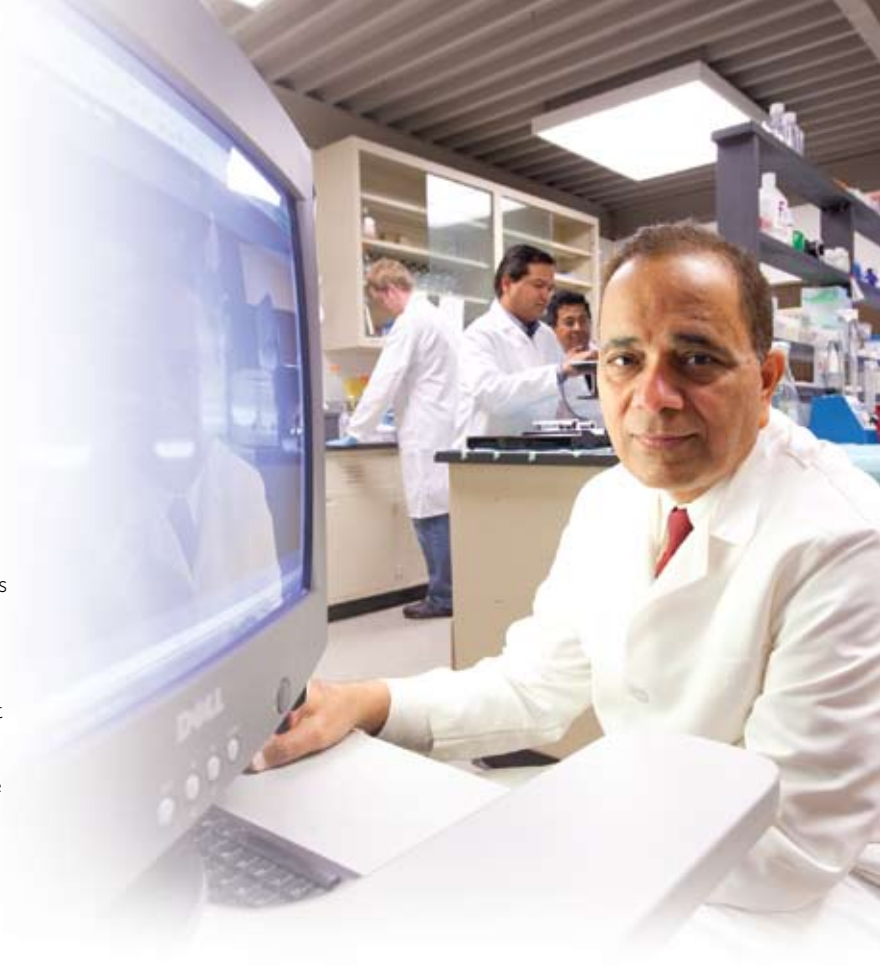
What accounts for the remaining 45 percent of the inter-individual differences in blood pressure? The answer lies in genetics, a field in which Dr. Kumar conducts sophisticated research that has lately garnered him a five-year NIH grant for almost $2 million. Together with another $2 million grant he received from the NIH three years ago, the funds assure that Dr. Kumar will continue his exploration into hypertension's genetic and molecular basis.

"It has been known for a long time that genetics plays an important role in hypertension," Dr. Kumar says. "If parents have increased blood pressure, there is an increased chance their children will have it too." But there is more to it than that, and his two grants focus on the transcriptional regulation of genes affecting available levels of angiotensin-II, the molecule that plays a critical role in tightening blood vessels and thereby raising blood pressure.

Even though two classes of blood-pressure drugs—angiotensin-converting enzyme (ACE) inhibitors and angiotensin-receptor blockers (ARBs)—targeting the system that Dr. Kumar studies are already on the market, his research goes deeper, into their genetic and molecular underpinnings.

After first identifying naturally occurring variants in the genes that code for angiotensinogen, the molecular precursor to angiotensin, Dr. Kumar's team has showed that these single-nucleotide polymorphisms, as they are called, form distinct haplotypes —genetic variations that are usually inherited as a group. He identified two commonly occurring haplotypes, AA or AG, in a region that promotes how many copies of the angiotensinogen gene are transcribed by RNA. The genetic variants have been found to play an active role in both men and women, as well as in Caucasians, Japanese and African-Americans.

"Dr. Kumar has been among the first to look at the genetic regulation of the angiotensinogen gene," said Alberto Nasjletti, M.D., professor of pharmacology and a past president of the Inter-American Society of Hypertension. "We have a number of drugs that can treat hypertension, but they basically treat the symptoms. Dr. Kumar has shown that variations in the angiotensinogen gene may be playing an important role. It's an active area of investigation, and his lab is well recognized in the area."



The laboratory team of Ashok Kumar, Ph.D. (seated right), is the world's first to develop transgenic mice containing human genes that enable the study of angiotensinogen. Seated to his left is Sudhir Jain, Ph.D., research assistant professor of pathology. Standing are Varunkumar Pandey, Ph.D. candidate, and postdoctoral fellows Shreekrishna Maharjan, Ph.D., Andrej Tillinger, Ph.D., and Brahmaraju Mopidevi, Ph.D.

From cell culture to in vivo

To understand the role of the AA or AG haplotypes in living organisms, Dr. Kumar's laboratory generated transgenic mice containing one or the other. In doing so, his became the first and, still to this day, the only laboratory in the world to develop such mice. The animals were also given the human version of the gene for renin, which is necessary for cleaving human angiotensinogen.

In a study published in the December 2008 *American Journal of Physiology—Regulatory, Integrative and Comparative Physiology,* Dr. Kumar and colleagues showed that male mice with the AA haplotype had human angiotensinogen levels that were 60 percent higher in their livers and 40 percent higher in their kidneys than those with the AG haplotype. What's more, levels of angiotensin II circulating in the bloodstream of male AA mice were about 50 percent higher than the levels in male AG mice, and the first group's blood pressure averaged 8 mm/Hg higher. The study was the first to demonstrate in vivo that a genetic polymorphism in the promoter of a human gene ultimately leads to an increase in blood pressure.

"Now that we have transgenic mice with human genes in them, these can be used as a model system." Dr. Kumar says. "Right now we're working with the transgenic animals to try to understand how the genes are regulated in vivo. Once we know the basic mechanisms, it will be easier to develop new drugs. Then the mice could be used to see if a candidate drug is lowering blood pressure or not."

"It has been known for a long time that genetics plays an important role in hypertension. If parents have increased blood pressure, there is an increased chance their children will have it too."

– Ashok Kumar, Ph. D.

Sitting behind a desk piled with copies of recent studies—"These are our lifeline. We have to stay up to date," he says—Dr. Kumar views with equanimity a field whose complexity seems to grow more byzantine with each passing day.

"It's a very complicated system," he says with a smile. "It begins with angiotensinogen, a protein that is 450 amino acids long and is synthesized in the liver. Then it's cleaved by renin, which is synthesized in the kidney, into a peptide 10 amino acids long. Then a third enzyme, angiotensin converting enzyme, converts this into a peptide 8 amino acids long. This is the biologically active molecule, angiotensin II."

Nature, he says, has evolved "a very complicated way to control the renin-angiotensin system. And the system has evolved differently between species. Mouse renin will not cleave human angiotensin."

Dr. Kumar's group began their study of the angiotensinogen gene and angiotensin receptor gene by conducting association studies comparing hundreds of people with hypertension to an equal number of subjects without the disorder. They found strong statistical evidence that the AA haplotype of the angiotensinogen gene was associated with higher blood pressure, and that the AG version was associated with normal blood pressure.

Their next task was to identify the complex molecular steps by which the two haplotypes orchestrate how much angiotensin II will end up being produced.

"That part we did in cell culture," Dr. Kumar says. "And cell culture is fine, but then we wanted to do it in vivo, in the living organism."

Now that his pioneering work elucidating the mechanisms behind the different haplotypes is nearly completed, he says, "We're mainly working with the transgenic animals to try to understand how the genes are regulated in vivo. We measure their blood pressure all day and night. We take plasma to measure angiotensin levels. We also take different organs—the liver, kidney and heart—to examine how the genes are expressed in these tissues."

Of course, the particular genes he's been focused on are not the only ones affecting blood pressure. "When it comes to real life," he says, "there are always multiple genes regulating a complex disease like hypertension. We are looking at these other genes now."

Stress, obesity and inflammation

Moreover, he's looking at the genetic underpinnings of how stress, obesity and inflammation each play a role in blood pressure. "They may have completely different genes involved than the ones regulating angiotensinogen," he says.

Recent studies have shown, for instance, that interleukin-6 (IL-G), an immune-system cytokine that plays an important role in mediating inflammation, increases the expression of the human angiotensinogen gene in liver cells. In a paper published in the May 2007 *American Journal of Physiology—Cell Physiology,* Dr. Kumar and colleagues concluded that three transcription factors that bind to the human angiotensinogen gene are responsible for the IL-6 induced promoter activity.

For all the uncertainties that remain, the understanding of essential hypertension has made dramatic advances in recent decades, says John A. McClung, M.D., associate professor of clinical medicine, in the cardiology division of the Department of Medicine.

"It was initially called 'essential hypertension' because it was necessary for functioning as people age. If you tried to lower it, you'd kill them," says Dr. McClung, who has provided blood samples of hypertensive patients used in Dr. Kumar's research. "That's why guys like Franklin Roosevelt and Winston Churchill could walk around with blood pressures that would knock your socks off. It was really only in the 1950s and '60s that antihypertensives started to be used with any frequency. Even now, etiology remains a substantial mystery. That's why Dr. Kumar's work is so interesting—and it's just beginning."

"We have a number of drugs that can treat hypertension, but they basically treat the symptoms. Dr. Kumar has shown that variations in the angiotensinogen gene may be playing an important role. It's an active area of investigation, and his lab is well recognized in the area."

– Alberto Nasjletti, M.D.

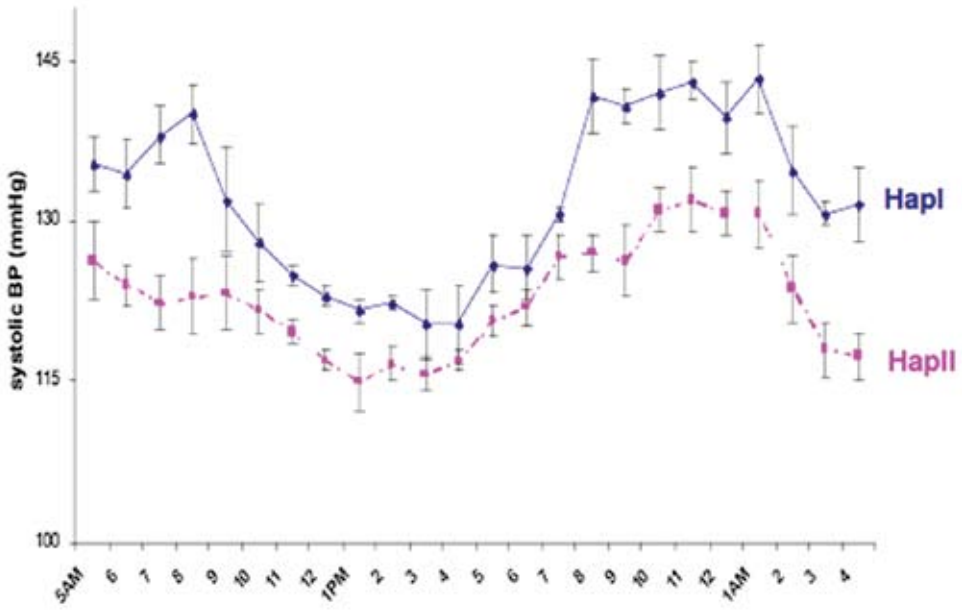
Dr. Kumar is a Fellow of the American Heart Association's Council for High Blood Pressure Research, and has served as a member of the Vascular Biology and Hypertension and Microcirculation study sections of the NIH. He has also been a reviewer for many prominent journals, including *Hypertension,* the *American Journal of Hypertension, Human Heredity* and others.

Born in the northern Indian city of Rampur, Dr. Kumar conducted his post-doctoral research at the University of Wisconsin in the laboratory of H.G. Khorana, Ph.D. , winner of the Nobel prize in physiology or medicine in 1968. Dr. Kumar remained there from 1966 to 1970, working on creating the first biologically active synthetic DNA molecule. After serving as assistant professor in the department of biochemistry at the All India Institute of Medical Sciences in New Delhi, he returned to the United States in 1979. He continued his research at universities in Texas, Massachusetts and Brooklyn, N.Y., before joining the College as a professor in the department of pathology in 1994, where he has been working ever since on genes related to hypertension.

His research into the genetics of hypertension has even struck home.

"My wife Sashi is hypertensive. I am not," he says. "Six or seven years ago, I took samples of my blood and her blood, and we analyzed this particular genetic variant. We found yes, she has the variant linked to hypertension and I do not. I thought that was interesting." It sure seems to support his hypotheses.

Tracking Hypertension Using Genetic Clues



The graph at left shows blood pressure readings over a 24-hour period for transgenic mice. The blue line displays BP readings from mice with a gene associated with hypertension, while the red line shows BP readings from mice representing "normal" subjects—those without hypertension.

Blood Pressure Increases in Transgenic Mice containing Human Angiotensinogen Gene Associated with Hypertensive Subjects

On the trail of a new drug to combat deadly drug-resistant TB

A novel weapon against a global killer may come from interfering with the ability of the bacteria's DNA to replicate.

By Cynthia A. Read

Tuberculosis kills someone every 20 seconds. That's almost 1,800,000 people a year worldwide, according to the World Health Organization's estimate. If you were to invent a frightening conundrum of a disease, you couldn't do better than TB. It is highly contagious and often fatal if untreated, and 98 percent of the deaths occur among the poorest of the poor in developing countries. TB does have a cure, but the treatment is a complicated six-to-nine month, multi-drug regimen developed more than 40 years ago. It is difficult, if not impossible, for many of the sickest patients to complete.

Combine improper or incomplete treatment, the slow-growing TB bacteria *(Mycobacterium tuberculosis, or M.tb.),* and antibiotics in use since the 1960s, and the upshot is that any TB bacilli that have developed resistance to a drug multiply easily, until the majority in the body are resistant. That leads to multidrug-resistant (MDR-) or extensively drug-resistant (XDR-) TB, which are exponentially more difficult, time-consuming, and costly to treat—and are more frequently fatal.

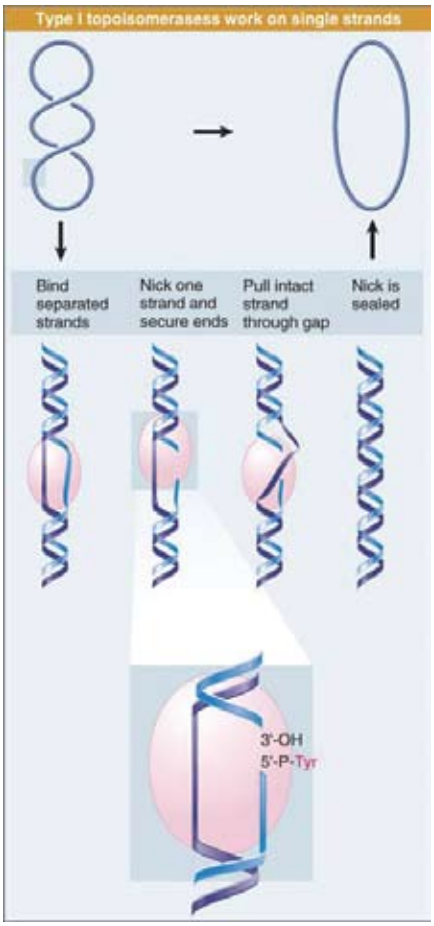
There can be another complication. An estimated one-third of the 40 million people living with HIV/AIDS are also infected with TB, but the current drug treatment for TB is not compatible with many antiretroviral therapies for HIV.

A faster, more effective cure for TB would ultimately save millions of lives, especially if a drug could be developed that killed TB bacteria in a new way so that people with strains of TB that had developed resistance to existing drugs could also be treated. This is the goal of **Yuk-Ching Tse-Dinh, Ph.D.,** professor of biochemistry and molecular biology. With support from the Global Alliance for TB Drug Development (TB Alliance) since May 2009, she is studying whether inhibiting an M.tb. enzyme, topoisomerase I (Topo I), would kill the bacteria. The researcher is developing methods to identify Topo I inhibitors, which could then become the basis for new drugs that could be used against both drug-sensitive and drug-resistant TB.

"One of our goals at the TB Alliance is to stock the TB drug pipeline with promising and innovative research projects, such as the work with topoisomerase I inhibitors being conducted in partnership with Dr. Tse-Dinh's team," said Zhenkun Ma, Ph. D., TB Alliance's chief scientific officer.

College experts concur. "One-third of the world's population is infected with M.tb.," observes Gary P. Wormser, M.D., director of the Division of Infectious Diseases and vice chairman for research in the Department of Medicine. "Drug discovery for TB has been far too slow and unproductive, and a novel drug to treat TB that is both safe and effective would be most welcome."

Yuk-Ching Tse-Dinh, Ph.D., professor of biochemistry and molecular biology, is investigating the role of an enzyme, topoisomerase I, as a weapon against Mycobacterium tuberculosis, which has been mounting a distressingly powerful resistance to the current arsenal of drugs being deployed against it.



The plates at left and below show type I and type II topoisomerases, enzymes that assist the unwinding and rewinding of the DNA spiral. At left, diagram shows the type I topoisomerase making a break on one strand of DNA and passing another single strand through the break. Below, type II topoisomerases can pass a double strand of DNA through with breaks in both strands. ***Jocelyn E. Krebs, Elliott S. Goldstein, Stephen T. Kilpatrick, Lewin's Essential Genes, 2010: Jones and Bartlett Publishers, Sudbury, Mass. www.kbpub.com. Reprinted with permission.***

Controlling DNA

For any living cell to divide and multiply, the tightly coiled double helix spiral of DNA must unwind, separate, reproduce, and then rewind. The strands of DNA must also separate to allow the synthesis of RNA. Topoisomerases are enzymes that facilitate this unwinding and rewinding by cutting the strand of DNA and then, at the end of the process, connecting it again. Type I topoisomerases, including Topo I, cut one strand of the helix, while type II cuts both strands. Some well-known antibiotics and cancer drugs operate by interfering with the activities of topoisomerases. For example, the broad-spectrum fluoroquinolone antibiotics such as Cipro® disrupt the function of bacterial type II topoisomerases, killing the bacteria.

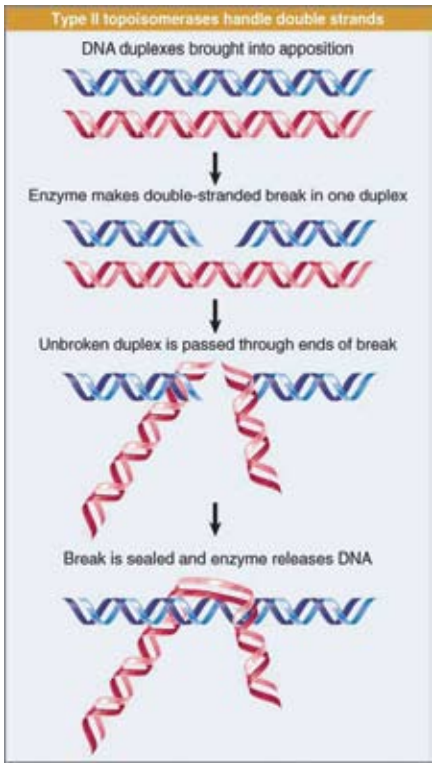
Dr. Tse-Dinh, who is considered the leading world expert on bacterial Topo I, first became interested in the enzymes that control the function of DNA while an undergraduate at Hollins University in Roanoke, Va. She pursued her Ph.D. in biological chemistry at Harvard University with James C. Wang, Ph.D., who discovered the first DNA topoisomerase, E. coli Topo I. Since that time she has focused her research on the structure, function and regulation of Topo I. In 1988, she was recruited by Dr. Isidore Danishefsky, chair of Department of Biochemistry and Molecular Biology, which was aiming to establish a research laboratory in her field.

"A major research goal of my group," says Dr. Tse-Dinh, "is discovering antibacterial compounds that work against bacterial Topo I." This would be a first, she claims—no such compounds have been identified by any other researcher. In 2005, Dr. Tse-Dinh and her team demonstrated that bacteria are rapidly killed when they produce mutant varieties of Topo I that mimic the effects of inhibiting the enzyme's ability to rejoin DNA. They began using M.tb. Topo I as a model for studying how the enzyme functions, and she was struck by its therapeutic potential against TB.

"I presented my research results and ideas to the TB Alliance, and they agreed to work with us to pursue M.tb. Topo I as a therapeutic target," says Dr. Tse Dinh. The need for new drugs was never more clear to her than when she heard presentations on the global impact of TB at a scientific conference at Oxford University last summer. In countries such as India and South Africa, where the disease is rampant, many people with TB cannot afford the time or money to travel to a distant hospital, relying at best on local clinics. The consequences of faulty treatment and quickly spreading disease are human and economic devastation.

Toward a faster, more effective drug

Dr. Tse-Dinh and her team are currently working to develop an automated screening method that can rapidly sort through tens of thousands of compounds to detect potential Topo I inhibitors. These inhibitors will be evaluated for their effectiveness against the purified M.tb. Topo I enzyme, using additional biochemical assays. The research is going well, and early next year Dr. Tse-Dinh will be discussing renewal of the partnership with the TB Alliance, as well as possibly seeking support from the NIH.



"Drug discovery for TB has been far too slow and unproductive, and a novel drug to treat TB that is both safe and effective would be most welcome."

– Gary P. Wormser, M.D.

"We have data that indicate treatment with Topo I and Topo II inhibitors in combination therapy may be synergistic, possibly speeding up treatment."

–Yuk-Ching Tse-Dinh, Ph. D.

One major benefit of a TB drug based on inhibiting Topo I would be that the mode of action is new, so TB bacteria would not have developed resistance to it. But Dr. Tse-Dinh also believes that such a drug could be faster and more effective than current drugs. She has shown that when E. coli bacteria face high temperatures or oxidative stress, Topo I is involved in turning on the genes that respond to this stress. If the same holds true for M.tb., then a Topo I inhibitor would have an additional method of attacking the deadly bacteria during the body's response to infection. Moreover, some quinolone antibiotics, which target Type II topoisomerase, are already being used as second-line drugs for MDR-TB. Says Dr. Tse-Dinh, "We have data that indicate treatment with Topo I and Topo II inhibitors in combination therapy may be synergistic, possibly speeding up treatment."

Dr. Tse-Dinh had been working closely on this project with the TB Alliance, which has the largest TB drug pipeline in the world. Its network of research partners allows for a smooth flow throughout the drug discovery process, something much appreciated by scientists who do not have to assume the burden of finding the appropriate laboratory or institution to take their research to the next step. In this case, after the Topo I inhibitors are identified and validated against the purified enzyme in Dr. Tse-Dinh's laboratory, the TB Alliance could arrange for studying the action of the successful inhibitors on the entire M.tb. organism and in animal models of TB.

TB and beyond

The journey from molecular and biochemical research to a proven drug takes many years and billions of dollars, all the more so with a disease like TB, with its torpid bacterial growth rate and lengthy treatment protocol.

But with the possibility of a Topo I inhibitor drug showing promise, Dr. Tse-Dinh takes the long view. Without her years of basic research and studies on the biochemistry of topoisomerase, she emphasizes, she would not now be in a position to pursue drug discovery. And with drug-resistant bacteria a growing problem in many infectious diseases—think of methicillin-resistant Staphylococcus aureus (MRSA) —she hopes her work will inspire researchers to explore the potential of bacterial Topo I as a model target for other diseases.

It takes a tough researcher to do battle with drug resistant TB, and Dr. Tse-Dinh (front and center) relies on her hardworking team of associates to keep up the fight. From left are Ph.D. candidates I-Fen Liu, Gagandeep Narula, Sandra Aedo and Jeanette Sutherland. To the right of Dr. Tse-Dinh are Jennifer Becker, research technician, Arasu Annamalai, Ph.D., postdoctoral fellow, and Bokun Cheng, M.S., research associate.

College Lab Grows the First Seed for the New Swine Flu Vaccine

The CDC sent Doris Bucher, Ph.D., traces of a novel influenza virus. In 23 days she had turned it around for production, and now the NYMC vaccine is on the job, shielding the world from the latest influenza pandemic.

By Marjorie Roberts

Influenza pandemics are the earthquakes of human health. No matter how closely they are studied, there is no accurate way to predict when they will recur. And there is no way to prevent the death and destruction that ensue when the Richter scale trips past five, although proper construction, like vaccination, could mitigate disaster in both instances.

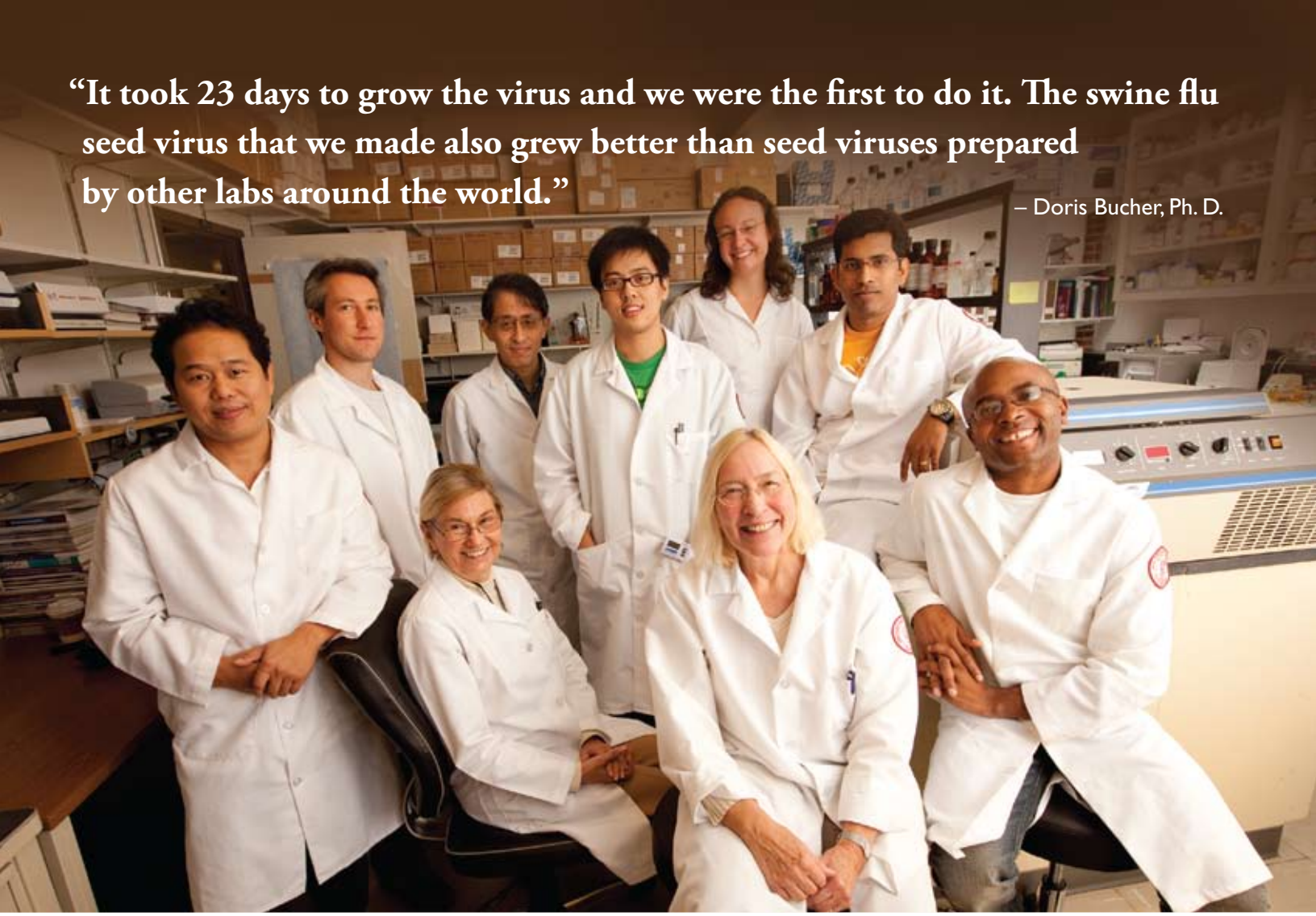
Each year, the CDC selects strains of seasonal influenza virus for development of vaccine "seed" strains by a microbiology laboratory at New York Medical College, where the viruses are reassorted, cloned, amplified and eventually shipped to manufacturers that supply the entire world population. This seasonal vaccine must be remade each year because the influenza virus, which annually kills 36,000 in the U.S. alone, has one of the highest mutation rates of any pathogen. But without warning, the genome may change, resulting in a virus capable of producing infection that reaches every population on earth. **Doris Bucher, Ph.D.,** the associate professor of microbiology and immunology who directs the College laboratory, has spent her 40-year career studying influenza, preparing for a pandemic she knew would come. Now that it has, she fully expects the influenza vaccine her laboratory has developed—Novel A(H1N1), still occasionally referred to as the swine flu—to save many lives.

Naysayers don't agree

If only it were that easy. Initial surveys in the fall indicated that only 50 percent of adults said they would get the swine flu vaccine, although 75 percent reported they intend to take their children for the injections or nasal spray vaccine.

"It took 23 days to grow the virus and we were the first to do it. The swine flu seed virus that we made also grew better than seed viruses prepared by other labs around the world."

– Doris Bucher, Ph. D.



The cheerful team of scientists who populate Doris Bucher's laboratory appear none the worse for wear after developing the 2009 H1N1 vaccine seed virus to control the swine flu pandemic in little more than three stressful weeks. But it's old hat to Dr. Bucher, seated front center, and Barbara Pokorny, lab supervisor, seated left, who have been working on influenza vaccines their entire careers. Surrounding them are Jianhua Le, Ph.D., research assistant professor; Alex Fulvini, Ph.D. candidate; Shiroh Onodera, Ph.D., research associate; Yu (Arthur) He, Ph.D. candidate; Jean Marie Silverman, M.S., research technician; Manoj Kumar, Ph.D., D.V.M., research associate, and Rene Devis, Ph.D., research assistant. Not pictured is Ph.D. candidate Jennifer Arroyo.

In recent years, the seasonal flu shot has become a high public health priority for healthcare workers, children, pregnant women and those over 50. These recommendations go beyond the original target populations of the elderly and those with chronic or life threatening diseases. But those in targeted groups that have been expanded through new regulations and precautionary requirements don't seem to be rushing out to be immunized, and the parameters keep changing for priority in the swine flu vaccination.

It was 1976 the last time a pandemic was predicted, and that time it didn't happen. But don't push your luck, Dr. Bucher say. She ticks off what everyone needs to know about this year's swine flu model:

- The seasonal flu shot that has been available since September is 60 to 80 percent effective in reducing your chance of getting the flu.
- You cannot get the flu from the injected vaccine, which is made with a killed virus, not a live one. The nasal spray relies on a live virus, and therefore is not recommended for use by pregnant women or children less than 2 years old. The 1976 swine flu "epidemic" that never was did result in a small number of cases with complications from Guillain Barre syndrome after vaccination, but to this day scientists do not know why the nervous system disorder occurred.
- In 2009 one of the greatest risks of complications is for pregnant women, who start out healthy and then develop pneumonia. A French research team has recently revealed that in France by October 2009, half the women who died from complications were pregnant. Yet there is a reluctance among pregnant women to get vaccinated despite the protection it also gives to the unborn baby. Since the thalidomide disaster of 1958-61, after which pregnant women were counseled to avoid pharmaceutical drugs of any kind, there appears to be some ambivalence to getting vaccinated, which is controversial in itself.

How it began

It was a routine workday in April of last year when Dr. Bucher began reading the ProMED bulletin she gets every day. The global electronic reporting system for outbreaks of emerging infectious diseases and toxins mentioned the finding of two unique flu strains around the Texas/California border, which the CDC was analyzing. The Mexican epidemic was well underway. Dr. Bucher immediately emailed several colleagues in the Influenza Division at the CDC including Nancy Cox, Ph.D., director, and Alexander Klimov, Ph.D., chief, and Xiyan Xu, M.D., team leader, Virus Surveillance and Diagnosis Branch, to offer "some really good reagents for making high yield reassortants. The CDC

called me and said, 'Why don't we send the virus to you?'" And so Dr. Bucher and her team were on the job, turning a flu virus into seed stock—a form of the virus that will grow rapidly in eggs so that drug manufacturers can use it to make hundreds of millions of doses of the vaccine.

She has classified all her seed strains made on her watch to begin with NYMC "in honor of the institution," she says. "It took 23 days to grow the virus and we were the first to do it. The swine flu seed virus that we made also grew better than seed viruses prepared by other labs around the world. The seasonal flu vaccine we made for 2009-2010 is called NYMC X-175C. The swine flu seed is NYMC X179A (a second generation seed is NYMC X-181). We are definitely making what's out there."

The 2009 swine flu virus has a complicated genetic history. Influenza viruses have eight segments, or genetic pieces of the virus. The 2009 swine flu has three segments originating from American swine flu, two from Eurasian swine flu, two from avian influenza and one from human flu. The NYMC swine flu vaccine seed viruses prepared by reassortment are attenuated (tamed) viruses with three segments from the original 2009 swine flu isolate, and five segments from a virus isolated in 1934, one that allows the virus to grow well in eggs, an old fashioned but reliable medium that Dr. Bucher still prefers.

The master mentor

She learned much of what she knows from the so-called "father of the flu," Edwin D. Kilbourne, M.D., emeritus professor of microbiology and immunology, who developed the first genetically engineered vaccine. Dr. Bucher went to work for Dr. Kilbourne to develop influenza vaccines at the department of microbiology he founded at the Mount Sinai School of Medicine in New York City. "At the time I had three other offers," she recalls, "but Kilbourne's work seemed to be the most important—especially since I had just recovered from an awful case of the flu! He was interested in my expertise in developing a vaccine consisting of purified proteins." In 1987 she was recruited by the College's Department of Microbiology and Immunology. Five years later she persuaded Dr. Kilbourne, already elected to the National Academy of Sciences, to join up, too.

"The flu vaccine manufacturers asked me if I would keep things going," she says, "if and when Dr. Kilbourne decided to retire." That he did in 2002, but he still keeps a hand in by advising on all matters of the flu. In May he was keynote speaker at the New York Academy of Sciences symposium "Human Swine Flu (H1N1) and Novel Influenza Pandemics" that Dr. Bucher organized in New York City.

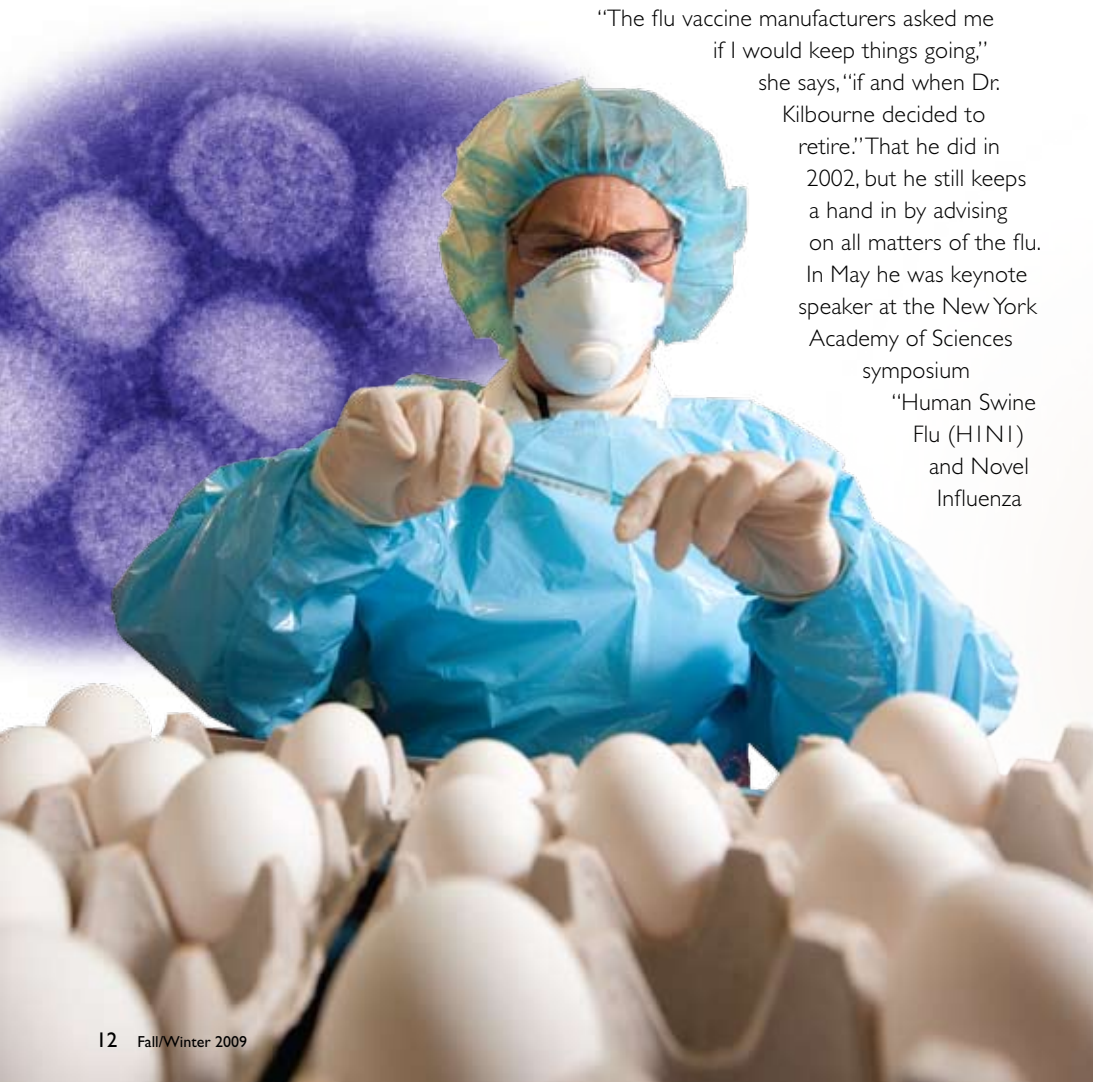
Anyone glancing through the door window into Dr. Kilbourne's lab during his tenure may remember seeing a woman swathed in white, seated at the bench with an egg in one hand and a syringe in the other. She is Barbara Pokorny, who had been Dr. Kilbourne's assistant since he was at Mount Sinai. Decades later in her current position as lab supervisor, she is still developing flu reassortants in those special eggs. "The virus grows in the cells of the allantoic cavity of these specific pathogen-free eggs," Dr. Bucher advises. "They cost $4.25 an egg and we go through 30 to 90 eggs a week."

Others in the Bucher lab include Jianhua Le, Ph.D., research assistant professor; Jean Marie Silverman, M.S., research technician; Manoj Kumar, Ph.D., D.V.M., who performs gene analysis on reassortants, and Rene Devis, who assists in gene analysis. The laboratory is underwritten by IFPMA, a consortium of influenza vaccine manufacturers with headquarters in Geneva.

Model of responsibility

Dr. Bucher and her team were slightly shell-shocked from the crisis and were extremely tense for months. "We didn't know how bad it would be and we wanted to get this vaccine out to protect the population. Everyone in the lab was feeling intense pressure," she says. Having been the department course director of medical microbiology for 14 years, she perhaps handled the stress better than the others. "The virus is always changing and always a challenge. There is no other vaccine that is changed every year," she states. "Once we were successful in developing the virus reassortant seed, we continued to improve the virus, resulting in a second generation seed that grew twice as well as the original."

With her time of crisis passed, Dr. Bucher can only hope that the vaccine manufacturers will be able to increase the H1N1 supply to match the demand, whatever that ultimately turns out to be. Not that she can ever stop worrying about the flu altogether. Her lab has already started the process that will produce the seed for the 2010 seasonal influenza vaccine.



Lab supervisor Barbara Pokorny has been injecting eggs with flu viruses since the 1970s, working first with Dr. Edwin Kilbourne and continuing with Dr. Doris Bucher. The entire team felt the pressure last summer while pandemic fears mounted and the world awaited a viable vaccine.

Albert B. Lowenfels, M.D., IS GOING STRONG at 82

Surgeon, teacher and researcher, he is currently P.I. for two epidemiology studies. Ready to retire? *"Maybe"*

By Marjorie Roberts

To all appearances, Al Lowenfels is a soft spoken gentleman of few words and cares. That may be true, but in the 82nd year of his life, when most his age have long been retired to indulge in pleasant pastimes and playing with their grandchildren, Albert B. Lowenfels, M.D., is still doing what he's always done. One of the first things he does at least one day a week is to walk seven miles roundtrip to the New York Medical College campus from his home in Thornwood. He prefers to make the return trip while it is still light outside because "I have to pass through two graveyards," he says with a twinkle in his eye.

Once he is settled in the fifth-floor cubicle in Munger Pavilion that he built himself over one weekend, he methodically turns to the issues that induced him to stop practicing general surgery 19 years ago. Teaching and research had captured his fancy, while the liver and pancreas, and the disease of alcoholism, became the objects of his most devoted intentions. Indeed, in his built-in office, which is as tight and efficient as a ship's stateroom, Dr. Lowenfels is the proverbial happy clam. The cabinets, pullouts and drawers, holding the repository of his life, are all he needs to work and continue to thrive.

No loss for words

When he speaks there is no searching for a word, no lapse of memory, no matter how long ago the incident took place. So it goes for a major medical conference he conceived a decade ago to celebrate the turn of the century—an event that turned out to be a smash hit and positioned the College as the region's biomedical academic powerhouse. It was his idea to have eight illustrious scientists come and lecture to New York Medical College students, who were excused from classes for the day.

"I wrote a note to everyone [I invited] and said, 'Would you like to come to our millennium conference?' It didn't say anything about compensation, yet everyone said yes. I was surprised," he admits. "Medicine at the Millennium" was held at a large performance hall at a neighboring undergraduate university to accommodate all

the students, faculty and guests who came to hear the likes of Luc Montagnier, M.D., co-discoverer of the virus that causes AIDS, and David A. Kessler, M.D., J.D., dean of the Yale University School of Medicine and former commissioner of the Food and Drug Administration.

Need an idea?

Reinhard E. Zachrau, M.D., is professor of pathology at the College and the course director of pathology/pathophysiology, which runs the entire second year. He can attest to the original ideas that Dr. Lowenfels emits with ease, citing the Historical Clinical-Pathological Conference that is part of his course. A third-year student discusses the clinical aspects of a case concerning a person famous in a previous century, presenting the findings to the entire second-year class. James Joyce was dissected last year in the day-long event that evinces the progress made in treatment between the subject's century and this one.

"It was Lowenfels' idea and I jumped on it," says Dr. Zachrau. "He has a researcher's mind. He's known internationally. And he is very interested in education." Perhaps his grammar school experience primed him to make education an important part of his life. With a brief shake of his head, Dr. Lowenfels reveals that from kindergarten to fourth grade he attended a one-room schoolhouse in the Rosedale section of White Plains, N.Y. "I had 12 in my first grade class and only one in the fourth grade. We were lucky to have a blackboard!"

> "He has a researcher's mind. He's known internationally. And he is very interested in education."
>
> – Reinhard E. Zachrau, M.D.

Interests change

A native of New Rochelle, N.Y., Dr. Lowenfels received a B.S. in chemistry from the University of Vermont, and his M.D. from the New York University School of Medicine. He interned and did his surgical residency at Bellevue Hospital, opening a private surgical practice in 1959 that "was mostly abdominal," he says. "I always had a lot of patients with ruptured spleens. We had to make a diagnosis without the benefit of a CT-scan. A few of us put together a report on what we had learned—to put a patient flat on the back, with the knees pulled up. After tilting the table, any blood there would cause pain to be referred to the left shoulder.

"This turned into a study of five or six patients, which I wrote up and sent to the *New England Journal of Medicine*. This was my first paper in the NEJM. I was still in private practice, but the experience made me decide it was much more exciting to be teaching and doing research…It was too bad I had majored in chemistry before there was DNA. I might have stayed with chemistry but there were no role models." What he did do was join Westchester County Medical Center, where he became associate director of surgery in 1966, and director of surgical research in the Department of Surgery at the College one year later.

Success turns his head

"Westchester was a rough and ready place when I first came here," he says with a grin.

The College made him a full professor of surgery in 1979, and two years later tapped him as professor of community and preventive medicine. Dr. Lowenfels taught medical students in every year of undergraduate and graduate studies, plus master of public health candidates in the Graduate School of Health Sciences, now the School of Health Sciences and Practice. The stunning range of topics he has taught includes biostatistics and epidemiology, surgical diagnosis and the history of medicine.

Through the years Dr. Lowenfels took on other assignments, such as director of surgery at Westchester Community Health Plan, an HMO,

and a stint at the International Agency for Research on Cancer. He found himself gravitating more to research, having decided "there is not much difference between research and teaching. Research is discovering things and teaching is helping others learn through discovery." He proceeded to reinvent himself into a scientist who succeeded in having 18 articles printed in the *New England Journal of Medicine* alone.

Since 1966, the Christopher D. Smithers Foundation, Inc. has given Dr. Lowenfels and the College nearly $1 million in grants. Many of the studies were centered on the pancreas as he investigated the epidemiology of alcohol-induced acute and chronic pancreatitis and cancer. In 1985 Solvay Pharmaceuticals, which recently became part of Abbott Laboratories, began funding his unrestricted research on pancreatic disorders and his reputation grew as an expert on one of the deadliest of all cancers. Still, he investigated whatever interested him, such as the large study he led on the risk of cancer among patients with cystic fibrosis. He presently has two active projects—the relation of the ABO blood groups to pancreatic cancer, and the link between the growth rate of polyps to colorectal cancer. He projects another year to finish these studies, and then, who knows?

With a "young wife" of 81, four children and a grandson who is in his second year of medical school, Al Lowenfels is living every day his way; last August he went on a walking tour of Ireland. When he is pressed to say something salient about life, death or the future, he prefers to quote Woody Allen: "I'm not worried about death. I just don't want to be there when it happens."

Leading Edge

(continued from inside front cover)

The team conducted a trial on SCI-induced rats to determine the proper location and optimal target volume of SXI to improve functional recovery. Because of the precision of SXI, researchers also wanted to determine the optimal region of administration to produce the most effective response in the rats' rehabilitation.

SXI was administered 20 minutes following the injury with a radiation beam centered on or close to the injury site. The team evaluated SXI efficacy on motion recovery, using a locomotor scale, by examining spinal cord function six weeks following treatment of the injury. The greatest increase in locomotor recovery was observed with SXI centered at 4-mm rostral to (above) the point of the injury. This location also resulted in the greatest level of tissue sparing following the procedure.

The authors concluded that their results indicate that SXI in a region several millimeters rostral to the injury is most critical for locomotor recovery, and that optimizing this treatment may lead to a therapeutic modality for spinal cord injuries suitable for use in battlefield conditions.

"Optimal Therapeutic Target for Stereotactic X-irradiation in Experimental Spinal Cord Injury." Paper presented at the Military Health Research Forum, a scientific meeting hosted by the Department of Defense Congressionally Directed Medical Research Programs, on Sept. 1, 2009.

Midlife weight gain in some women may be caused by insulin resistance

Progressive weight gain that starts in the fourth and fifth decades is commonly reported by women from all ethnic and socio-economic groups. Current data suggest that, in large and diverse sub-populations of healthy-appearing women, this midlife weight gain may represent the earliest clinical manifestation of insulin resistance, evidenced by increased insulin response curves in the presence of normal glucose tolerance tests. **Harriette R. Mogul, M.D., M.P.H.,** associate professor of clinical medicine and Director of Research in the Division of Endocrinology, coined the term Syndrome W to highlight its defining triad

(continued on page 32)

CALENDAR OF EVENTS FOR 2010

JANUARY

16th Annual Author Recognition Sherry

Health Sciences Library

Tuesday, January 12

Dean's Research Award and Lecture

Medical Education Center Nevins Auditorium

Thursday, January 21

FEBRUARY

Medical Student Research Forum

Medical Education Center Nevins Auditorium

Thursday, February 4

MARCH

Match Day

Medical Education Center Atrium Lobby

Thursday, March 18

Alpha Omega Alpha Visiting Professor Lecture

Medical Education Center, Nevins Auditorium

Wednesday, March 24

APRIL

National Public Health Week

School of Health Sciences and Practice

April 4-9

Graduate Student Research Forum

Medical Education Center

Wednesday, April 7

Student Physician Awareness Day

Maria Fareri Children's Hospital at Westchester Medical Center

Thursday, April 22

MAY

Alumni Reunion Banquet

Sheraton Hotel and Towers New York City

Saturday, May 22

Alumni Reunion Luncheon

Valhalla Campus

Sunday, May 23

151st Commencement

Carnegie Hall

New York City

Wednesday, May 26

SUPPORT NEW YORK MEDICAL COLLEGE

This year, as we begin celebrating the College's 150th anniversary, we invite you to join the many benefactors who are working to maintain the College's tradition of excellence in the 21st century by investing in the Annual Fund.

Expand Educational Opportunities

Each year, our students assume an increasingly heavy financial burden as the cost of a first-rate health sciences education skyrockets. Your gift will strengthen our tradition of reducing financial barriers for many talented and deserving students.

Enhance Academic Leadership

New York Medical College boasts some of the brightest minds working in health sciences education and research today. Your gift will provide the resources needed to continue to develop this stellar academic team.

Transform Medical Education

Having access to the latest tools and technologies is essential for training top-flight professionals. Your gift will prepare tomorrow's healthcare professionals for the challenges and opportunities of 21st century medicine.

Invest in Campus Infrastructure

The resounding success of the Medical Education Center and recently renovated Basic Sciences Building lobby demonstrates the key role that beautiful and innovative facilities play in creating a desirable academic environment. Your gift will help to improve and maintain campus facilities at a competitive level.

Please make a gift today. Your support could have an extraordinary impact on the College's future.

READER SURVEY

In our last issue of *Chironian*, we ran the following survey of habits, tastes and preferences of you, our readers. Your responses were very enlightening, and will be used to improve the magazine and give you more of what you like to see in the magazine. We are extending our response deadline for the *Chironian* Reader Survey, and adding an online option so we can incorporate even more of your responses into our editorial planning. If you'd like to complete your survey online, go to **http://www.surveymonkey.com/s/TJFGFDL**

1. Why do you read *Chironian*? (Rank in order of importance)

_____ News about alumni

_____ News about the College, its activities and progress

_____ News about students, faculty, leadership

_____ Trends in research and medical education

_____ The "State of the University"

_____ Other _____

2. How much of each issue do you read?

_____ Read it cover to cover

_____ Read or skim about half the articles

_____ Read only what interests me

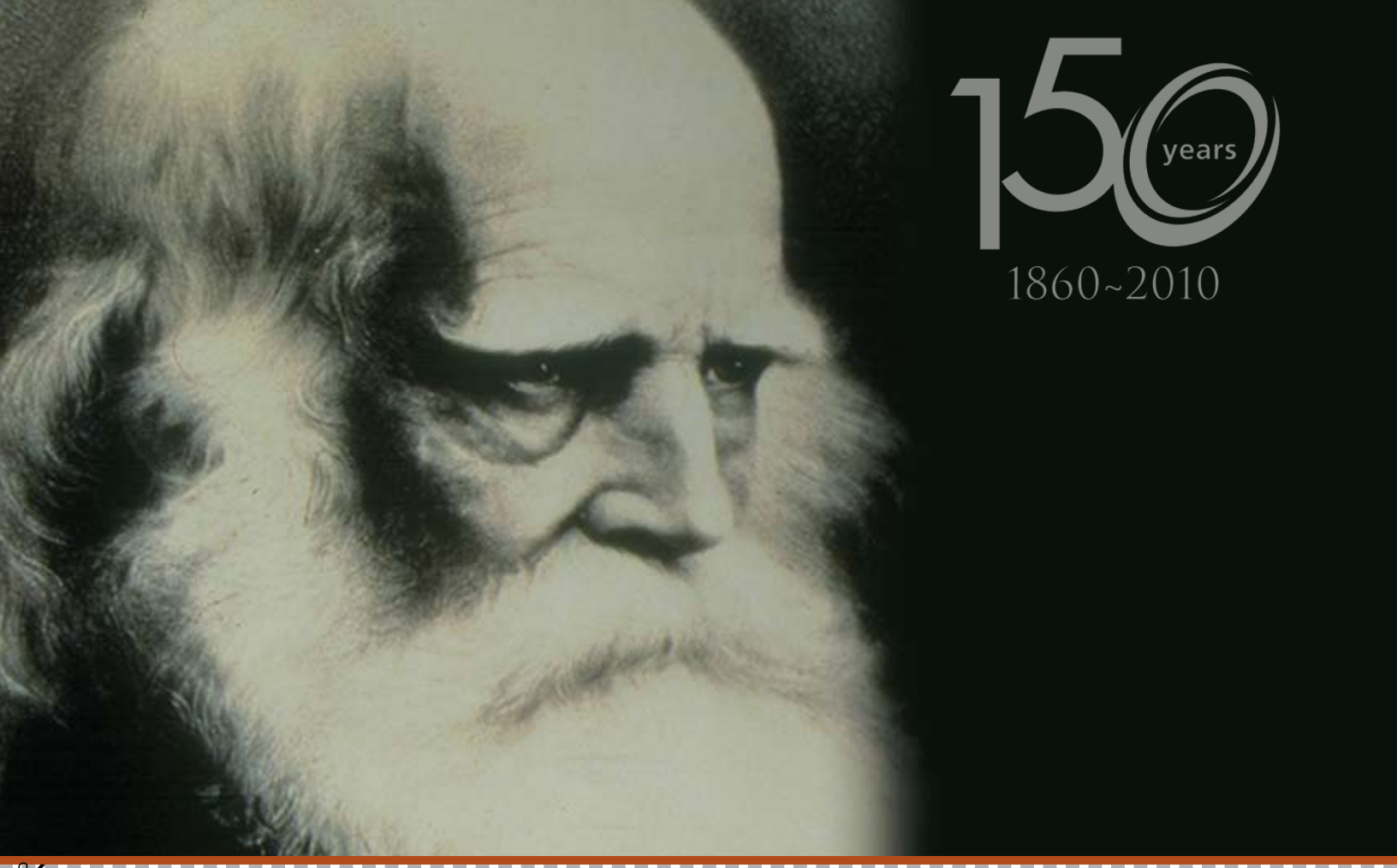
_____ Read only about people I know

_____ Don't read it

3. Please rate how much you agree or disagree with the following statements:

	Strongly Disagree		Neutral		Strongly Agree
	1	2	3	4	5
The articles are interesting and informative					
The layout and design make it easy to read					
The magazine keeps me up to date on alumni					
The magazine keeps me informed about College current events and the state of the University					
The magazine is one way to learn about trends in research and medical education					
The articles provide a good balance of the technical and the personal					

(continued on reverse)



SURVEY *(continued from other side)*

4. Please rank from 1 to 5 which sections of *Chironian* interest you the most (1= most interest, 5= least interest)

_____Research articles

_____University news

_____Personality profiles

_____Student features

_____Alumni news

_____Milestones

5. On a scale of 1 to 5 (1= very well, 5= not well at all) rank each of the following for how well *Chironian* keeps you informed about:

_____News about alumni

_____News about the College, its activities and accomplishments

_____News about students, faculty, or leadership

_____Trends in research and medical education

_____The "State of the University"

_____Other _____

6. What other topics or features would you like to see in *Chironian*?

_____

_____

7. Which best describes your relationship to New York Medical College?

__Alumni (Circle: Medicine, Basic Sciences, Public Health)

__Faculty (Circle: Full-time, Part-Time, Voluntary)

__Student (Circle: Medicine, Basic Sciences, Public Health)

__Staff

__Campus or facility (Circle: Main, WMC, SVCMC, Met, Other)

8. Comments

_____

_____

_____

_____

Respond to the Chironian Reader Survey today and let your voice be heard!

Revering the Human Spirit

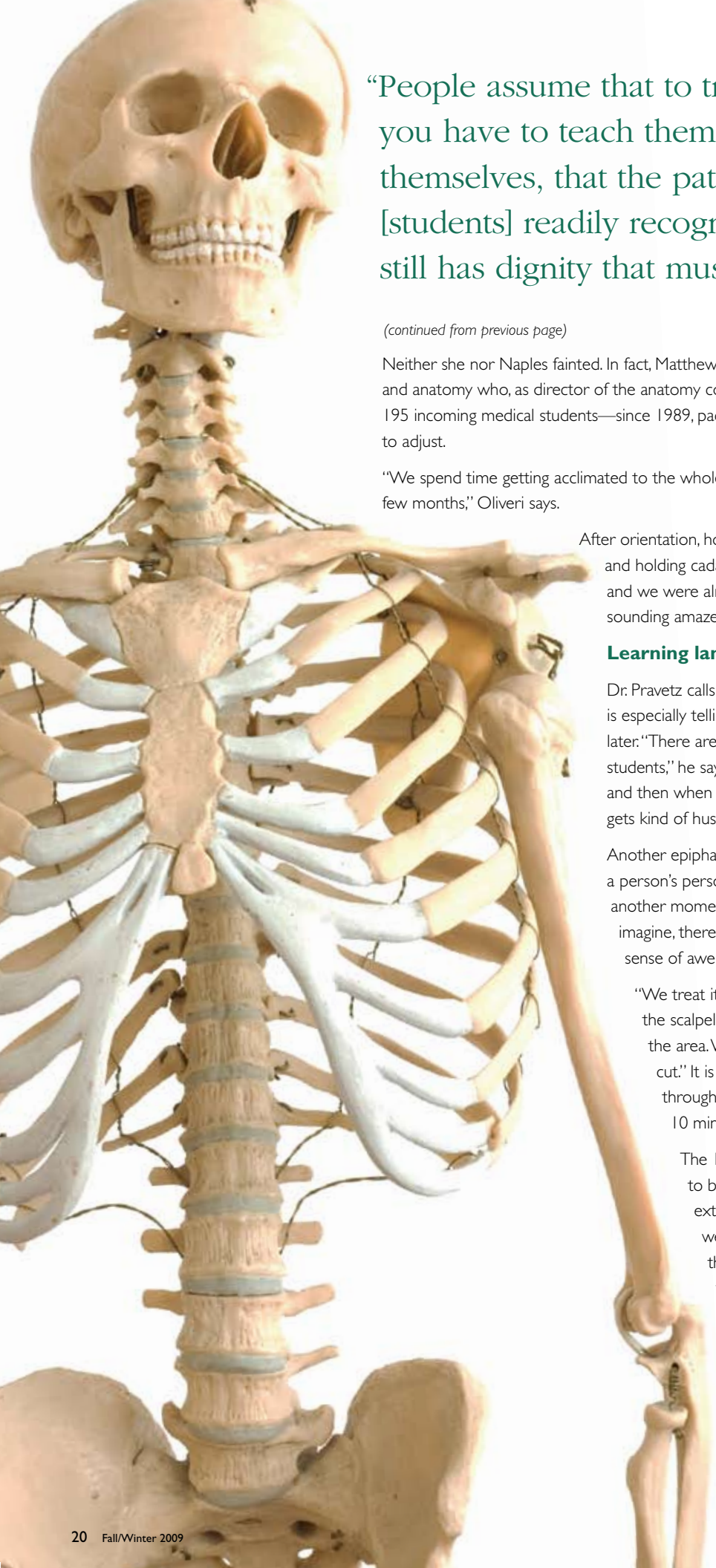
Students learn much more than the physical structure of the human body in their first-year gross anatomy course. They also learn about respect, dignity and the gift of being human.

By Andrea Kott, M.P.H.

What defines us, making us uniquely human and distinct from one another? For some, it is the intangible: our ability to reason, our capacity for empathy, our soul. For second-year medical students Bridget Oliveri and James Naples, it is also the physical: hands, feet and faces.

It has been a year since Oliveri and Naples first entered the Alumni Gross Anatomy Laboratory and met their "first patients"—human cadavers whose dissection provided their introduction to the human body. It is a hallmark event in the life of a medical student, one that conjures a little nervousness and fear, as well as fascination. Oliveri and Naples anticipated those emotions. What they did not foresee in the end was a personal connection to the cadavers and, ultimately, a sense of their humanity.

In the beginning there was some anxiety or, as Oliveri describes it, "a weird mix of excitement and trepidation." She recalls "the rush" leading up to orientation, when students—who work together in groups of four—meet each other and observe as assisting upperclassmen remove the shrouds that cover the cadavers. "They pull back the cloth and we meet the body for the first time," Oliveri says. She recalls thinking, 'I'm really excited, but am I going to be the one who faints?'"



"People assume that to train medical students you have to teach them to distance and separate themselves, that the patient is just an entity. But [students] readily recognize the fact that this person still has dignity that must be respected.

–Matthew A. Pravetz, O.F.M., Ph.D. '88

(continued from previous page)

Neither she nor Naples fainted. In fact, Matthew A. Pravetz, O.F.M., Ph.D. '88, associate professor of cell biology and anatomy who, as director of the anatomy course, has taught the class—each comprising approximately 195 incoming medical students—since 1989, paces the reveal gradually and sensitively so students have time to adjust.

"We spend time getting acclimated to the whole idea that this is what we're going to be doing for the next few months," Oliveri says.

After orientation, however, things pick up and by day 7 students are removing and holding cadavers' organs. "It didn't feel like we were doing it for that long and we were already holding the person's heart in our hands," Oliveri recalls, sounding amazed, still.

Learning landmarks

Dr. Pravetz calls certain milestones, like holding a heart, "epiphany events." It is especially telling, he says, that students recall them so vividly, a year or more later. "There are certain key times during the course that are so revealing to students," he says. "When they see the heart in the chest where it should be and then when they actually take it out and hold it in their hands, everything gets kind of hushed in the room."

Another epiphany experience is removing the brain, such an essential part of a person's personality, life and memories, and making their first incision is yet another moment never to be treated lightly. Dr. Pravetz explains, "As you can imagine, there is a lot of anxiety and tension." There is also a tremendous sense of awe.

"We treat it very reverently," he says. "We don't just say cavalierly, 'Pick up the scalpel and give it a cut.' We look at the whole person. We examine the area. We take the knife and gently and reverently make the first cut." It is a vertical incision in the chest, and although the blade cuts through less than one-quarter inch of skin, it typically takes students 10 minutes to complete. He says. "They do it with great respect."

The 14-week course is divided according to the parts of the body to be dissected—first the chest, then the abdomen/pelvis, then the extremities: arms, legs, head and neck. "By the end of the second week we have lungs in our hands," Dr. Pravetz says. By the end of the fourth week, the students are holding kidneys. In the seventh week they uncover the cadavers' hands and in the ninth week, the feet. Not until week 10 do they see the face.

There is a reason for this timing. The hands, feet and face are a person's ultimate signature. Their exposure puts an end to any dispassion or emotional distance the students may have managed to maintain and reminds them, often unexpectedly, of their own humanity.

"You see rough hands, smooth hands, bruised hands, calloused hands, manicured hands. One hand might have a little bit of nail polish on it," Dr. Pravetz says. "All of a sudden it brings back the person."

The face makes us human

Once the face is exposed, the entire feeling in the room changes. "All of a sudden things come to a stop," Dr. Pravetz says. "Now it's not just students looking at a cadaver's hands. Now they have a face-to-face encounter with that individual they've had the privilege of studying up to that point. All of this packs an emotional wallop."

Indeed, seeing the face of his cadaver changed what had been a purely academic exercise into a personally spiritual experience for Naples. "Before you see the face you're dealing with the body and it's easy to distance yourself," he says. "But when you see the face, that's when it becomes real."

This empathy and concern for their first patient's well-being is precisely what Dr. Pravetz is after. It is, after all, what sets the stage for the rest of the students' medical training. "There seems to be an assumption that to train medical students you have to teach them to distance and separate themselves, that the patient is just an entity," he says. "But students readily recognize the fact that this person still has dignity that must be respected."

That respect becomes evident in the caring, almost protective way in which the students relate to the bodies, Dr. Pravetz says. "I see out of the corner of my eye how they carefully wrap the person up or how gently they turn the body over," he says. It does not surprise him that students bond with their cadavers.

"You get pretty attached to your own person," says Oliveri, who named her cadaver Bernie. "Throughout the lab, I kept realizing that I was holding his hand, almost subconsciously. I think it was a little comforting for me—and somehow for him."

When Naples looks back on the year he spent in gross anatomy, he marvels over the generosity of the individuals who donated their bodies: "It is so amazing that people get to the point where they're willing to do that. It makes me realize how fortunate I am as a student."

Giving thanks

The students' gratitude to the donors and the donors' families is profound, and each spring they have the opportunity to express their feelings in a ceremony called the Convocation of Thanks. The ceremony, a memorial service of sorts, is student-created, comprising the recitation of original poems, reflections, and musical compositions that students perform in an attempt to convey their heartfelt appreciation. After the performances, which are held in the Nevins Auditorium before a capacity audience each year, the convocation moves outside for the ceremonial planting of a young tree in honor of the individuals whose donations of their bodies make the program possible.

The Convocation of Thanks does more than give students the chance to articulate their gratitude. It encourages them to reflect on what they have learned as budding physicians and, more important, to connect the educational with the emotional.

"It is difficult to take at face value Gross Anatomy as an educational tool without being in touch with the emotional and spiritual side of it," Naples says. "Both are important in helping us develop as future doctors."

School of Medicine

Keeping the Faith

For a doctor who is also an ordained minister, practicing medicine means healing body, soul and society.

By Melissa F. Pheterson

Photo by Jose A. Rios

Dr. Lucy Perez has the youthful vigor—and appearance—of a woman many years younger. Her passion for doing right by people impels her to take on challenges that ordinary folks might find daunting. Her six-year-old son JayCee came into her life on the wings of such a challenge.

As a physician, Lucille Norville Perez, M.D. '79, labors to heal broken bodies. As a minister, she tends to broken spirits with the same compassion and skill she brings to doctoring. And in trying to close the gap in access to affordable health care that persists between whites and minorities, she invokes herself as an example, a casualty of an unjust medical hierarchy.

"Both my parents died at 61," recalls Dr. Perez, a resident of Bethesda, Md., who has kept her Brooklyn accent. "My mother was a diabetic with chronic renal failure, blind and an amputee when she died—and she was a registered nurse!"

For Dr. Perez, who once served as national health director of the NAACP, mending healthcare disparities begins with instilling a sense of empowerment to vulnerable patients, whether they're battling chronic illness or entrenched poverty. Her passion for the task goes back many years to when she was a pediatric resident at Long Island Jewish Medical Center, where she treated children with leukemia and cystic fibrosis. "When a child looked up at me and asked, 'Am I going to die today?' it tore my heart out, and reminded me that I had to keep fighting for these patients," she says.

A fellowship at Mount Sinai Medical Center after her residency placed Dr. Perez in the vanguard of adolescent medicine, then a fledgling specialty. "This new idea that children could see their health provider alone, no parents in the room, was super spooky," she says. "Doctors were just arriving at the concept of teenagers as individuals."

In the early 1980s, Dr. Perez served as attending physician at Gouverneur Hospital in Manhattan, where she treated adolescents from a range of backgrounds: Asian, Latino, African-American. "I realized that to become a better doctor, I had to get rid of my personal biases," she says. "Underneath their different skin tones and modes of dress, all my patients struggled with the same emotions: stress, anxiety and the temptation to rebel."

As a consultant for New York City's Department of Health, Dr. Perez developed several programs for teenagers to address substance abuse, HIV/AIDS and pregnancy, including a "Teens and Tots" group for adolescent parents. She also helped start the city's first school-based clinics, noting firsthand the violence that plagued the public education system in poor neighborhoods.

In the minority

A growing awareness of the cards stacked against minorities inspired Dr. Perez to found the Cave Institute, a venture committed to eliminating health care disparities through research, ethics and advocacy. Cave was her mother's maiden name, and that of her medical family of three doctors, a registered nurse and a medical librarian. The family tradition and values are carried on by her daughter Nikki, 25, now a third-year medical student at Howard University who aspires to a career in orthopedic surgery.

Through Cave, Dr. Perez conducted surveys of faculty at historically black colleges and universities, highlighting pay and funding disparities in comparison with similar white institutions. She also brought clergy into discussions, noting that "faith leaders exert a significant influence on beliefs and attitudes in communities of color." Above all, she has tried to instill awareness among minorities of the obstacles that hamstring their lives.

When her older son Juan Carlos, now 30, was growing up, Dr. Perez showed him the neighborhoods of Park Slope, an affluent white enclave of Brooklyn, and Flatbush, a poorer minority section.

The contrast between the manicured gardens of the former and trash-ridden streets of the latter prompted him to ask his mother why blacks "don't get rid of their garbage." She asked him to count the garbage cans they saw in each district. "In Park Slope, there was one next to every bench. In Flatbush, we went blocks before we saw one," Dr. Perez says. "We must make clear to our children: 'This is not my culture, this is not my fault. This is political oppression, unfair and unjust. And I don't have to accept it.' This way, they're not paralyzed, but empowered."

After Hurricane Katrina left poor Gulf residents strapped for basic health services, Dr. Perez formed a coalition to provide emergency health care. She worked with the sitting presidents of black health professional advocacy organizations, and a host of civil and human rights groups. She tapped as her adviser Phyllis Harrison-Ross, Ph.D., professor emeritus of psychiatry, who taught her when she was a medical student. "In the autumn of my career, she's again instructing me," says Dr. Perez. A subcommittee of this coalition still meets twice a month to provide mental health services that to this day are still inadequate.

Since 2006 Dr. Perez has been the national medical director for UPRIS, a Cleveland-based company that specializes in health information technology delivered in a culturally appropriate manner to promote health literacy in patients. The African Methodist Episcopal Church (AMEC) uses UPRIS portals, with patient consent, to monitor the health of more than 6 million congregants. Health information, including culturally appropriate prevention messages, can be disseminated to congregants via a trusted AMEC portal.

Faith calls

Such ventures spring from Dr. Perez's intense faith in humanity to work toward repairing the world, perhaps inspired, as she is, by ardent religious beliefs. Her outgoing voice mail message proclaims: God is good, and he loves you. "I believe we are spirits having a bodily experience," says Dr. Perez, who in 2002 was ordained in the African Methodist Episcopal Church while serving as the 102nd president of the National Medical Association. In 2006 she adopted the son of a family friend struggling with mental illness. "I was asked to watch little JayCee for four days," she says, "and in December it will be three years."

To Dr. Perez, the spiritual beliefs of a patient—how often he attends church, his sense of something greater than himself—should carry the same weight as smoking habits or family history in a medical exam. Belief and faith are crucial to healing, she says, and "invaluable to the practice of medicine."

"You could be wasting resources on drugs, therapy or interventions that are not heeded, because they clash with someone's belief system," she says. "So if I don't explore deeper to tap that belief system, I haven't led you to a path of healing."

Photo by Jose A. Rios

Lucille Norville Perez, M.D. '79

Alumni

School of Health Sciences and Practice

Community Centered

Judith M. Watson, M.P.H. '07

Through hard work and compassion for health care rights, a nurse transforms from "on staff" to "in charge."

By L.A. McKeown

It's late afternoon on a chilly October day and Judith M. Watson, M.P.H. '07, still hasn't had lunch. Between meeting with representatives from a local hospital, dealing with staff issues, returning emails and telephone calls, working on applications for funding, preparing a report for the center's governing board and speaking with a reporter, her day as executive director of the Greenburgh Health Center in White Plains, N.Y., has been full, to say the least.

"It's crazy, but I love it," Watson says. "I'm one of those rare people who love what I do. I love waking up and going to work in the morning."

When Watson first walked through the doors of Greenburgh in 1994, she was a newly-licensed RN who felt she already had exceeded her own expectations. She had overcome a number of challenges in her early years and says she was not a typical student. After eight years at Greenburgh she was offered the executive director position, which she accepted—along with a whole new set of challenges.

"I'm very fortunate, but my getting this position is mostly the result of just plain hard work," she says. Watson credits her mentor and boss, Carole Morris, with helping her achieve her goals and encouraging her to believe in herself. Morris, who is the chief executive officer of the Mount Vernon Neighborhood Health Center Network, of which the Greenburgh center is a part, recognized the ambition and passion in Watson and offered support and guidance as she rose through the ranks, one position at a time.

Statuesque and upbeat, Judith Watson directs a neighborhood health center that revolves around the radical idea that health care is a fundamental right of every human being, regardless of their ability to pay.

"I have worked in each and every department in this health center," Watson says with a laugh. "I have a strong work ethic and I became that person who would do whatever was asked of her, whatever needed to be done at that moment in time." Watson also credits her three years of active duty in the U.S. Army and four more in the Reserves with helping her achieve a "stick with it" attitude and hone much-needed organizational skills.

Legacy of Community

As a satellite site of the Mount Vernon Neighborhood Health Center Network, the Greenburgh Health Center is one of the nation's 5,000 Federally Qualified Health Centers, or FQHCs. The center offers comprehensive, affordable primary health care services to its patients, about half of whom are uninsured and undocumented.

"We provide primary health care services regardless of ability to pay," Watson says. "The fee to see a provider is based on a sliding scale, but we don't turn anyone away based on ability or inability to pay. Even if they come in with no money on them, they would still be able to see a doctor that day." Due to widespread economic woes, Greenburgh has become particularly important for many people in the area who have lost jobs, and lost insurance, according to Watson. The center also accepts patients regardless of immigration status, a policy that many health care providers would prefer to avoid.

The Greenburgh center offers everything from pediatrics to internal medicine, along with dentistry and ophthalmology all under one roof. It also has its own lab to serve the more than 19,000 registered patients who make 92,000 annual visits to the center each year. Watson supervises a staff of 88, including providers, nurses, medical assistants and clerical staff.

Going further, wanting more

Getting the top spot was a major career achievement for Watson, who was only 34 years old at the time, but she didn't stop there. "Once I was sitting in this seat I realized I needed to go back to school and get my masters degree," she says. So, at the urging of several colleagues, including Vice Dean James O'Brien, Ph.D., who served with her on a community board, she enrolled in the Master of Public Health program at New York Medical College's School of Public Health (now called the School of Health Sciences and Practice).

Watson's graduating class was the pilot group for the capstone course, a culminating experience that offers a hands-on alternative to a thesis. Students are given an in-depth understanding of current and emerging areas of critical interest through the analysis of actual cases from the annals of public health practice. Watson says she was glad to opt for this alternative route to her degree. Today, she feels having gone through the Health Policy and Management track helped inform and broaden her views on the national health care debate.

Expansion and frustration

The need for community health centers is continually growing. Under the direction of her CEO Carole Morris, Watson has led Greenburgh in attempting an expansion project that would move them to a new, larger building and more than triple their functional space from 13,000 to 40,000 square feet. But the project has been fraught with obstacles, mainly due to members of the community who have objected to having a health center in their neighborhood, and who managed to stall the project for 5 years. By the time the approvals came, the budget had doubled from $10 million to a nearly unattainable $20 million.

(continued on page 29)

Lifelong Learner

A medical technologist's enduring interest in science and medicine has fostered a long career of healing and helping.

By Lynda McDaniel

Like most high school students in her hometown of Mars Hill, Maine, Lynn Bray, M.S. '01, kept an eye on fashion and the Central Aroostook basketball games. But unlike most of her friends, she enjoyed examining the frogs and earthworms in the dissection lab. Later, she jumped at the chance to watch an autopsy while majoring in medical technology at the University of Maine.

"A group of us went to the morgue at the Eastern Maine Medical Center in Bangor," Mrs. Bray recalls, chuckling over a favorite story. "The seminary students all left after one minute. The medical-tech students had their heads right down in it. For as long as I can remember, I've been interested in science and medical issues."

After graduating Phi Beta Kappa, Mrs. Bray began her long and peripatetic career as a medical technologist, working in labs in Colorado, Maine and Rhode Island, where she performed testing in chemistry, hematology and microbiology. By the late 1990s, she was ready to take her career to a new level while her family was intent on settling down. They moved to Ridgefield, Conn., where her husband, Jim, accepted a ministerial position.

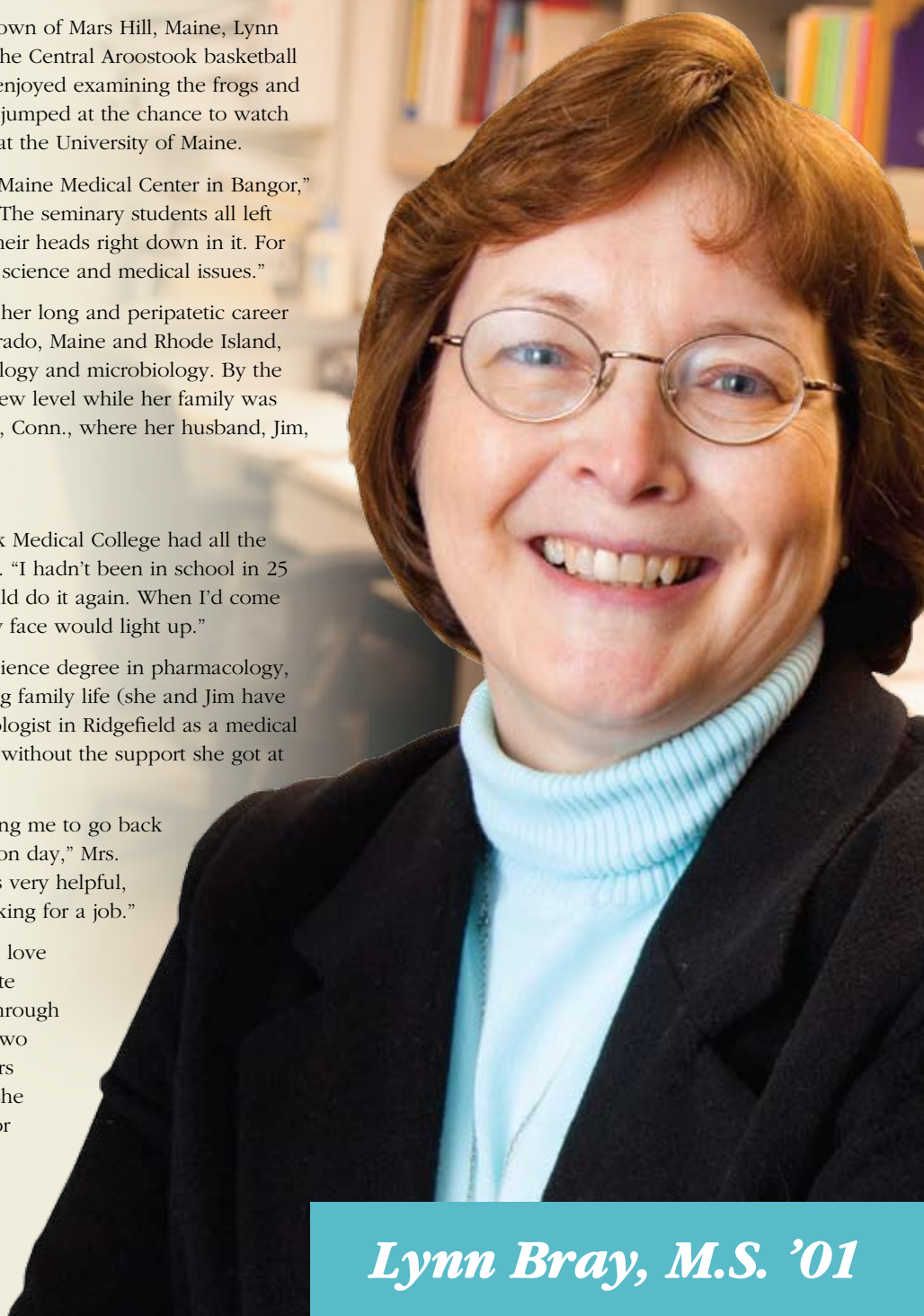
Back to school

"I looked around at several schools, and New York Medical College had all the medical sciences of interest to me," Mrs. Bray says. "I hadn't been in school in 25 years, so I took two summer classes to see if I could do it again. When I'd come home and tell Jim what I'd learned, he told me my face would light up."

It took her four years to complete her master of science degree in pharmacology, because in addition to her studies, she was juggling family life (she and Jim have two daughters) and a part-time job with a dermatologist in Ridgefield as a medical assistant. Mrs. Bray says she couldn't have done it without the support she got at home and on campus.

"Jim has always been supportive of me, encouraging me to go back to school. And the kids got so excited on graduation day," Mrs. Bray recalls. "Dr. Stier was my advisor, and he was very helpful, especially when I was nearing graduation and looking for a job."

"Lynn is the type of student that program directors love to work with," says Charles Stier Jr., Ph.D., associate professor of pharmacology. "She all but breezed through the pharmacology program. She was one of only two pharmacology master's students in the past 20 years to finish with a GPA over 3.92, and at graduation she was given the Graduate Faculty Council's award for academic excellence. It gives me great pleasure to know that she has done so well in her career."



Lynn Bray, M.S. '01

Ask and receive

While reading the *Danbury News-Times* six years ago, Mrs. Bray noticed an ad for a clinical trial in Danbury at the Clinical Research Center of Connecticut. Armed with her latest credentials and resume, she stopped by the clinic.

"I asked if they were looking for someone with my qualifications, and I've been there ever since," she says. "I know my master's degree helped me get the job. It also helped me understand the pharmacology of the drugs, their side effects, and the issues that patients deal with."

The Clinical Research Center performs Phase III clinical trials that could last anywhere from two weeks to three years. The director is Kenneth Miller, M.D., who practices rheumatology on site, treating diseases like rheumatoid arthritis, osteoporosis and fibromyalgia. Most of the trials are rheumatology related.

Mrs. Bray started as a clinical research coordinator, performing study visits according to specific protocols. Her job was to obtain informed consent, take medical histories and vital signs, and provide medication accountability, data collection and transcription, and query resolution. Last year, she earned a promotion to site manager/clinical research coordinator and now oversees the day-to-day operations of the research center.

Mrs. Bray considers the patients' welfare as her most important task. In addition to complying with all the FDA regulations—for example, the Code of Federal Regulations (CFR) or Good Clinical Practices (GCP)—she focuses on the participants and ensures that they understand what may lie ahead as they go through a trial.

As site manager, Mrs. Bray oversees as many as 10 studies at once and all the protocols for each study. It's a detail-rich job that includes reviewing all medications at every visit—right down to the aspirin they took last Tuesday or the vitamin C they swallowed to fend off a cold.

"Even if they stubbed a toe or had a car accident—it's important that we know anything that happened to them since we saw them last," Mrs. Bray adds. "Then Dr. Miller determines if that occurrence had any relationship to the drug in the study. We pass this information on to the pharmaceutical manufacturer so they can develop a list of possible side effects. Of course, even with 1,000 people in a trial, not every side effect will come out until the drug is on the market. To the best of our ability, we record all the side effects from the group we work with."

R&R from CFR

Mrs. Bray's life is not all science. She's close to her family, which is growing up fast. Sarah, their older daughter, is in her fourth year of medicine at the University of Pittsburgh. Rebekah is getting her master's degree in teaching foreign language at Wake Forest University in North Carolina. That leaves Mrs. Bray a little more time for reading, especially mysteries: "My work can be so intense that part of my home routine is to purposefully seek relaxation."

At day's end, the busy pace and the extra work to ensure the most accurate results are worth it if it helps people live better lives.

"I find it extremely gratifying when patients do well in trials and get relief. Fibromyalgia patients, for example, are ecstatic. They tell us that we've given them their lives back. They are pain free and can function in ways they haven't been able to. That's a wonderful feeling," she reveals.

For those who participate in clinical research studies supervised by Lynn Bray, her meticulous attention to detail helps keep them informed and protected. The fact that such clinical trials often lead to better and more effective treatments is an attractive bonus.

Milestones

'07

Josh Rubin, M.D. '07, is an anesthesiologist at St. Barnabas Medical Center in Livingston, N.J.

'06

Joshua Quick, M.D. '06, completed deployment with the 26th Marine Expeditionary Unit and has been assigned as a flight surgeon for the Marine Medium Tiltrotor Training Squadron 204, the "Raptors," as well as for the Marine Tiltrotor Operational Test and Evaluation Squadron 22, the "Argo Nuts."

'04

Michael G. Lewis, M.D. '04, a graduate of Fifth Pathway (now called the Pre-Internship Program), successfully completed his pediatric residency training at Nassau University Medical Center on Long Island. He is currently practicing pediatrics at Notchview Pediatrics in Clifton, N.J.

'02

Daryl Sulit, M.D. '02, has completed his dermatology residency at the Naval Medical Center in San Diego.

the90s

Matthew Deeter, M.D. '98, a trauma surgeon and U.S. Army Major, has been working with Doctors Without Borders in Baghdad, Mosul and most recently, Sri Lanka. Dr. Deeter and his wife, **Kristina Heer Deeter, M.D. '98,** and their two daughters will be moving to Miami when he returns. He plans to start a surgical critical care fellowship at Jackson Memorial Hospital, while his wife practices pediatric intensive care at Joe DiMaggio Children's Hospital.

Sushma Jois, M.S., '97, is a nutritionist for the Kingsland Dieticians Group in Katy, Tex.

Felix E. Shepard Jr., M.D. '93, is in a solo urology private practice in Norton, Va.

Elaine Klinge Schwartz, M.D. '90, is an associate professor of medicine at National Jewish Health in Denver. Dr. Schwartz's clinical responsibilities include pulmonary and critical care medicine. She is also involved in teaching residents and fellows. Dr. Schwartz is the mother of four "very beautiful and active children!"

the80s

Renee Kohanski, M.D. '87, continues to write columns for *Talkers* magazine, while husband **Philip Kohanski, M.D. '90,** is state champion for Connecticut pistol matches.

Andre A. Konski, M.D. '84, a radiation oncologist, is professor and chairman of the department of radiation oncology at Wayne State University School of Medicine in Detroit, and chief of radiation therapy at the Karmanos Cancer Center.

Richard Sturm, M.D. '83, a board certified ophthalmologist specializing in glaucoma and cataract surgery, is a partner at Ophthalmic Consultants of Long Island. Dr. Sturm has participated in the Mission Cataract USA program, offering free cataract surgery to residents of Long Island.

Jonathan D. Kunis, M.D. '82, is in his fourth year as assistant medical director at Healthcare Connection, a residential treatment center for chemical dependence in Tampa. Dr. Kunis, an addiction medicine specialist and internist, received board certification from the American Board of Addiction Medicine.

Keeping Athletes- Professional and Recreational -In Play

By Andrea Kott, M.P.H.

Stephen J. Nicholas, M.D. '86

Since he's a physician, saving a life probably could be regarded as part of the job—except that Stephen J. Nicholas, M.D. '86, was nowhere near his job last August when he resuscitated a youngster who'd been found nearly drowned, unconscious and blue.

"He had been under water for several minutes," Dr. Nicholas said of 12-year-old Scott Irwin, who hit his head on a jetty while boogie-boarding at a Long Island beach. "I cleared his airway and resuscitated him for eight to ten minutes before he responded. I was concerned we'd lose him." Not only did Dr. Nicholas save Scott's life—with his own five children looking on—he also resuscitated Scott's love for the ocean by taking the boy for a jet-ski ride a week later.

Opportunities for heroism are rare, and yet Dr. Nicholas seems to have a sixth sense for them. While jogging in Central Park one day in 1986, shortly after receiving his M.D. from New York Medical College, he revived a fellow runner who was having a heart attack. "It was my first day of being a doctor," he recalls. Since then, he has demonstrated his heroism dozens of times and in November received honors at a "Summer of Heroes" event at the Intrepid Sea, Air and Space Museum, where museum president Bill White and Nassau County Executive Thomas R. Suozzi commended him for his charitable work in New York City.

It is all part of the job Dr. Nicholas knew he wanted from the time he watched his father, the late James Nicholas, M.D., operate on the very famous knee of football star Joe Namath. The elder Dr. Nicholas, a prominent orthopedic surgeon credited with creating the field of sports medicine, cared for numerous top sports teams, including the New York Knicks and the New York Rangers. "That's how I became interested," the son says.

It was also his personal love of sports, his fascination with science and the body's mechanics, and the satisfaction of restoring an injured patient's ability to enjoy an active lifestyle that drew him to the specialty more than 20 years ago. "There is something great about taking care of somebody who comes to you with an injury and

wants to return to the way they were." says the surgeon, who observed his first knee operation at age five.

Dr. Nicholas talks fast. That could be because he divides his time among four practice locations and has a lot of ground to cover. He is a renowned sports medicine specialist—one of *New York Magazine's* "Top Doctors" for the past 10 years who has served as team doctor for the New York Jets, New Jersey Gladiators, New York Islanders, and professional roller hockey teams. He is also a recreational athlete who played football, baseball, hockey and basketball in college.

A native New Yorker, Dr. Nicholas earned his undergraduate degree from Harvard University. After medical school, he completed a residency in orthopedic surgery at the Hospital for Special Surgery and a fellowship in sports medicine at Lenox Hill Hospital, both in Manhattan. He has received numerous honors, including a spot in the National Football Foundation and College Hall of Fame. Founder and director of NY Orthopedics, Dr. Nicholas also directs the Nicholas Institute of Sports Medicine and Athletic Trauma at Lenox Hill.

There is no denying the thrill of caring for the high-profile bones and joints of a New York Jet. "Seeing an NFL running back run 1,500 yards or throw a ball 60 yards … you know you've done everything you possibly can when you see an athlete return to a high level of function," he says. At the same time, there is no missing Dr. Nicholas' fierce commitment to helping average recreational athletes maintain their active lifestyles. "What about the 60-year-old who likes to play tennis three days a week?" he points out.

"Athletics is something we want everybody to do," he continues. "If they're not able to do it because of some injury or defect in their body, it's up to us to help them maintain their quality of life."

Passionate as he is about sports medicine, however, Dr. Nicholas voices concern about the patients needing it most these days: school-age athletes. The growth of year-round, school-based team sports, along with a move toward encouraging youngsters to specialize and compete in a single sport, have increased the incidence of repetitive, potentially debilitating injuries at earlier ages.

Kids who play baseball year-round, for example, are throwing the ball more and suffering more overuse of arm muscles and ligaments because their bodies don't have time to heal, Dr. Nicholas laments. "Parents are coming in and asking to have their children operated on at an early age because they want their kids to become professional athletes," he says. "They want the Tommy John procedure so their kids can throw farther," describing an operation named for a Los Angeles Dodgers pitcher. The surgery reconstructs the ulnar collateral ligament (UCL) by using a tendon from the forearm to improve the stability of the elbow joint.

"We're operating on these kids at a much younger age than we used to," Dr. Nicholas says. "Fitness at an earlier stage is great, but specialization is beginning to take its toll." So, as he cares for younger and younger athletes, he also urges them to train in a variety of sports and athletic activities so they can stay active, and uninjured, longer.

The ultimate goal for this doctor-athlete is to keep his patients, whether amateurs or pros, on the field: "When they come back into the office for a checkup five months after I've fixed them—that's a tremendous sense of satisfaction."

Brian Solow, M.D. '82, is medical director for Prescription Solutions, a national pharmacy benefit manager headquartered in Irvine, Calif.

Alan J. Conrad, M.D. '81, an internist with the North County Internists Medical Corporation in Poway, Calif., received his master's degree in medical management from the Marshall School of Business at the University of Southern California.

Charles Paidas, M.D. '81, is dean for graduate medical education and executive associate dean for clinical and extramural affairs at the University of South Florida College of Medicine in Tampa.

William C. Reha, M.D. '81, M.B.A., was honored with the 2009 Clarence A. Holland Award, presented annually to a Virginia physician for outstanding contributions promoting the art and science of medicine and the betterment of public health through political service.

Lisa Borg, M.D. '80, board certified in psychiatry and addiction psychiatry, is a senior research associate and associate attending physician at the Rockefeller University in the Laboratory of the Biology of Addictive Diseases. Dr. Borg's areas of interest include the clinical neurobiology and genetics of addictive diseases. She is also clinical assistant professor on the voluntary faculty at Weill Cornell Medical School. Dr. Borg maintains a private practice on the Upper East Side of Manhattan. She has three children.

(continued on next page)

Judith M. Watson, M.P.H. '07

(continued from page 25)

"This is my biggest disappointment professionally," Watson says. "We spent years convincing people why we had to move forward and now the budget is all but out of reach."

However, under the American Recovery and Reinvestment Act (ARRA) of 2009, otherwise known as the government stimulus package, funds are being made available to a limited number of community health centers for expansion of services and infrastructure. Greenburgh has applied for a share of those funds to help them build their new center. "It's a long shot, but if we get it, it will be a major victory," Watson says. [At press time, she still had not heard the results of her application.]

Despite the many demands and pressures of her job, Watson says she couldn't see herself doing anything else. When she's not working, she's usually jogging or spending time with friends and her large, close-knit family, including 6-year old niece Dream, whom Watson calls "the light of my life."

While it's easy to become frustrated over the complex and problematic state of health care today, Watson says working at the Greenburgh Health Center satisfies her core belief that everyone is entitled to the same basic medical services. "Health care is the right of every human being," she asserts. "The fact that I'm part of an organization that makes that possible, that alone fulfills me."

Retirement Means Having More Time for Grandchildren and Theater

By Andrea Kott, M.P.H.

Joan P. Liman, M.D. '83, M.P.H. '93

When we last met Joan Liman (*Chironian* Spring/Summer 2005), her plate was already full. She was working as assistant dean and deputy to the medical director at Metropolitan Hospital Center, she was volunteering for Amas, a non-profit, multi-ethnic theatrical organization, and she was not quite five years along in her recovery from a mastectomy and chemotherapy for Stage 3 breast cancer. It was her second bout with cancer in 20 years—she was treated for Stage 4 non-Hodgkin's lymphoma in 1981.

An indefatigable survivor, Dr. Liman has a plate that is fuller than ever. Now retired from Metropolitan and the College, she has become president of Amas, as well as an occasional co-producer. She is the engine behind LimanAde Productions, a fundraising venture that features readings of original works at her New York City apartment. Rounding out her involvement in the arts, she works as a docent for the Museum of Jewish Heritage in Battery Park. Oh, and one more, very important thing. She is a new grandmother.

"Ryan Levi Gottlieb was born June 10, 2008," Dr. Liman says, heading off the question. Grandmotherhood moved Dr. Liman to retire more than a year ago, and when she is not visiting Ryan, she is co-producing one of Amas' upcoming productions. *Signs of Life: A Tale of Terezin* is a play about life in Theresienstadt, a Jewish ghetto set up by the Nazis in the former Czechoslovakia. "Theresienstadt, or Terezin in Czech, was where they gathered many Jews with an artistic bent," Dr. Liman said, explaining how the Nazis forced prisoners to produce shows to convince the public that it was merely an artist's colony.

The play originated nine years ago after its commercial producer, Virginia Criste, learned that her grandparents were on the last transport from Theresienstadt to Auschwitz, where they perished. When Criste initially visited Theresienstadt in the early 1990s, she found a makeshift museum with inhabitants' art hanging on the walls and rows of bulletin boards with exhibits of tickets and programs from performances. Criste envisioned a theater lobby filled with Theresienstadt remnants and that became the genesis for the show.

"This is a beautiful piece of theater and a story that must be told," Dr. Liman said. "There is a generation of school children and, sadly, adults

Milestones

(continued from page 29)

the 70s

Pearl I. Steinmetz-Herskovitz, M.D. '79, is director of the CT unit at Kaplan Hospital in Rehovot, Israel, where she has been living since 1986. Dr. Herskovitz's oldest son, Yaakov, is studying for his master's in Hebrew literature at Hebrew University in Jerusalem. Her second son, Netanel, who was injured in a suicide bomber attack in 2001, has been studying occupational therapy at Haifa University. Her daughter Re'ut (which means "comradeship") is in sixth grade.

Jennifer Thulin, M.D. '79, has been working in a private gynecology practice in the Boston suburbs for more than 25 years and would welcome any contact from classmates.

Philip A. Kern, M.D. '78, is director of the Barnstable-Brown Diabetes and Obesity Center at the University of Kentucky College of Medicine in Lexington.

Robert Broderick, M.D. '77, is an attending ophthalmologist at St. Francis Hospital and Island Eye Surgicenter and a partner at Ophthalmic Consultants of Long Island. Dr. Broderick participates in the Mission Cataract USA program, which offers free cataract surgery to residents of Long Island who cannot afford the surgery. Dr. Broderick is also on the Board of the American College of Surgeons Credentialing Committee, is a Fellow of the American Academy of Ophthalmology, the American College of Surgeons, and is a member of the American Society of Cataract and Refractive Surgery.

Scott Cutler, M.D. '77, is in his 28th year as a private practice, adult clinical psychiatrist in Worcester, Mass., and recently opened a second office in New York City. Dr. Cutler writes that daughter, **Beth Cutler, M.D. '06,** is starting her fourth year of a general surgical residency at St. Luke's-Roosevelt Hospital Center.

Maxine S. Jochelson, M.D. '77, a board-certified diagnostic radiologist, is director of radiology for the new breast and imaging center at Memorial Sloan-Kettering Cancer Center in New York City. Dr. Jochelson completed her residency at Los Angeles County Hospital-USC Medical Center and a fellowship at the Dana Farber Cancer Institute. Prior to joining the MSKCC faculty, she was an attending radiologist at Tarzana Medical Center in California, and co-director of the San Fernando Valley Women's Center.

Barry S. Leitman, M.D. '75, is a professor of radiology at NYU School of Medicine and NYU Medical Center. Recently inducted as a Fellow of the American College of Radiology, Dr. Leitman also belongs to the Radiological Society of North America, American Roentgen Ray Society, and the Society of Thoracic Radiology.

Jack Albert, M.D. '74, writes that daughter Amanda earned her master's degree in piano performance at

who do not know the history of the Holocaust." A limited engagement of the play is scheduled for February at the Marjorie Deane Little Theatre, located at the West Side Y on West 63rd Street in Manhattan.

In addition to becoming a co-producer, Dr. Liman is now a first-time composer, having written a quasi-autobiographical musical, *A LimanAde Life.* A self-described "frustrated lyricist" who says she is neither an author nor a composer ("I can play by ear and plunk it on the piano!"), she began in 2001 by setting original lyrics about her battles with cancer and depression to Broadway show tunes. She paired "Lymphoma" with the music of the title song from *Oklahoma* and "Depression" to the melody of "Tradition" from *Fiddler on the Roof.*

While ditties about cancer and mental illness may seem like unlikely entertainment, Dr. Liman knew she'd have an audience. "One of the reasons I think I'm alive today is because of my sense of humor," she said. "In addition to having excellent medical care…maintaining a sense of humor was equally important to my medical regimen."

The two-act play has received glowing reviews from small audiences at Metropolitan Hospital and Hope Lodge, an American Cancer Society-funded temporary housing facility for cancer patients and their caregivers.

As for her health, Dr. Liman, 60, just received a clean bill, and she's not letting any grass grow under her feet. In addition to her artistic and family pursuits, she is a legislative ambassador for the American Cancer Society. She also works with MetPALS, a program she started at Metropolitan Hospital, which teaches minority or underserved New York City youth about careers in medicine and health care by taking them on field trips and introducing them to healthcare professionals.

It is a busy life, but Joan Liman learned long ago that lots of laughter and meaningful work are essential ingredients for health and happiness—after her grandson, of course.

In Memoriam

Mitchell L. Goldbaum, M.D. '87, died August 8, 2008.

Dwight M. Pagano, M.D. '78, died July 1, 2009. He was 57.

Steven B. Tamarin, M.D. '77 (Fifth Pathway), died November 30, 2008. He was 61.

Jeffrey Behrens, M.D. '76, died June 9, 2009. He was 57.

Allan Jacobs, M.D. '69, died August 29, 2008.

Patrick J. Dwyer, M.D. '66, died August 12, 2009. He was 70.

Jaime Olivo, M.D. '64, died October 15, 2009. He was 70.

Arthur J. Grahl, M.D. '61, died December 17, 2008.

Allen F. Langhorne, M.D. '61, died July 28, 2009. He was 82.

Kenneth M. Young, M.D. '61, died October 21, 2008. He was 74.

Richard A. Giery, M.D. '60, died August 5, 2008.

Buck J. Williams, M.D. '60, died July 2, 2009. He was 74.

John M. Marino, M.D. '59, died July 9, 2009. He was 75.

Roland K. Molinet, M.D. '59, died August 8, 2009. He was 76.

James A. Holleran, M.D. '56, died May 31, 2009. He was 78,

William H. Nass, M.D. '56, died September 16, 2009.

Lawrence A. Norton, M.D. '56, died May 13, 2009. He was 78.

Ernest J. Petrulio, M.D. '55, died October 20, 2008. He was 80.

Melvin A. Scharfman, M.D. '54, died October 18, 2008. He was 80.

John H. Small, M.D. '54, died July 29, 2009.

Richard McManus, M.D. '53, died August 18, 2009. He was 81.

Norman M. Brust, M.D. '51, died July 26, 2009. He was 86.

Norman Chu, M.D. '51, died October 22, 2008.

Benjamin Nicotri, M.D. '50, died July 30, 2009. He was 90.

Edward A. Clerkin, M.D. '48, died June 25, 2009. He was 85.

Miguel A. Figueroa, M.D. '48, died May 25, 2009. He was 86.

Robert M. Ahrens, Sr., M.D. '47, died February 24, 2008.

James B. Lynch, M.D. '47, died June 25, 2009. He was 86.

Robert S. Bailey, M.D. '43, died October 21, 2009. He was 93.

Marvin A. Humphrey, M.D. '43, died July 22, 2009.

Joseph B. Enders, M.D. '41, died September 18, 2009.

Joseph Sarullo, M.D. '41, died May 28, 2009. He was 95.

Roger D. Sherman, M.D. '40, died May 15, 2009. He was 93.

Charles P. Vialotti, M.D. '36, died February 24, 2009.

Faculty

Sidney Berezin, M.D., clinical assistant professor of pediatrics, died in October 2009. He was the father of Stuart H. Berezin, M.D., associate professor of pediatrics and chief of pediatric gastroenterology at Westchester Medical Center.

John F. Gillooley, M.D., clinical associate professor of pathology who retired as chairman of Pathology at St. Vincent's Hospital, Manhattan, died in June, 2009. Among many achievements, he pioneered histologic grades in the prognosis of breast cancer, and was one of the first practitioners at the beginning of the AIDS epidemic to recognize the significance of Kaposi's sarcoma in diagnosing the disease.

Board of Trustees

Patricia Mosbacher, honorary trustee, died in February 2009.

Northwestern University and is in her first year of a doctoral program at the University of Houston. Son Josh, an 11th-grader, is a top percussionist at Spruce Creek High School in Port Orange, Fla.

David J. Beccia, M.D. '70, is celebrating 32 years of practice in urology in Bay Shore, N.Y., "and still going strong!" Dr. Beccia is also celebrating 41 years of marriage to Jessica, and the arrival of their first grandchild, Anna, "who is the love of our life."

the60s

Alan Wecksell, M.D. '65, retired in September 2009.

Nicola Bitetto, M.D. '64, retired in June 2009.

Stephen M. Brenner, M.D. '62, is still practicing medicine in the Bronx. He is father to three adult children, grandfather to nine, and "enjoying it all."

Michael Schlossberg, M.D. '62, retired in 2001 after practicing ob-gyn for many years. Dr. Schlossberg and wife Lana spend their time enjoying their children and grandchildren, traveling and collecting and studying art.

Robert Kirschner, M.D. '61, is retired and living in New York City.

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Justin Howland, M.D. '59, has published a book, *A California Bonesetter's Autobiography,* in which he mentions certain classmates, along with two instructors, Dr. Minervini and Dr. Stanley Opler, the latter of whom was his employer while working at Lenox Hill Hospital.

Howard Kline, M.D. '58, is still in active practice as a cardiology consultant in San Francisco and heavily involved in teaching cardiology to house staff and cardiology fellows. Dr. Kline reports that son Christopher is starting his fourth year of medical school at the College.

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(*) Deceased

Sesquicentennial Dinner

At the Sesquicentennial Dinner, held October 17, 2009, at Glen Harbour Island in New Rochelle, N.Y., the College's 150th anniversary celebration was formally launched. The honoree was the College itself—its students, faculty, alumni and staff—and guests enjoyed a short video depicting the College's illustrious history.


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Photos by John Vecchiolla

Leading Edge

(continued from page 16)

of weight gain, waist gain and white-coat hypertension in women and its role as an alphabetic and chronologic antecedent to the better known Syndrome X.

In conjunction with colleagues at Montefiore Medical Center and the University of Tennessee (Memphis), Dr. Mogul is conducting a multicenter study that targets women with Syndrome W. This double blind, placebo controlled, randomized clinical trial evaluates efficacy and safety of metformin—a diabetes drug known to decrease insulin resistance and promote weight loss —and metformin plus low dose rosiglitazone (another diabetes medication) as an adjunct to a carbohydrate modified diet and behavioral strategies. Participants attended weekly nutrition workshops where they were introduced to the EMPOWIR dietary intervention.

Data from 49 subjects were presented at the annual meeting of The Obesity Society in October, 2009. Changes in body weight were significant and comparable at two study sites. Earlier research supports hypotheses that insulin elevation could be a cause, as well as a consequence, of weight gain, accounting for progressive and intractable menopausal weight gain.

"EMPOWIR: Enhance the Metabolic Profile of Women with Insulin Resistance." Poster presented at the annual meeting of The Obesity Society, October, 2009.

Celebration

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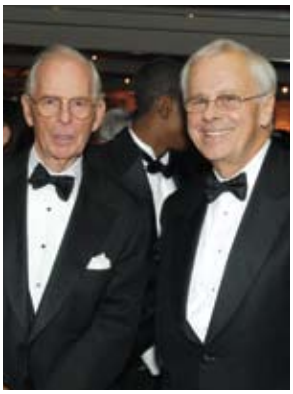

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1. William Dieck, M.D., Eileen M. Dieck, M.D. '86, met up with Patricia Barry, M.D. '83, and John Cosgrove, M.D. '83.

2. A special award was given to Saverio S. Bentivegna, M.D. '50. He was joined by his wife Kathleen, and Ingrid Connolly.

3. Enjoying the gala were Assemblywoman Amy Paulin and Ronald F. Poe, chairman of the Board of Trustees.

4. Among the more than 400 guests at the black tie celebration dinner were David Asprinio, M.D., chairman of orthopedic surgery, and Matthew Harris, M.D.

5. Robert W. Amler, M.D., dean of the School of Health Sciences and Practice, shared a laugh with New York State Senator Suzi Oppenheimer, Karl P. Adler, M.D., president and CEO, and Mr. Poe.

6. Drs. Adler and Amler accepted a proclamation presented by New York State Senator Andrea Stewart-Cousins.

7. Dr. Adler presented a plaque to Dr. Lee Dieck, Alumni Association President.

8. Graduate School of Basic Medical Sciences Dean Francis L. Belloni, Ph.D., enjoyed a dance with his wife, Margaret Ciarcia.

9. John Fallon III, M.D., Ph.D., chairman of pathology, and his wife Mary chatted with William H. Frishman, M.D., professor and chairman of medicine, and his wife Esther.

10. Ralph A. O'Connell, M.D., provost and dean of the School of Medicine, and Dr. Adler surveyed the lively scene.

11. Joseph F. Dursi, M.D. '59, served as Master of Ceremonies.

12. Michael A. Antonelle, M.D. '62, greeted Samuel H. Rubin, M.D., provost and dean emeritus.

13. Dr. Adler accepted an official proclamation from Westchester County Executive Andrew J. Spano.

14. Among the guests were College trustee Maureen Roxe and her husband Joe Roxe of Darien.

15. Sen. Oppenheimer and her husband Martin J. Oppenheimer chatted with Dean Amler and Sherlita Amler, M.D., Putnam County Health Commissioner, who is also a faculty member.

16. Dr. John Connolly, former president of New York Medical College, and his wife Ingrid, far left, chatted with Jane O'Connell.

17. Joseph Giamelli, M.D.'02, and his wife Anna enjoyed the dancing with their daughter Samantha.

18. Joining the festivities were Edmund F. LaGamma, M.D. '76, and his wife Kalliope.

19. Representing the university's three schools were students Obiageli Nwankwo (Health Sciences and Practice), Candace Ford (Basic Sciences) and Stephen Rotman (Medicine).

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