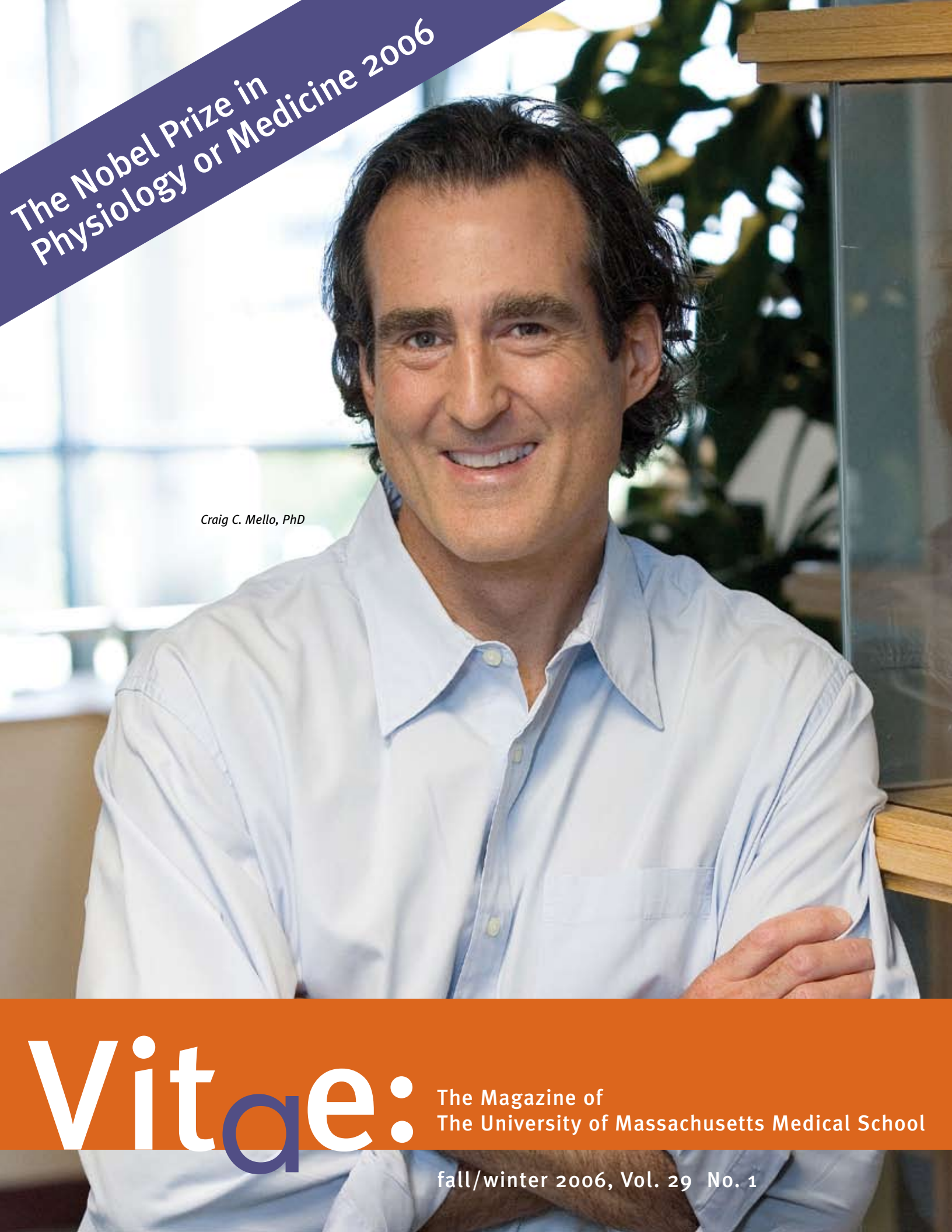
The Nobel Prize in Physiology or Medicine 2006



Craig C. Mello, PhD

Vitae:

The Magazine of
The University of Massachusetts Medical School

fall/winter 2006, Vol. 29 No. 1

Vitae: L., the plural of life

The name of this magazine encompasses the lives of those who make up the University of Massachusetts Medical School community, for which it is published. They are students, faculty, staff, alumni, volunteers, benefactors and others who aspire to help this campus achieve national distinction in education, research and public service.

As you read about this dynamic community, you'll frequently come across references to partners and programs of UMass Medical School (UMMS), the Commonwealth of Massachusetts' only public medical school, educating physicians, scientists and advanced practice nurses to heal, discover, teach and care, compassionately.

Commonwealth Medicine

UMass Medical School's innovative public service initiative that assists state agencies to enhance the value and quality of expenditures and improve access and delivery of care for at-risk and uninsured populations.

The Research Enterprise

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UMass Memorial Foundation

The charitable entity that supports the academic and research enterprises of UMass Medical School and the clinical initiatives of UMass Memorial Health Care by forming vital partnerships between contributors and health care professionals, educators and researchers. www.umassmed.edu/foundation

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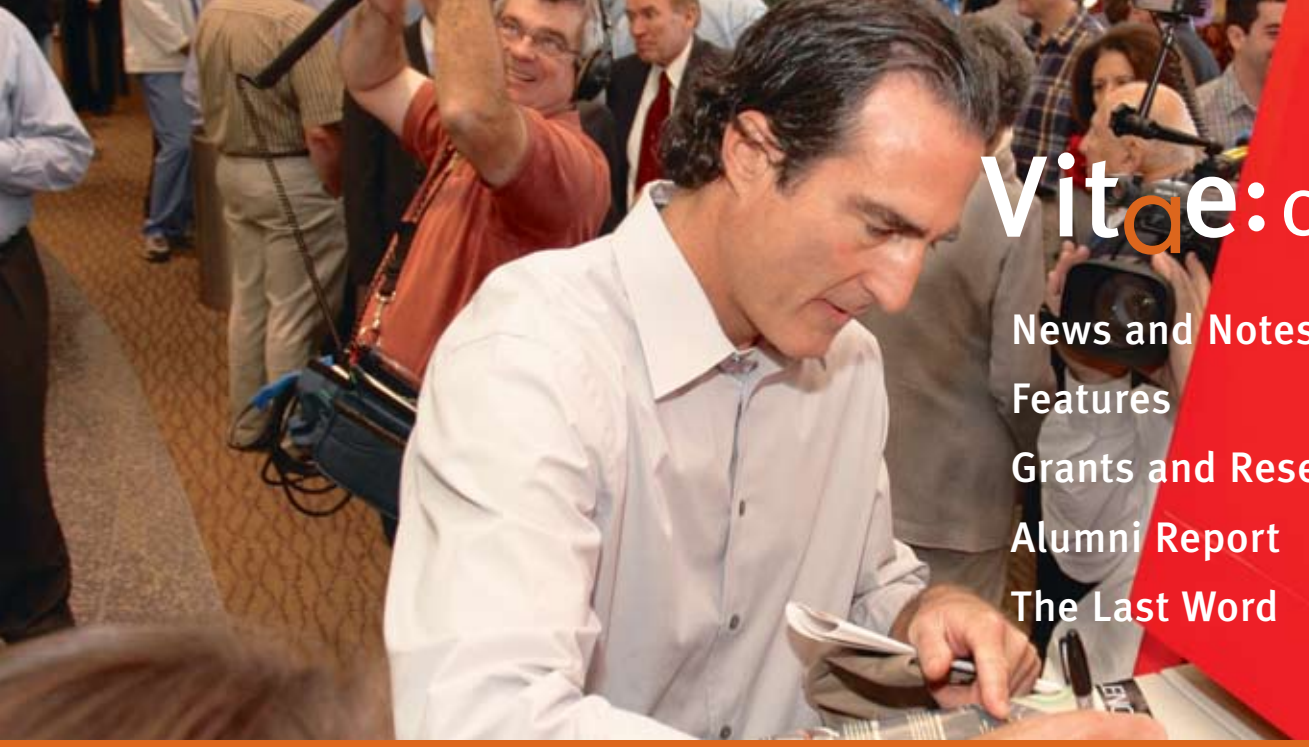


Vitae: Contents

Vitage:

The Nobel Prize Comes to UMass Medical School

Professor Craig Mello, PhD, and his collaborator Andrew Fire, PhD, of Stanford University School of Medicine, are co-recipients of the 2006 award in medicine.

On October 2, 2006, The Nobel Assembly at Karolinska Institutet awarded the Nobel Prize in Physiology or Medicine for 2006 "jointly to Andrew Z. Fire and Craig C. Mello for their discovery of RNA interference—gene silencing by double-stranded RNA." The UMass Medical School and UMass Memorial community celebrated with Dr. Mello, Howard Hughes Medical Institute Investigator and the Blais University Chair in Molecular Medicine, who has brought an achievement to the institution that is unsurpassed in its magnitude and meaning.

The announcement came as *Vitae* was going to press, so of course we had to stop and celebrate Dr. Mello. He'll receive his Nobel Prize with Dr. Fire at a December ceremony in Sweden and after that, *Vitae* will again cover Mello's achievement by exploring in-depth the significance of his and Fire's work and its worldwide impact. This fall, however, the world's eyes were on Worcester as Mello was applauded at the Lazare Research Building (with UMass President Jack Wilson, above); supported by his students and post-docs, and benefactors Jack and Shelley Blais (with Chancellor/Dean Aaron Lazare and UMass Board of Trustees Chair Stephen Tocco, left); congratulated by Professor of Biochemistry & Molecular Pharmacology and Gretchen Stone Cook Chair Phillip Zamore, PhD, a fellow international leader in RNAi (right); and personally praised by wife, Edit, and daughter, Victoria, at a UMass President's Office press conference.

UMMS Physician-Scientist Awarded Howard Hughes Medical Institute Honor

"This funding will greatly benefit my research into the treatment of pancreatic cancer—one of the deadliest cancers and also one of the least well-funded in terms of research."

– Jennifer Tseng, MD

The first few years as a junior faculty member at an academic medical center such as the University of Massachusetts Medical School are critical for physicians who want to pursue a career in biomedical research. In fact, new faculty physicians often abandon plans for research careers due to the lack of both flexible funding to accommodate needs of new labs and time to actually conduct research.

In response to these challenges, the Howard Hughes Medical Institute (HHMI) created the Physician-Scientist Early Career Award program to cultivate talented investigators; UMMS Assistant Professor of Surgery Jennifer F. Tseng, MD, was recently named one of the 13 inaugural awardees. The program will provide $150,000 over three years to Dr. Tseng, who is a surgeon at UMass Memorial Medical Center, with the stipulation that the funds be used for direct research expenses. UMass Medical School is also committed to supporting Tseng's efforts to spend at least 70 percent of her professional time doing research.

"We feel that the Early Career Award program is one of the best investments we could make in the future of biomedical research," said William Galey, director of HHMI's graduate science education and medical research training programs. "There is a pressing need to recruit talented physicians to careers in medical research, to help translate basic science discoveries into new medical therapies for patients."

"I am humbled and honored to receive this support from the Howard Hughes Medical Institute and to be included with such a fine group of scientists," said Tseng, who joined UMMS and the Division of Surgical Oncology and Endocrine Surgery at UMass Memorial in 2005 from the M.D. Anderson Cancer Center in Houston. "This funding will greatly benefit my research into the treatment of pancreatic cancer—one of the deadliest cancers and also one of the least well-funded in terms of research."

A panel of leading physician-scientists reviewed the applications for the HHMI award, evaluating the applicant's ability and promise for a research career as a physician-scientist. They considered the quality and quantity of formal research training, the commitment of the applicant's research institution, the quality of the research environment, the applicant's commitment to pursuing a biomedical research career and the quality of the proposed research plan.

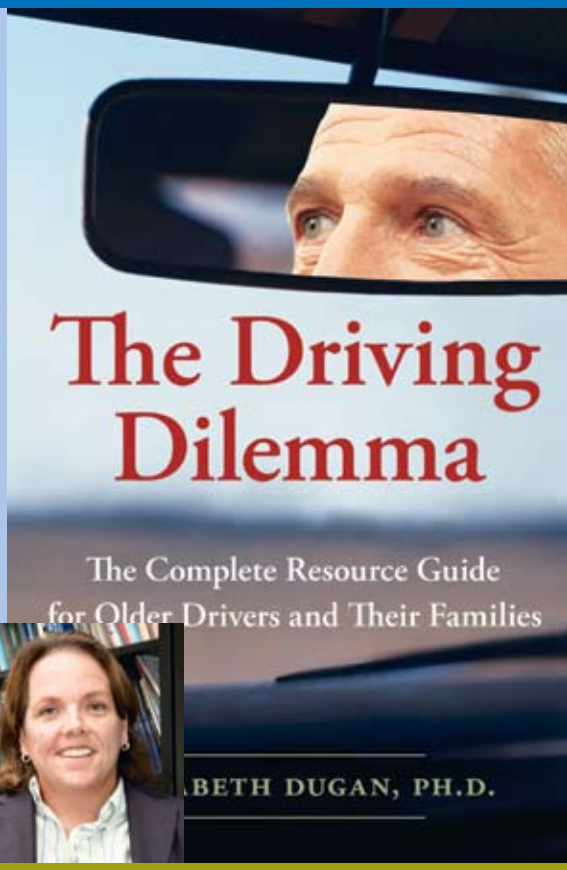
According to UMMS Vice Chancellor for Research John L. Sullivan, MD, professor of pediatrics and molecular medicine and interim chair of the new Department of Clinical and Translational Science, Tseng's achievement is particularly exciting given that UMMS has initiated a major commitment to growing clinical and translational, "bench-to-bedside" research at the Medical School. "HHMI's programs are designed to enhance the academic development and career progression of young and promising physician-scientists and are a unique mechanism to expand the population of physicians dedicated to clinical research. We look forward to supporting Dr. Tseng's work in pancreatic cancer."

In addition to the recognition from HHMI, Tseng was recently named the first Pancreatic Cancer Alliance Scholar, a position created by UMass Memorial through funding from the Pancreatic Cancer Alliance. The Alliance supports the efforts of medical and research communities to seek treatment methods, and ultimately, a cure, for pancreatic cancer and has raised more than $225,000 for basic and translational research at the UMass Cancer Center.

Researcher Explores the 'Driving Dilemma' for Elderly

America's population is aging at an unprecedented rate. Between now and 2030, the number of Americans age 55 and older will nearly double. This demographic shift will have an immediate impact on the nation's roadways as the number of drivers over the age of 65 increases. While experts stress that age alone is not an accurate indicator of driving fitness, many age-associated health conditions can affect a person's ability to safely operate a vehicle. Families report that one of the toughest questions to face is whether an older driver is still fit to drive—and if not, what to do about it.

These issues and more are addressed in the new book, *The Driving Dilemma, the Complete Resource Guide for Older Drivers and Their Families,* written by Elizabeth Dugan, PhD, assistant professor of medicine at UMass Medical School and faculty affiliate of the Meyers Primary Care Institute. Published by Harper Collins, *The Driving Dilemma* translates research related to geriatric medicine, physical and cognitive function, and rehabilitation to provide the first comprehensive resource for older drivers and their families, offering clear, useful information about the effects of age, medical conditions and medications on driving. In addition to a state-by-state listing of available resources, Dr. Dugan also provides research-based guidelines to help families develop an action plan and talk about all the issues.



Beth Dugan, PhD (inset); the cover of her new book

Teen Wins Science Fair Through Partnership with UMMS Researchers

Science Fair winner Dan DeCiero (left) consults with mentors Benjamin Leung, PhD, and Scott Waddell, PhD (right), in their UMMS lab.

Wachusett Regional High School student Daniel DeCiero won first place among 360 entrants at the Massachusetts State High School Science Fair and the accompanying Genzyme Corp. Award of $17,500 for himself, his school and teachers, backed by a University of Massachusetts Medical School program that helped him tap his scientific skills.

Through the Science Seminar Program, UMMS Professor of Molecular Medicine William E. Theurkauf, PhD, partners scientists with students interested in broadening their understanding of the basic sciences. When DeCiero expressed an interested in pursuing a project involving learning and memory, Dr. Theurkauf placed him with Assistant Professor of Neurobiology Scott Waddell, PhD, whose lab conducts investigations into how memory is encoded at the molecular and cellular levels. Dr. Waddell and postdoctoral fellow Benjamin Leung, PhD, embraced the opportunity to mentor DeCiero.

"We know there is a great need to develop a pipeline of researchers," said Dr. Leung. "If we can share our excitement with young students, we may be able to influence their decision to pursue their scientific education to the next level."

DeCiero worked with Leung on a project which sought to determine the effect of the Parkinson's disease drug amantadine on fruit flies with Alzheimer's-disease-modeled nervous systems. Dr. Waddell was impressed by DeCiero's findings and his dedication to the process. "Dan's level of intellectual curiosity is nothing short of unbelievable. I'm proud to have provided him with a rigorous and fun atmosphere to continue to test himself."

April Inniss, Minority Scholars Award winner

Heather Smith, Physicians of Tomorrow Scholarship recipient

Students Honored by American Medical Association Foundation

Two University of Massachusetts Medical School students are among an elite group recognized by the American Medical Association (AMA) Foundation for their academic excellence and outstanding promise as future physicians. The foundation is the philanthropic arm of the AMA.

Second-year medical student April Inniss is one of ten students nationwide to receive a $10,000 Minority Scholars Award, which supports students historically underrepresented in the medical profession. According to the foundation, fewer than seven percent of U.S. physicians fall within underrepresented groups, which include African-American, Hispanic, American Indian, Native Hawaiian and Alaska Native individuals.

After graduating from UMMS, Inniss says she plans to be involved in community medicine by aiding underserved populations in urban environments. "Healing is more than what takes place in the direct patient-care setting," she said. "It incorporates advocacy and activism on behalf of the underserved, who are all too often ignored. I'm certain my future plans will reflect and vigorously uphold this ideal."

Fourth-year medical student Heather Smith received a $10,000 Physicians of Tomorrow Scholarship. The AMA created these scholarships as part of its ongoing effort to provide financial assistance to medical students facing the challenge of educational costs. One of just nine recipients in the country, Smith was selected for her personal commitment and scholastic achievement as well as financial need. "I am thrilled and honored to be selected from among my peers around the country for this award," Smith said. "While the scholarship will be helpful financially, it is also very appreciated validation for the educational and professional path I have chosen."

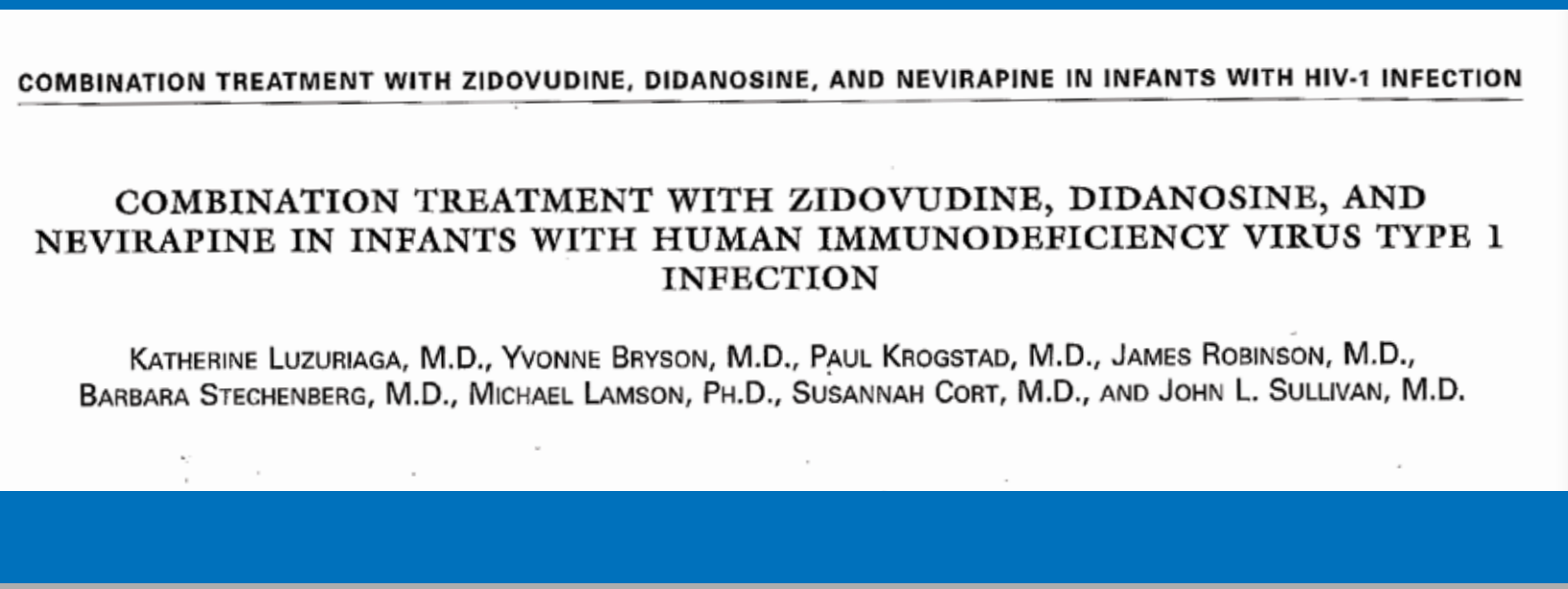
"Healing is more than what takes place in the direct patient-care setting. It incorporates advocacy and activism on behalf of the underserved, who are all too often ignored. I'm certain my future plans will reflect and vigorously uphold this ideal."

– April Inniss, UMass Medical School student

Anguishing Anniversary

AIDS has clouded a generation; UMass Medical School researchers and clinicians reflect on 25 years of response to an unyielding enemy.

By Sandra L. Gray



COMBINATION TREATMENT WITH ZIDOVUDINE, DIDANOSINE, AND NEVIRAPINE IN INFANTS WITH HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 INFECTION

KATHERINE LUZURIAGA, M.D., YVONNE BRYSON, M.D., PAUL KROGSTAD, M.D., JAMES ROBINSON, M.D., BARBARA STECHENBERG, M.D., MICHAEL LAMSON, PH.D., SUSANNAH CORT, M.D., AND JOHN L. SULLIVAN, M.D.

Twenty-five years ago, on June 5, 1981, in its weekly *Morbidity and Mortality Report* (MMR), the U.S. Centers for Disease Control published its first official description of an unnamed disease that had struck five men in Los Angeles. The men, all previously healthy, were suffering from a type of pneumonia typically caused by a compromised immune system. The disease that would later become known as AIDS has since ravaged millions of lives around the globe.

From that sobering moment 25 years ago, hundreds of scientists and clinicians at the University of Massachusetts Medical School and UMass Memorial Health Care have been on the front lines in the fight against a scourge that has marked a generation. *Vitae* asked several of these individuals who have devoted their careers to understanding, treating and, perhaps someday, eradicating HIV/AIDS, to share their recollections of the past and predictions for the future. All are voices of discovery and hope, and representative of the dedication of many here.

While responses to the question **"When did you realize the seriousness of this disease, and what are your thoughts on where we stand now in fighting it?"** reflect their diverse disciplines and experiences, several common themes emerge: The dichotomy between HIV/AIDS in the developed versus developing world; the need to make HIV testing routine; the importance of continuing the quest for both new drugs and new vaccines; appreciation of how far we've come and how much more remains to be done; and, in the final analysis, a guarded but optimistic view of the future. Here, in their own words, are some answers:

John L. Sullivan, MD, *professor of pediatrics and molecular medicine and vice chancellor for research, co-discovered the antiretroviral drug nevirapine, which reduces transmission of HIV from mother to newborn child. (NEJM, May 8, 1997, at top)*

"I vividly remember reading that week's MMR here in my office. As an immunologist, I immediately knew the reporting of PCP [*Pneumocystis carinii* pneumonia] in five otherwise healthy young men indicated something unusual.

"We were truly in on the ground floor. In 1982 we received a National Institutes of Health grant to study the immune deficiency in individuals with hemophilia. When it was clear that this syndrome was caused by a transmissible agent, we began to try to isolate a virus. Following the isolation of HIV by investigators in France and the U.S. in 1983, we developed our own antibody assay before that approach became the accepted testing method. That same year we became the first in this area to offer HIV testing. We saw the first pediatric case in 1985 and got involved in drug discovery in 1988—we discovered nevirapine with Boehringer–Ingelheim within ten years. The most rewarding thing I've done is to show that nevirapine can prevent maternal-fetal transmission.

"Internationally, there's a big opportunity to expand treatment in developing countries in the next five to ten years. In this country, we continue to transform HIV into a routine, chronic infection. People should be tested because if they are HIV-positive, there is help and hope for them."

Mario Stevenson, PhD, *the David J. Freelander Professor of AIDS Research, professor of molecular medicine and molecular genetics & microbiology, directs the UMMS Center for AIDS Research, funded by the National Institutes of Health.*

WEDNESDAY, JULY 12, 2000

TELEGRAM & GAZETTE ▪ WORCESTER, MASS.

UMass wins HIV grant from U.S.

Researchers seek vaccine

THE BOSTON GLOBE TUESDAY, MARCH 23, 2004

UMass researchers ready to test AIDS vaccine

"I've been working on HIV/AIDS since 1984. At that time, nobody had any idea of the scale the problem would develop into. There was a disconnect between HIV as a research lab problem versus its real impact on human health.

"What ended that disconnect for me was a plane ride to a conference in San Diego. I sat beside an HIV-positive woman who had contracted the virus in the only relationship she ever had and who was also going to the conference—not as a scientist, but as a patient desperate for help. Meeting her brought home that the virus could affect anyone. From that point on my work became a mission.

"Scientists need to commit their energy to research they think will make a difference. We continually need to develop new drugs because the virus fights back with resistance and there are parts of the virus existing drugs don't hit. My job is to strip apart the virus to reveal targets we haven't yet exploited."

Donna Gallagher, RN, MS, *principal investigator and director of the New England AIDS Education and Training Center, funded by the Ryan White CARE Act and sponsored regionally by UMMS. NEAETC programs enhance competency in HIV prevention and care, improving services for people living with HIV infection. Gallagher has been providing HIV care as an adult nurse practitioner for over 20 years.*

"It was the summer of 1982 when I met a strikingly handsome young man who was also sicker than anyone I had ever seen before. By the winter of 1984 we were caring for several hundred patients, most of whom died within a year of diagnosis. The patients' rapid deaths impressed upon me how serious this disease was.

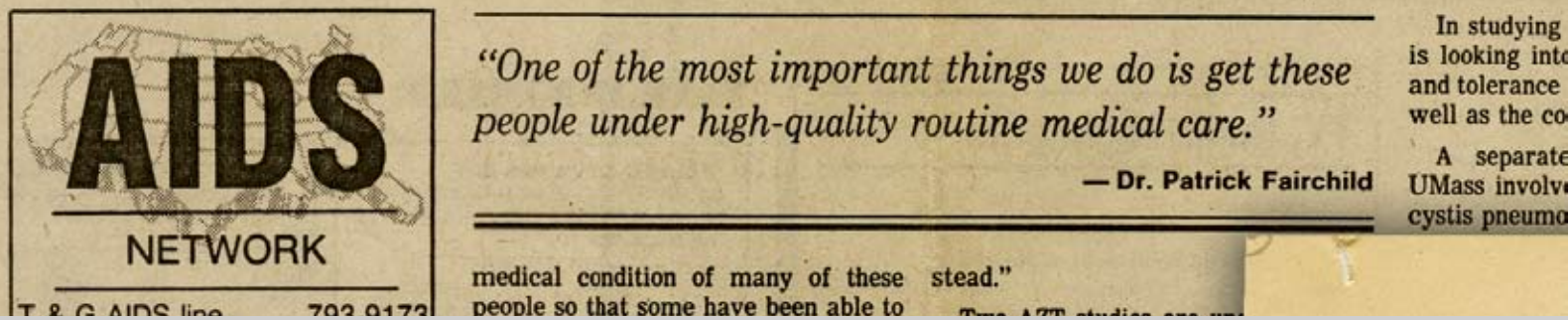
"Some doctors and nurses were avoiding these patients and those of us treating them wondered if we too could become infected. Being among a very small group of providers who were caring for people with HIV was a lonely, frightening place.

"We have come so far but there is much yet to be done. Those patients who have survived keep us motivated. A terrific young man who I have known for 20 years was infected at age 13 as a hemophiliac. He's now married to an HIV-negative woman and through the technology of sperm washing was able to bring a beautiful set of HIV-negative twins into the world. Every time I think about how difficult these years have been I pull out their picture."

Katherine F. Ruiz de Luzuriaga, MD, *professor of pediatrics and molecular medicine. Together with Dr. Sullivan, Dr. Luzuriaga pioneered methods to diagnose, prevent and treat HIV infection in infants and children.*

"I was a medical student when the 1981 CDC report was published. The subsequent identification of HIV as the causative agent of AIDS directly spurred my interest in a career in viral immunology. I came to UMass Medical School for fellowship training in 1987 because of its strong program in viral immunology; as a pediatrician, I chose to train with John Sullivan because of his reputation as a pediatric viral immunologist.

"It's very gratifying that we've been able to demonstrate the efficacy of nevirapine for preventing mother-to-child transmission of HIV and for treating HIV infection in adults and children. However, novel antiretroviral agents are desperately needed as antiretroviral resistance becomes more common. In addition, we need to improve approaches to prevent or treat HIV in resource-limited settings internationally, where most new infections occur. A preventive vaccine is the best long-term strategy to control the HIV pandemic but significant scientific and logistic barriers must be overcome to develop a successful vaccine.



"Our laboratory studies, which focus on better understanding of the infection process and the interactions between HIV and the immune system, along with our participation in the new NIH-sponsored International Maternal, Pediatric and Adolescent AIDS Clinical Trials (IMPAACT) Network should allow us to continue to translate the most promising scientific advances to patients around the world."

Joanne L. Calista, LICSW, *executive director of Central Massachusetts Area Health Education Center, funded by the UMMS Commonwealth Medicine division to enhance access to health care and reduce health disparities.*

"When HIV/AIDS emerged I was studying the impact of terminal illness in families. What started out as an intellectual and political interest in the epidemic quickly became personal as I had the opportunity to work side by side with so many inspirational individuals living with AIDS. When I interviewed at UMass Medical School in 1991 I remember visiting a hospitalized patient. The patient was a homeless man who was on a first-name basis with his doctor, receiving state-of-the-art infusion therapy. I was moved by the competent and dignified care he received and also saw a real opportunity to address the mental health and social support needs related to the illness. I worked with the departments of Psychiatry and Public Health to start a psychiatric service within the HIV/AIDS clinic with a small amount of funding, which has since evolved to support a range of clinical services.

"We need to continue our efforts to address the complex social and political issues embedded in this epidemic and need to constantly develop new strategies to reach out to at-risk communities."

Shan Lu, MD, PhD, *professor of medicine and biochemistry & molecular pharmacology, is a pioneer in novel HIV vaccine development who conducts publicly funded clinical trials for a DNA-based HIV vaccine developed at UMMS.*

"I was in medical school in China during a time when our knowledge of the outside world was limited, but my father was able to get American news media. When an edition of *Newsweek* with a cover story on HIV/AIDS came, it was shocking to me.

"I realized the seriousness of the disease when I came to the United States in 1985 for my PhD in pharmacology at UMass Medical School. I began researching HIV in the pathology laboratory of Dr. Harriet Robinson in the early 1990s. Our lab's creation of a DNA vaccine in turn created a new career for me, in that I was able to look at HIV in that context.

"I'm a primary care doctor as well as a laboratory researcher, so it concerns me that we have a handle on scientific progress but have not achieved much by public health standards as the total numbers of HIV infections and deaths continue to rise. Our new Bill and Melinda Gates Foundation grant with New York University reflects a promising trend of private as well as government funding to help keep our work moving forward."

Carol Bova, PhD, *associate professor of nursing and medicine, and an adult nurse practitioner with more than 18 years of experience caring for HIV patients. Her NIH-funded research focuses on primary care needs of these adults, as well as HIV prevention and education in developing countries.*

"In the early 1980s, a nurse who was a good friend of mine and who died of AIDS turned to me and said, 'Carol, this is going to be bad. I hope you do something about it.' I had been interested in oncology but started doing HIV work here in 1988.

"Clinicians could barely keep up with the increasing caseload. Our patients were very young and very ill. We lost a whole generation of some of the most courageous people I ever met. They participated in clinical trials even if they had no hope for themselves. Today we have wonderful treatments available thanks to them.

"As we have more adults living longer with HIV, health management has become more complex than treatment. We need to figure out how HIV is related to, or even causing, co-morbidities we're seeing more and more. We also lack active grassroots efforts and funding to get people tested—you don't see people wearing red ribbons to raise awareness any more. We need a new generation of nurse practitioners to take this on."

Professors of Life

During UMass Medical School's Human Genetics course, students discover more than they ever imagined from teachers who are patients.

By Andrea L. Badrigian

The students turn their textbook pages to an illustration of trisomy, or triplication, of the 21st chromosome. Unlike the image of the 22 evenly paired chromosomes used for comparison, the trisomy 21 figure shows an extra chromosome alongside the 21st pair, a sign of the overexpression of the genes that rest there—Down syndrome, in a black and white photo.

Then the students turn their eyes to the opening classroom door. Through it bounds 11-year-old Genevieve Rattey, waving, with her parents, Mary Beth and Raymond, and her siblings, Mack and Marie, close behind. Genevieve's expression lights up the vast UMass Medical School amphitheater. This little girl, who can't count to ten but who sets the dinner table with precision, who has exceptional muscle tone and flexibility but who finds everyday dialogue her biggest hurdle, takes her seat in front of 100 first-year medical students. Genevieve, waiting patiently, represents Down syndrome in all its colors.

The students are hesitant at first and look to their teacher, Professor of Cell Biology Jeanne Lawrence, PhD, for a clue about how to begin. Dr. Lawrence breaks the ice with a first question to the Ratteys, and the students immediately jump in. There is no script and no subject is off limits. Their questions do not delve into the molecular nature of Down syndrome; they can find those details in their textbooks. Instead the students ask, "Does she go to school?"

When the Ratteys visit Lawrence's and Assistant Director Lisa Hall's Human Genetics course each year, or when Janet Pratt, who has Huntington's disease, and her daughter, Sandy Malone, come to answer students' questions, the classroom time flies by. But the lessons learned last long into these future physicians' lives as practitioners, and are drawn upon when they find themselves needing to tell a mother and father some news concerning their child, or when they have a diagnosis in hand and must deliver it to a scared patient and her family. Compassion and honesty, with a look squarely in the eyes, are crucial.

For their roles in teaching these vital lessons—lessons that have an impact on all who enter the health care profession—the Ratteys and Pratts were recognized in April 2006 with UMass Medical School's first Patient-Teacher Awards. These awards, suggested by Lawrence, endorsed by the Educational Policy Committee and established by the Faculty Council, acknowledge individuals and families who have contributed to medical education at UMMS over a period of years. The recipients are honored for making significant efforts to share their personal experiences surrounding their medical conditions. Students find these contributions invaluable and memorable and a necessary complement to coursework.

With the award, Genevieve and her brother and sister became the youngest professors at UMMS; they've been teaching (along with their parents) for over 10 years. Janet Pratt and Sandy Malone have instructed for six years. All say they were surprised by the award, but that the honor underscores what they each receive in return for their commitment. As Mary Beth Rattey says, "It's empowering for us."

Empowerment was the last thing the Ratteys felt on the day of Genevieve's birth, as they tell the students during class. "Ray had just arrived at the hospital and walked in right after my Ob/Gyn told me Genevieve had the physical signs of Down syndrome," said Mary Beth. "He heard my wail of a cry down the hall." She recalls how she couldn't hold Genevieve for a full day because of medical monitoring equipment and consequently tells the students "get that baby in

Janet Pratt (left) and her daughter, Sandy Malone, accept their Patient-Teacher award from UMMS Professor Jeanne Lawrence, PhD (center).

the mother's arms right away. It's so important to bond with your baby and not with the diagnosis, which is so overwhelming. Once you connect with the baby, you begin to realize that the diagnosis is secondary." Another lesson: tell the parents immediately about their baby's condition. "The longer you wait, the expectations of the child they thought they would have grow stronger and letting them down gets even harder. Carrying Genevieve for nine months, I had created a certain child in my mind; I had grown her up a million times," Mary Beth said. "I had to mourn the baby of my mind and celebrate my new baby."

As Genevieve has grown, the Ratteys have appreciated health care practitioners who are open-minded about the variety of ways Down syndrome manifests itself in each individual. "We tell the students that when they are practicing, talk to their colleagues,

figure it out. Find out new things from each other," said Mary Beth. This simple advice goes a long way for doctors and patients.

Huntington's disease is another genetic condition that demands a thorough understanding of how it not only ravages an individual's brain and body, but also how it plays out emotionally for each member of an affected family.

There are many faces behind every case, Janet Pratt and Sandy Malone stress to students when they visit UMMS. "Seeing my mother and how disabled she is brings home the debilitating characteristics of HD," said Malone, who has a 50 percent chance of having inherited the disease. "They also learn why I don't want to be genetically tested to find out if I have HD. They wonder why and I have to tell them, 'It's complicated.'"

Janet Pratt describes how HD started in her family with her grandmother. It continued with her mother, now deceased. Five of her six brothers and sisters have it. A cousin who suffered for twenty years just passed away, and in his case, there's more. His wife divorced him. "Either people support you, or they leave you," Janet said.

For Janet, who was diagnosed in 2000 and works for a cure by taking part in clinical research studies, one of the challenges of having HD is being forced to stay home all the time as her symptoms of rapid, jerky movements progress. For Sandy, the prospect of a future diagnosis is something she can't dwell on. "I've accepted that HD is inevitable and that's a calming thing for me. Why drive myself crazy?" She also points out that if symptoms do arise, they will probably come later, when she's in her 50s, an optimistic approach to a family trend that serves as an inspiration to students.

Ray and Mary Beth Rattey join their children and UMMS' youngest professors, from left Marie, Genevieve and Mack, at the April award ceremony.

"Sometimes it's hard to leave the house together at one time for class; it can be so hectic. But after we see the students, we are so good again. It pulls us through as a family."

–Mary Beth Rattey

One of those students, April Inniss, Class of 2009, says that as a result of the patient-teacher experience in her first-year genetics course, she is more motivated than ever to provide the highest quality and most comprehensive medical and interpersonal care she can deliver. "Hearing from families actually dealing with the medical issues we were studying made the material come alive in ways that were salient and meaningful." Exposure to the human component, Inniss said, served as "a powerful reminder that the clinician's responsibility transcends the medical treatment of disease. The patient at all times is the focal point and indispensable partner in his or her own treatment."

Talking about Down syndrome and Huntington's disease in the medical education setting has changed the Ratteys, Janet Pratt and Sandy Malone. Ray Rattey, Genevieve's dad, says that returning each year to the significant moments that define his family's history helps keep clear all they have been through. "Our other children also are at an age now when they can understand how Down syndrome has affected their lives as well as ours," Ray said.

"Sometimes it's hard to leave the house together at one time for class; it can be so hectic," added Mary Beth. "But after we see the students, we are so good again. It pulls us through as a family."

Sandy Malone and her mother Janet have become more open with each other and accepting of their circumstances as they face Huntington's disease together. "Our relationship is no longer just mom and daughter," said Sandy. "We are equals who know it's OK to be scared and need help."

A Healthy Start

UMass Medical School nursing and medical students join forces with local advocates in the battle against confounding cases of infant mortality.

By Kelly A. Bishop

The deaths of infants is a heartbreaking reality that societies use as a critical indicator of the health of populations; indeed, the rate at which infants do not survive their first year of life (Infant Mortality Rate, or IMR) is monitored and compared throughout the world. Although the differences are very small, Worcester has persistently had a higher IMR than Massachusetts and the United States overall—8.8 per 1,000 births compared to 4.9 per 1,000 in Massachusetts and 7.0 per 1,000 in the nation in 2002.

An interdisciplinary team of medical and nursing students from the University of Massachusetts Medical School recently asked, "What can be done to ensure that all infants in the city have the opportunity for a safe birth and healthy life?" As they discovered, the reasons—and the potential solutions—are complex.

Although infant mortality has steadily declined worldwide over the past several decades, the United States still ranks surprisingly poorly among developed countries; according to the 2006 *C.I.A. World Factbook*, 42 countries, including, for example, Cuba, have lower infant mortality rates than the United States. This is due in large part to IMR disparities among racial and ethnic groups in this country. Such disparities are reflected in Worcester, where black infants are two to three times more likely to die than white infants. In fact, when examining the three-year averages of IMR by race—the most accurate way to analyze the rate due to the small actual number of deaths per year—the IMR among black infants is actually four to five times greater than that for white infants. And as researchers have discovered, those at highest risk of death in Worcester appear to be born to women who emigrated from West African countries

such as Ghana and Liberia; in 2002, all of the black infants who died in Worcester before age 1 were born to African immigrants.

This startling statistic caught the attention of Rosemary Theroux, RNC, PhD, an assistant professor in the Graduate School of Nursing, during her review in fall 2005 of a professional nursing publication. As a faculty director for an upcoming Community Health Clerkship (UMass Medical School is currently the only medical school in the nation that requires first-year medical students to study health problems of populations traditionally neglected in medical education by spending a two-week clerkship in local communities), Dr. Theroux seized upon the IMR issue as an ideal opportunity for study by her clerkship group, the first at the medical school to include nursing students. Their topic: "Optimizing Perinatal Outcomes Through Women's Health Services: Examining Premature Birth and Infant Mortality Among Ghanaian Immigrants in Worcester."

"I felt that this project had the potential to become something much larger than even the title suggested," said medical student William Zawatski, who, like fellow students Kristyn Newhall and Amy Podolski and nursing students Jennifer Markey and Katrina Nappa, is interested in women and children's health and health care disparities. "We quickly learned that infant mortality is intertwined with many other social, cultural and economic issues in Worcester."

They began with Marianne E. Felice, MD, professor and chair of pediatrics and professor of obstetrics & gynecology, and B. Dale Magee, MD, clinical assistant professor of obstetrics & gynecology. Dr. Felice and Dr. Magee are intimately familiar with the IMR issue as members of the Worcester Infant Mortality Reduction Task Force. The task force was established in the mid-1990s by the leaders of the community health centers in Worcester and also now includes members from UMMS, UMass Memorial, other local hospitals, state and city public health departments, social service agencies and community groups, who meet regularly to try to understand the causes of infant mortality in Worcester. "Three-quarters of Worcester's infant deaths occur in the neonatal period, defined as the first 28 days of life," said Felice, who chairs the task force. "We live in a city that has superb prenatal and newborn care in both the private and public sectors, a nationally recognized perinatology service and a world-renowned neonatal intensive care unit—why, then, are these babies not surviving?"

The answer to that question is not easily determined. Felice and her task force colleagues described to the clerkship students some of their most surprising findings, particularly related to the Ghanaian population: The known risk factors for infant mortality—being a smoker, a teenager, a single mother and/or poor—do *not* apply.

To learn more about why a disproportionate number of Ghanaian women lose their babies when known risk factors are absent, the students met with Julie Wisniewski, MPH, director of the Worcester Healthy Start Initiative, a federally funded program that improves access to and eliminates disparities in health care for pregnant women and new mothers. In addition to providing data from focus groups conducted with Ghanaian and other African women, Wisniewski facilitated the student's further research at three prenatal health care sites in Worcester: Great Brook Valley Health Center, Family Health Center of Worcester and UMass Memorial Medical Center—Memorial Campus. Through the Healthy Start Initiative, all participants

at each of these sites, including Ghanaian women, are given individualized case management, including family planning and comprehensive psychosocial assessment. According to nursing student Nappa, the case managers were an invaluable resource. "The Ghanaian women trust them," she said.

Many Ghanaians come to the United States for employment and educational opportunities, leaving their West African country behind as it struggles to build its growing economy upon an agricultural foundation and poor population. Ghanaians account for Worcester's fastest-growing immigrant group—11,000 members recorded in the 2000 census—but with immigration comes a range of issues that may have an impact on infant mortality.

Oftentimes, for example, work visas expire, shifting many Ghanaians into the undocumented category of those in the country illegally. Healthy Start Initiative data suggest that fear of deportation combined with heavy work schedules that allow Ghanaian women to send much-needed money to relatives in Ghana cause many of them to miss medical treatment and develop a familiar syndrome—stress.

Although the clerkship students found that Ghanaians are often hesitant to acknowledge the physical and emotional impact of stress, many of the care providers they interviewed believe that high levels of stress, a known risk factor for premature birth, are contributing to the infant mortality problem. Without the traditional support system found in their native country, coupled with the pressures of long work hours and a feeling of obligation to family in Africa, it is likely that stress is a significant risk factor for Ghanaian women.

Another important factor the students discovered was how Ghanaian women traditionally pursue medical care; fear of immigration laws isn't the only reason they avoid early prenatal care. In Ghana, a majority of women seek medical attention only when ill and do not receive routine dental or health assessments—and, pregnancy isn't considered a medical condition *per se*. In addition, often a Ghanaian woman will not publicly acknowledge a pregnancy until she is demonstrably showing. This means that women are seeking care later in pregnancy when interventions for certain risk factors are less effective.

Perhaps most significantly, Ghanaian women often fail to seek or continue care due to a perception of prejudice within the health care system. This perception can often be bolstered by miscommunication due to language barriers and a providers' lack of insight into certain culturally sensitive issues such as the reporting of sexual history and the off-limits discussion of a previous infant death.

Armed with substantial information, the students made a number of recommendations in their clerkship report. While

Without the traditional support system found in their native country, coupled with the pressures of long work hours and a feeling of obligation to family in Africa, it is likely that stress is a significant risk factor for Ghanaian women.

"The loss of a child represents a loss of great potential," says medical student William Zawatski (left). He attended a poster presentation of the infant mortality study with fellow students Katrina Nappa, Jennifer Markey, GSN Assistant Professor Rosemary Theroux, RNC, PhD, Kristyn Newhall and Amy Podolski.

Julie Wisniewski, MPH (far right and on page 14), director of the Worcester Healthy Start Initiative, and her colleagues were invaluable resources for the students analyzing the causes of infant mortality.

issues of immigration status exist outside the normal sphere of medicine, they noted that physicians can make improvements in communication by acknowledging and encouraging the need for an interpreter; adjusting the patient interview to account for culturally sensitive topics such as sexual history and mental health; and utilizing and conferring with case managers. Further, community outreach to encourage enrollment by African women in the Healthy Start Initiative through trusted entities such as churches—with the reassurance of confidentiality—is effective in persuading women to seek prenatal care in the earlier stages of pregnancy.

Impressed with the students' report and gratified by their investment in the project, Theroux of the GSN encouraged them to present their findings to the Infant Mortality Reduction Task Force. The presentation validated one of the task force's key objectives, according to its chair, Felice. "To reduce infant mortality, doctors, nurses and caregivers must be culturally respectful to all races and ethnic groups because the appreciation of diversity can help encourage women to seek prenatal care."

The students have since presented their findings at UMMS Obstetrics & Gynecology and Family Practice Grand Rounds and to staff at the community health centers, far exceeding the scope of their original clerkship assignment. "Meeting these women and hearing about the things that may prevent them from getting adequate care adds a realistic dimension to our education," said Nappa. "Now, as an RN, if I can take some of our work and adapt the way I interact with a patient of Ghanaian descent on the maternity floor, the project will have been extremely valuable."

The students made a number of recommendations in their report... physicians can make improvements in communication by acknowledging and encouraging the need for an interpreter; adjusting the patient interview to account for culturally sensitive topics such as sexual history and mental health; and utilizing and conferring with case managers.

According to Zawatski, the project has also given him a mission to pursue. "The loss of a child is clearly painful for family and friends, but the loss extends into the community as well: it represents a loss of great potential for that child to grow, enrich the lives of others and contribute to his community. Reducing infant mortality is a worthwhile goal that I intend to keep working toward."

Lab Enthusiast

Teacher, mentor, world-renowned researcher, Leslie Berg inspires students and colleagues through her excellence.

By Nicole L. Soucy

Infected with an enthusiasm for basic science during her graduate school years, renowned immunology researcher Leslie J. Berg, PhD, professor of pathology, aims to pass on that eagerness to the graduate students she mentors today at the University of Massachusetts Medical School. A recipient of several teaching honors, including the UMMS 2006 Faculty Achievement Award for Outstanding Mentoring in the Research Setting, Dr. Berg has contributed significantly to UMMS and to the field of immunology.

"As a leading scientist, Leslie brings visibility to the program and is a great role model for trainees at the institution; her enthusiasm and intellect have energized and elevated the level of scientific inquiry in the department," said Kenneth Rock, MD, chair and professor of pathology. "She has a gift for teaching and has played a major role in shaping and improving the immunology curriculum."

Amanda Prince, a fourth-year PhD student in Berg's lab, considers her an ideal mentor. "Her enthusiasm keeps us going," said Prince. "I will come to her with an idea, and she fosters my excitement. And, if something doesn't work, she tells us, 'Sometimes that happens, but you did what a scientist is supposed to do.' She is very positive and very supportive of our endeavors."

The optimistic outlook Berg shares with her students has ensured success in her own career. Over a period of two decades, she has become a leader in the field of immunology, in great demand to talk about her work at conferences worldwide. Yet, her interest in immunology might never have developed if it weren't for the undergraduate course in molecular biology she took during her junior year at Harvard. The course sparked her interest in conducting research for a living, and she pursued a PhD in molecular biology at the University of California/Berkeley. There, she responded to the positive approach to scientific inquiry exemplified by her graduate school advisor Michael R. Botchan, PhD, professor and division chief for biochemistry and molecular biology.

"He was bubbling over with excitement about the science and urged us to take satisfaction in doing the experiments," said Berg. "What keeps you going, day in and day out, is thinking, 'This is the problem I'm trying to answer, and if I do this experiment, I'm one step closer.'"

Berg's method of teaching is modeled on her experiences in the Botchan lab, where encouragement of new approaches to research reigned. After completing a rotation in Berg's UMMS lab, Martin Felices, a fifth-year PhD student in the Immunology and Virology Program, decided it was the place for him to study.



"Dr. Berg is very open-minded and relaxed, and her approach to science is a major reason I chose her lab," said Felices. "I've always believed that the work you perform in graduate school should be based on individual thinking and research. Dr. Berg allows you to be independent."

As a student herself, Berg was encouraged to take on new challenges, including a shift from molecular biology to immunology. "Immunology was one step beyond the molecular biology I had done as a graduate student, and it sounded like it would be much more complex at some level and would keep me busy for a long time."

She launched her career during a post-doctoral fellowship in the immunology lab of Howard Hughes Medical Institute Investigator Mark M. Davis, PhD, professor of microbiology and immunology at Stanford University School of Medicine. Berg was determined to learn all she could about the field. "At the time, immunology was new to me. I didn't know much about it, and Stanford was a great place for me. Some of the best post-docs from around the world were working in the immunology labs there, and they were the ones who taught me," she said.

After completing her fellowship, Berg took what she had learned to the next phase in her career—a faculty position at Harvard. There, she and her team of researchers set out to identify an unknown enzyme associated with signal transduction in T-cells, the body's infection-fighting white blood cells. Signal transduction involves the succession of reactions inside the cell as it changes one kind of stimulus, or signal, into another. Berg's group quickly realized success by identifying and cloning a tyrosine kinase enzyme never seen before in T-cells, now known as Itk.

"This discovery had a big impact on immunology at the time, and all of a sudden, Itk was appearing in the illustrations of what's important in T-cells," said Berg. "When we discovered that enzyme, it was like a miracle. It was just too good to be true. It was what we had been looking for and it happened so fast," said Berg. "We had made our mark."

UC Berkeley's Dr. Botchan easily recalls Berg as a graduate student and is not surprised by her early—and continued—success. "To do science well requires a great intellectual and physical commitment, and Leslie understood that from the beginning of her career," said Botchan. "She easily saw connections between isolated facts and thoroughly studied complex problems. I can see how her intellectual power has stood her well in following the complexities of signaling in T-cell development."

Through her research at UMMS—currently funded by four separate National Institutes of Health grants—Berg continues to identify important signaling molecules needed in the T-cell to produce the correct response to a particular pathogen, which parallels pharmaceutical and biotech companies' interests in creating drugs and inhibitors that would be potential treatments for patients with autoimmune diseases and those battling organ rejection after transplantation.

"I try to design our experiments to get the maximum amount of information on how these enzymes function in human immunology and whether an inhibitor of one of these enzymes would actually be a useful treatment," said Berg. "Although we don't directly try to develop drugs, I do think a lot of our work has now become a prominent component in the way we think about treatments for diseases."

Honored numerous times for her research contributions, in 2001 Berg received the American Association of Immunologists (AAI)/Pharmingen Investigator Award for outstanding contributions to the field of immunology, an early-career investigator award. The national organization has continued to acknowledge Berg, a member since 1994, for her dedication to the organization and field. Earlier this summer, AAI Council members honored her with the Distinguished Service Award for her leadership as the chair of the AAI Program Committee, which is responsible for the scientific program at AAI's annual meeting. In addition, in a national election of AAI members, Berg became the newest member of the AAI Council.

"Leslie has made valuable contributions to the American Association of Immunologists," said Lewis Lanier, PhD, president of AAI. "I'm delighted that she was elected to the AAI Council this year, and I look forward to continuing to work together with her to advance the educational, public relations and scientific goals of the society. She's terrific."

Vitae: Grants and Research

New and competitive renewal grants of $100,000 or more are listed here according to department and funding sources.

ANESTHESIOLOGY

U.S. Army Institute of Surgical Research

Babs R. Soller, PhD, professor: *Noninvasive and Continuous Measurement of Muscle pH and PO2 to Assist in the Triage and Treatment of Shock,* one year, $200,000; recommended for two more years, $393,461.

BIOCHEMISTRY & MOLECULAR PHARMACOLOGY

National Center for Research Resources

Kendall L. Knight, PhD, associate professor and associate dean of the Graduate School of Biomedical Sciences: *Biacore T100,* one year, $320,000.

National Institutes of Health

Reid Gilmore, PhD, professor: *Protein Translocation Across the Endoplasmic Reticulum,* one year, $324,500; recommended for three more years, $975,000.

Alonzo H. Ross, PhD, professor: *EGFRvIII and PTEN Loss Transform Neural Precursor Cells,* one year, $365,063; recommended for three more years, $1.1 million.

CANCER BIOLOGY

National Institutes of Health

Arthur M. Mercurio, PhD, professor: *Mechanism of Breast Carcinoma Survival,* one year, $302,387; recommended for four more years, $1.2 million.

CELL BIOLOGY

National Institutes of Health

Gary S. Stein, PhD, the Gerald L. Haidak, MD, and Zelda S. Haidak Professor of Cell Biology and chair: *Nuclear Structure and Gene Expression,* one year, $1.15 million; recommended for four more years, $4.9 million.

EMERGENCY MEDICINE

National Institutes of Health

Romolo J. Gaspari, MD, assistant professor: *Central Respiratory Effects of Organophosphate Poisoning,* one year, $196,474; recommended for four more years, $807,919.

FAMILY MEDICINE & COMMUNITY HEALTH

Department of Health and Human Services

Darlene M. O'Connor, PhD, associate professor: *Systems Transformation Grant,* five years, $2.9 million.

MEDICINE

National Institutes of Health

Robert W. Finberg, MD, the Richard M. Haidack Professor of Medicine and chair: *Pathogenesis of Myocarditis,* one year, $243,375; recommended for one more year, $203,126.

Katherine A. Fitzgerald, PhD, assistant professor: *Regulation of Type 1 Interferon Gene Expression in the Innate Immune Response,* one year, $405,833; recommended for four more years, $1.6 million.

JeanMarie Houghton, MD, PhD, assistant professor of medicine: *Stem Cells and Gastric Cancer,* one year, $288,068; recommended for four more years, $1.2 million.

John P. Mordes, MD, professor: *Genetics of Virus-Induced Autoimmunity in BB Rats,* one year, $255,545; recommended for two more years, $480,938.

MOLECULAR GENETICS & MICROBIOLOGY

The Campbell Foundation

Mario Stevenson, PhD, the David J. Freelander Professor of AIDS Research and professor: *Mechanism of HIV-1 Persistence in the Face of HAART,* one year, $110,000.

March of Dimes Birth Defects Foundation

Timothy F. Kowalik, PhD, associate professor: *RNAi and Human Cytomegalovirus Infection,* three years, $247,960.

National Institutes of Health

Victor L. Boyartchuk, PhD, assistant professor: *Genetic Control of Immune Response to Listeria Infection,* one year, $365,063; recommended for four more years, $1.5 million.

John M. Leong, MD, PhD, professor: *Bacterium-ECM Interactions During Infection by the Lyme Disease Spirochete,* one year, $340,782; recommended for four more years, $1.6 million.

MOLECULAR MEDICINE

American Diabetes Association

Yong-Xu Wang, PhD, assistant professor: *Regulation of Age-induced Resistance by PPARd and its Co-regulators,* one year, $138,000; recommended for two more years, $276,000.

Vitae: Grants and Research

National Institutes of Health

Roger J. Davis, PhD, Howard Hughes Medical Institute Investigator, the H. Arthur Smith Chair in Cancer Research and professor: *Mechanisms of Action of Pro-inflammatory Cytokines,* one year, $286,283; recommended for four more years, $1.2 million.

Brian Lewis, PhD, assistant professor: *A Flexible Somatic and Sporadic Mouse Model for Pancreatic Ductal Adenocarcinoma,* one year, $154,177; recommended for one more year, $185,250.

Craig L. Peterson, PhD, professor: *Analysis of Yeast Chromatin Structure and Function,* one year, $316,103; recommended for three more years, $979,593.

William E. Theurkauf, PhD, professor: *Mitotic Response to DNA Damage,* one year, $338,652; recommended for three more years, $1.2 million.

NEUROBIOLOGY

National Institutes of Health

Marc R. Freeman, PhD, assistant professor: *The Draper Signaling Pathway in Drosophila Glial Immune Functions,* one year, $365,063; recommended for four more years, $1.5 million.

David R. Weaver, PhD, associate professor: *Mechanisms of Circadian Rhythmicity in CLOCK-Deficient Mice,* one year, $365,531; recommended for four more years, $1.5 million.

PATHOLOGY

National Institutes of Health

Leslie J. Berg, PhD, professor: *Immunobiology of Jak3 Deficient Mice,* one year, $365,156; recommended for four more years, $1.5 million.

PEDIATRICS

American Cancer Society

Merav Socolovsky, MBBS, PhD, assistant professor: *Regulation of Erythroid Homeostasis by the Fas Pathway,* four years, $720,000.

National Institutes of Health

Laura L. Gibson, MD, assistant professor: *CMV-Specific CD8+ T Cell Responses in Kidney Transplant Recipients,* one year, $108,000; recommended for four more years, $432,000.

Edward I. Ginns, MD, PhD, professor: *A Novel Orally Administered Macrophage Delivered Gene Therapy for Gaucher Disease,* one year, $328,556; recommended for four more years, $1.3 million.

Katherine F. Ruiz de Luzuriaga, MD, professor: *Evolution & Maintenance of Memory CD8 T Cells,* one year, $1.67 million; recommended for four more years, $6.8 million.

PHYSIOLOGY

National Institutes of Health

Peter Grigg, PhD, professor: *Activation of Cutaneous Mechanoreceptors by Shear Stress,* one year, $211,194; recommended for one more year, $182,813.

U.S. Army Medical Research Acquisition Activity

Robert E. Carraway, PhD, professor: *Prostate Cancer Cell Growth: Stimulatory Role of Neurotensin and Mechanism of Inhibition by Flavonoids as Related to Protein Kinase C,* three years, $608,854.

PSYCHIATRY

John D. and Catherine T. MacArthur Foundation

Thomas Grisso, PhD, professor: *National Youth Screening Assistance Project,* one year, $325,000; recommended for two more years, $650,000.

National Institutes of Health

Schahram Akbarian, MD, PhD, associate professor: *Chromatin Pathology in Cerebral Cortex of Schizophrenics,* one year, $206,656; recommended for one more year, $172,656.

Paul D. Gardner, PhD, associate professor: *Molecular Analysis of Neuronal Ach Receptor Expression,* one year, $350,972; recommended for three more years, $1.1 million.

Charles W. Lidz, PhD, research professor: *An Observational Descriptive Study of IRB Practices,* one year, $679,086; recommended for four more years, $2.6 million.

RADIOLOGY

National Institutes of Health

Mary Rusckowski, PhD, research associate professor: *TAG-72 Targeted Imaging for Cancer Detection,* one year, $181,125; recommended for one more year, $154,375.

SURGERY

National Institutes of Health

Ashok Saluja, PhD, professor: *Pathophysiology of Arginine-induced Pancreatitis in Mice,* one year, $243,125; recommended for one more year, $203,125.

Vitae: Alumni Report

MESSAGE FROM THE CHANCELLOR/DEAN

The excitement at an academic institution each fall is palpable and it radiates from both faculty and students at UMass Medical School. Convocation traditionally captures this excitement, and the 2006 event in October spotlighted our faculty and students and their potential for improving health and quality of life.

Professor of Biochemistry & Molecular Pharmacology Phillip D. Zamore, PhD, was invested as the Gretchen Stone Cook Chair in Biomedical Sciences. A bequest from Gretchen Cook, a longtime friend of the Worcester Foundation for Biomedical Research, established the Chair to "be held by an outstanding faculty member… to advance research in the broadest sense." Dr. Zamore, an international figure in the exploration of gene-silencing RNA interference (RNAi), combines biochemistry, genetics and cell biology in his research to understand the mechanisms of RNAi. These studies may lead to new drugs to treat human genetic disorders.

Professor Craig C. Mello, PhD, Howard Hughes Medical Institute Investigator and the Blais University Chair in Molecular Medicine at UMMS, was applauded for his receipt of the Nobel Prize in Physiology or Medicine 2006. Dr. Mello is co-recipient with his collaborator, Andrew Z. Fire, PhD, of Stanford University School of Medicine. (See pages 2-3.)

Vice Dean for Undergraduate Medical Education and Associate Professor Michele Pugnaire, MD, was honored at Convocation for her selection as a Fellow of the Executive Leadership in Academic Medicine (ELAM) Program for Women at the Drexel University College of Medicine. ELAM is the nation's only program focused on developing a knowledge base and skills for senior women faculty that will prepare them for senior leadership roles in academic medicine and dentistry. Dr. Pugnaire is the first UMMS faculty member to become an ELAM Fellow.

Professor Carole Upshur, EdD, was celebrated as the University of Massachusetts Roy J. Zuckerburg Endowed Leadership Chair for the academic year 2006-2007. This Chair honors faculty who have significantly contributed their time and skills to the University system and demonstrated character and leadership within their fields of expertise or in their service to the Commonwealth. With 30 years of distinguished service in the areas of child mental health, family medicine and health disparities, Dr. Upshur, associate dean for Clinical and Population Health Research, is an ideal choice for the Zuckerburg Chair.

The accomplishments of Professor Paulette Seymour, PhD, the new Dean of the Graduate School of Nursing, were also recognized at Convocation. A graduate of the Worcester City Hospital School of Nursing, Worcester State College and Boston College, Dr. Seymour earned her doctorate from the GSN in 2001. She was associate dean for practice and assistant professor prior to becoming interim dean, as well as chief nursing officer and senior vice president for UMass Memorial; Dr. Seymour has earned the respect and admiration of the entire UMMS and UMass Memorial communities.

Melissa A. Fischer, MD, MEd, assistant professor of medicine, was recognized as the first recipient of the Sarah Stone Endowed Fellowship in Medical Education. With her assistance, students develop their portfolio, a collection of work that includes learning goals, case presentations, reflective essays and scientific reviews. These portfolios allow students to closely examine their work and track their ethical and personal development as physicians.

Two students who are well on their way toward exemplary careers as physicians are April Inniss and Heather Smith, each applauded at Convocation for their $10,000 awards from the American Medical Association Foundation. Ms. Inniss received the Minority Scholars Award and Ms. Smith, the Physicians of Tomorrow Scholarship. Both are awarded to fewer than a dozen medical students nationwide each year and recognize excellence in academics and outstanding promise. These students are bright, articulate and passionate about the practice of medicine, particularly the delivery of care to those communities that are too often underserved.

While Convocation has come to a close, the excitement on campus and in the larger medical community that includes our alumni continues. Following you will see profiles on a few of our alumni who are finding unique ways to fulfill their lives and improve the lives of others.

Aaron Lazare

Aaron Lazare, MD

Leslie Donovan, MD '93, and Paul Apostolides, MD '91

Although every marriage requires work and has its stresses, dual-doctor couples face unique challenges when each partner carries a pager and is on call several nights a week. Add children to the mix, and you've got a life that might seem overwhelming and unmanageable. For Drs. Leslie Donovan and Paul Apostolides, however, the shared experiences of medical school, residency and their practices have given them an understanding of each others' needs, as well as a mutual support system. That connection, their passion for patient care, and a bit of help from their families, have made their juggling acts manageable.

"We went into this marriage and our careers with our eyes wide open," said Leslie. "We both love challenges." And, they both see life as a journey.

Neither Paul nor Leslie began their medical education straight out of undergraduate school. After receiving his bachelor's degree in 1986 from Stanford University, Paul worked at the Mailman Research Center at McLean Hospital in Belmont, studying molecular mechanisms of central nervous system development, regeneration and plasticity while deciding whether to go to medical school for an MD or an MD/PhD. "I realized I was more interested in caring for patients than writing grants," he said. Leslie, who received her undergraduate degree from Dalhousie University, also in 1986, continued her honors thesis research with

Thomas W. Connelly Jr., PhD '03, RN

Thomas Connelly says that he will always be a nurse, just not the kind that brings about physical improvement in a person.

On May 30, 2006, Dr. Connelly entered a monastery on the shores of the Atlantic Ocean. There, for the rest of his natural life, he'll promote spiritual health.

Not that he hasn't already done so in some form already; before he entered the Portsmouth Abbey, a community of Benedictine monks on Narragansett Bay, a few miles north of Newport, Rhode Island, Dr. Connelly taught at Boston College's William F. Connell School of Nursing. He asked his students to use discernment—the ability to grasp and comprehend the obscure—as a philosophy of nursing practice as well as life. "When we discern as individuals and come to learn who we are, then as practitioners we can care for our patients more effectively," he said, adding that to see his teaching come alive through his students in a clinical setting was "a beautiful thing."

This guiding principal of discernment, this contemplation of "what is being asked of me?" led Dr. Connelly to the decision to enter the Abbey, moving from a long-loved vocation to a monastic life filled with prayer.

Born and raised in Connecticut, Dr. Connelly and his siblings lost their

autistic children for a year before beginning bench research in the cardiology department at Brigham and Women's Hospital in Boston. She originally sought a spot in the UMMS class of 1992 and felt so strongly that it was the right place for her that she was unfazed when she didn't get accepted. "I really wanted to be there." She stunned her friends and family by declining another medical school's invitation, deciding instead to take a leap of faith and wait to reapply to UMMS. The gamble paid off and she was accepted into the class of 1993. "I was a grateful medical student at UMass. I think it made me more passionate about the work."

Though they grew up in towns just 15 minutes apart from each other, the two met for the first time at UMMS, shortly after he spied her at a coffee for first-year students. They married in 1993 after Leslie graduated; Paul had already begun his residency in neurological surgery at the renowned Barrow Neurological Institute in Phoenix, where he also completed a spinal surgery fellowship. Leslie entered the Phoenix Integrated Residency in Obstetrics & Gynecology at Maricopa Medical Center and St. Joseph's Hospital, which she finished in 1997, the year their first child, Meg, was born. She recalls that in medical school she had taken pause when considering ob/gyn as her field, realizing the specialty could be hectic. Still, she said, she "felt drawn by a desire to help individual women and to influence women's health overall."

The couple moved back to the East Coast when Paul received an offer to join Orthopaedic & Neurosurgery Specialists in Greenwich, Conn. in 1998, where he has become a nationally recognized expert in minimally invasive spinal surgery and a sought-after lecturer on the topic. Leslie joined Brookside OB/GYN, affiliated with Greenwich Hospital, and the couple welcomed two more children: Nico in 2001 and Luke in 2003.

Paul said he had thought nothing could be as tiring as residency but found that several years of conflicting call schedules—Leslie every fourth night, Paul every other—made life with three small children exhausting. Although they were helped by "a terrific nanny and our incredible mothers," the couple felt that their work schedules were taking a toll. Seeking a more predictable work life, Leslie gave up labor and delivery at her practice and gained more time with their children. The nights of tag-team parenting are almost gone.

For Paul, the pressure finally eased up a bit when two additional neurosurgeons joined the practice. His call nights dropped from every other night to every fourth. For two physicians dedicated to their patients and passionate about their broader contributions to their fields, being able to balance home and work in a way that provides energy for both family and patients is key to fulfillment. –AMD

parents when he was young. Raised by his grandmothers, he was inspired by his great aunt, Agnes Colina, a nurse. He attended St. Elizabeth's Hospital School of Nursing in Utica, New York, and practiced pediatric health care at spots across the globe. Nursing children with chronic or terminal illnesses, he often found himself with them and their parents during the "transition from earth to heaven," he said. "I still turn to these children; they are my angels."

These experiences would lay the groundwork for his post-doctoral research—Toward Measurement of Hope in Children with Chronic Illness—which he described to Graduate School of Nursing students in spring 2006 during a return visit to the school. "It was a blessing to be invited to speak by faculty who were once my teachers, but who were now my colleagues." Dr. Connelly believes that nurses who understand how hope develops in a young child can help patients develop the tools they'll need to manage their disease through adolescence and beyond.

"It's been said that researchers go into a field of study because of something unanswered in their life. My research reflects my progression to hopefulness."

Dr. Connelly's monastic life accentuates the concept of hope, but before entering the Abbey, he said he experienced moments of anxiety and periods of unrest. "I would sometimes ask myself, 'Why would this 35-year-old with a PhD, who is bright, motivated and has a good sense of humor want to leave this world?' But then I'd answer, 'Who am I to say no to an invitation to sacrifice?' " His colleagues and students at Boston College were intrigued by his decision, he said, and it led to some provoking dialogue centered around movement through life and arrival at critical junctures. "I proved a good model for discussion." –ALB

Vitae: Class Notes

1978

Gary L. Peters, MD, UMMS assistant professor of orthopedics & physical rehabilitation, has opened an orthopedics and sports medicine practice in the Outpatient Center at Whittier Rehabilitation Hospital in Westboro, Mass.

1981

Stanley K. D. Tam, MD, an internationally recognized surgeon specializing in minimally invasive procedures, recently joined UMMS, as associate professor of surgery, and UMass Memorial Medical Center's Division of Cardiac Surgery. He was recruited from Mount Auburn Hospital in Cambridge and Massachusetts General Hospital. Commenting on his return to Worcester, Dr. Tam said, "I value the history I have here, and it means a great deal to me to be able to return to the school and medical center that gave me so much."

Worcester Business Journal recently recognized "Health Care Heroes" **Janet O. Yardley, MD**, medical director of the Framingham Community Health Center, and **Donna Gemme, RN, MS '91,** director of the Cardiovascular Ambulatory Services Clinic at UMass Memorial Medical Center.

1987

Peter W. Moran, MD, is a family medicine practitioner at Indian Stream Health Center in Colebrook, New Hampshire and a member of the medical staff at Upper Connecticut Valley Hospital. From 1990 to 1997, Dr. Moran served in the Air Force, and practiced in Maine, Massachusetts and Misawa, Japan. He then practiced in Haverhill, Mass.

1988

Stephanie S. Prior, MD, is a family medicine practitioner at the Cape Cod Free Clinic & Community Health Center in Mashpee. She worked for 13 years in Lawrence at a community health center before moving to Falmouth and a practice in Bourne. Dr. Prior had volunteered at the Cape Cod Center for two years before joining the staff. She lives in Falmouth with her husband, Robert Grosch; they have two daughters, Ariadne and Zoe.

1989

Douglas A. Burd, MD, has joined the medical staff of HealthAlliance Hospital—Leominster Campus, specializing in radiology.

1990

Anthony E. Wilson, MD, is a hospitalist at Milford Regional Medical Center.

1992

Elias V. Belezos, MD, has located his internal medicine practice at the Medical Arts Building of Harrington Memorial Hospital in Southbridge, Mass. Dr. Belezos, who lives in Dudley with his wife, Judith, and three children, has served for five years as a medical consultant to the Boston Red Sox organization.

Dana R. Crino, MD, was appointed Chief of Critical Care Services at Quincy Medical Center. He most recently served as attending intensivist at Abbott Northwestern Hospital in Minneapolis. Dr. Crino has also practiced critical care medicine in Rhode Island and served on the clinical faculty of Brown Medical School.

1993

Jeffrey A. Gordon, MD, director of the Hematology/Oncology Clinic at Day Kimball Hospital in Putnam, Conn., was recently awarded the UnitedHealth Premium Quality designation for oncology. This designation identifies physicians whose clinical practice adheres to specified quality criteria.

Michael L. Rich, MD, is a member of Partners in Health Care, a Boston-based group that brings health care services to points across the globe. Dr. Rich recently led the group's efforts to establish a hospital in a war-torn region of Rwanda, plagued by outbreaks of tuberculosis, malaria and AIDS. According to Dr. Rich, the hospital provides free health care and medicine to a population of about 340,000; Partners in Health Care will train the Rwandan staff to run the hospital. Dr. Rich has traveled to Haiti, Peru and Siberia for Partners in Health Care since 2001.

1994

Mary M. Herlihy, MD, assistant professor of obstetrics & gynecology at UMMS, recently participated in a five-week Project Hope Mission in the Philippines as part of her clinical department's effort to offer physicians the opportunity to provide health care to women in developing countries.

1996

Pediatrician **Nancy M. Turkington, MD,** has opened a sole practice in Hanover, Vermont. She received a master's degree from the Center for the Evaluative Clinical Sciences at Dartmouth Medical School.

1998

Cardiologist **Joshua M. Krasnow, MD,** recently joined the staff at Milford Regional Medical Center.

2000

Andreja (Strahonja) Packard, MD, PhD (GSBS), has joined the medical staff of HealthAlliance Hospital—Leominster Campus, specializing in neurology.

Laura Silk, MD, lives in West Hartford, Conn. with her husband, Hugh, also a physician, and children, Josie and Maddy. The couple was recently spotlighted in the *Hartford Courant* in an article chronicling their love story. A courtship characterized by much commuting, the Silks are planning a one-year stint in New Zealand to determine if they would like to live and work there. Dr. Silk practices obstetrics & gynecology, but is currently at home with their children.

Clara Stringer, MD, married Alexei Auld on June 10, 2006. Dr. Stringer recently completed a fellowship in geriatrics at New York University.

2001

Bonnie F. Cohen, MD, has joined Cambridge Health Alliance's Family Medicine Department from the Greater Lawrence Family Health Center. She sees patients at Union Square Family Health in Somerville, Mass.

Paulette Seymour, PhD, was appointed dean of the Graduate School of Nursing at UMass Worcester in August 2006. She had served as interim dean since fall 2005 upon the departure of Doreen Harper, PhD. "[Paulette's] ability to lead the GSN—to work with the faculty to establish priorities, support faculty and student recruitment, and manage the educational and research missions of the GSN—has been remarkable," said Chancellor and Dean Aaron Lazare in his announcement of Dr. Seymour's appointment.

Teresa S. Wright, MD, is pursuing a dermatology fellowship at Kansas University and presented an abstract at the annual International Society for the Study of Vascular Anomalies held in Milan, Italy in June.

2002

Maria I. Sannella, MD, is a member of the medical staff at Brockton Hospital's Children and Youth Program, which serves as the health care provider for the Brockton Public School System.

Alumni Bring Barre Health Center Campaign 'Closer to Home'

Thanks to the generosity of School of Medicine and residency alumni of the University of Massachusetts Medical School, the new $6.7 million Barre Family Health Center, set to open in May 2007, is closer to its philanthropic goal of $2 million. With a first-ever class gift from members of the Class of 2006, and more than $200,000 in gifts and pledges from alumni and residents, the "Close to Home" campaign theme rings true for the campaign's fund-raising success to date. These and many other community gifts, including a lead donation of $100,000 from Barre Savings Bank, bring the current campaign total to more than 80 percent of goal.

Donald H. Miller, MD '84, says his gift was in appreciation for his residency experience at the Barre Family Health Center. "Any charitable donation that leaves humanity in better shape meets my criteria for philanthropy." There is still time to make a gift; please call 866-888-6277 or 508-856-3527.

In Memoriam

Stephen A. Henault, MD '92, died in May. Dr. Henault was a physician in the Department of Psychiatry at Day Kimball Hospital in Putnam, Conn. He leaves his two sons, Eric and Christopher Henault of Charlton, Mass; a brother, Kenneth Henault, Esq. of Dudley, Mass. and his former wife, Maureen Henault.

Tanja C. Davin, MD '97, died in February. Dr. Davin was a hospitalist at Elliot Hospital in Manchester, New Hampshire. She is survived by her husband, John Klunk, and her parents.

Vitae: The Last Word

By Joanne Derr, MS, *Associate Vice Chancellor for Human Resources, and*
Marian V. Wilson, PhD, *Associate Vice Chancellor for Diversity and Equal Opportunity*

John has two children under the age of 10 and shares the joys and responsibilities of their school and extracurricular activities with his wife, trying hard to attend games and class presentations to witness those special moments that he'll remember for years to come. John also has an aging mother and father, and learned recently that his mom will need to move to a nursing home for continuous care—his dad just can't do it all himself anymore. John is helping coordinate the move, meeting with an attorney and health care professionals to ensure his mom's comfort, both physically and financially.

Marian Wilson, PhD (left), and Joanne Derr, MS

John also works at UMass Medical School. He is a diligent, productive employee who strives to give his best. He is valued by UMMS, just like all employees who balance their work and non-work responsibilities through the assistance of UMMS' variety of programs and initiatives designed to ensure opportunities for work-life balance. UMMS is committed to maintaining a workplace where our employees' obligations to family complement their professional growth and advancement.

Now, we've taken it a step further with the creation of a work-life manager position. The individual who fills this role will have the primary responsibility of managing and administering the work-life balance programs offered by UMMS. The manager will also conduct ongoing analyses of the work-life needs of UMMS faculty and other employees and recommend innovative and cost-effective solutions to identified problems; identify trends and emerging work-life issues and create programs, plans and training to respond to them; and communicate the array of work-life programs to both external and internal audiences so that we can continue to recruit and retain exceptional talent. This communication program may be one of the more important components of the position, as we found out in our study of work-life balance leading up to this latest initiative.

In 2004, our Diversity and Equal Opportunity Office conducted an Employee Diversity Survey and focus groups to measure workplace diversity. Among other findings, results revealed the need to highlight work-life balance programs and opportunities at our institution. Through the Council on Equal Opportunity and Diversity, an *ad hoc* committee was formed to examine UMMS initiatives with respect to peer institutions and their work-life programs.

The *ad hoc* committee confirmed that UMMS already offers a wide variety of benefits, programs and initiatives that assist employees as they respond to the demands of life while remaining fully productive at work. In collecting and evaluating benchmark data, the committee found that UMMS is on target with a comprehensive package of benefits and services that not only supports employees, but also aids in the recruitment and retention of quality staff, driving the objective for UMMS to be an employer of choice, an employer of distinction.

The *ad hoc* committee also found, however, that many current and prospective employees were not fully aware of all of the programs available to them, including competitive insurance plans, education and support programs, and paid and unpaid leave opportunities.

The *ad hoc* committee recommended the formation of an on-going Work-Life Committee to develop and coordinate a strategic plan aimed at communicating work-life initiatives to employees and supporting departmental managers' efforts to implement such initiatives, as well as the creation of the work-life manager position. The committee, now under the aegis of Human Resources, has been formed and meets regularly. Meanwhile, UMMS is searching for our first work-life manager, whose initial task will be to establish a comprehensive communications plan that supports accessible and centralized work-life balance information for current and prospective faculty and other employees. We're excited about bringing balance into the spotlight.

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Chancellor and Dean: Aaron Lazare, MD

Vice Chancellor for University Relations: Albert Sherman

Associate Vice Chancellor for University Relations and Managing Editor: Mark L. Shelton

Director of Constituent Relations: Lanny Hilgar

Editor: Andrea L. Badrigian

Writers: Kelly A. Bishop
Ellie Castano
Alison M. Duffy
Sandra L. Gray
Nicole L. Soucy

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Editor, Vitae
Office of Public Affairs & Publications
UMass Medical School
55 Lake Avenue North
Worcester, MA 01655

Alumni of the School of Medicine, Graduate School of Biomedical Sciences and the Graduate School of Nursing may send their latest news to alumni@umassmed.edu

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Vitae:

University of Massachusetts Medical School

UMass Medical School
55 Lake Avenue North
Worcester, MA 01655-0002

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