

## In the Lab

## NIH Funds Top \$300 Million

### U-M Medical School ranks seventh in nation

#### FOR THE FIRST TIME IN MEDICAL

School history, the total annual amount of National Institutes of Health grant funding awarded to the school's clinical researchers and biomedical scientists exceeds \$300 million.

When the final numbers for fiscal year 2008 were tallied, Medical School researchers had received 712 grant awards and brought in more than \$301 million in NIH grant funding. As a result, the U-M moved from 11th-place to seventh in NIH grants awarded to all U.S. medical schools and placed second among medical schools affiliated with public universities.

Breaking the \$300-million barrier was particularly significant, because it happened while the federal NIH budget was essentially flat and not even keeping up with inflation, according to Steve Kunkel, Ph.D., a professor of pathology and the school's senior associate dean for research.

"Historically, the Medical School has ranged from ninth to 11th in NIH rankings," says Kunkel. "We were never able to break the barrier before. It took a lot of hard work by many investigators to make it happen."

The total amount of fiscal year 2008 research funding received from other sources — including other federal agencies, industry, state or local governments



Professor of Internal Medicine Bruce Richardson, M.D., Ph.D., researches autoimmunity in lupus and aging. Continued expansion of research funding is a Medical School priority.

and private and foundation support — exceeded \$412 million.

"Continued expansion of research funding is necessary to maintain our national prominence," says Dean James Woolliscroft, M.D. "Research funding, faculty growth and access to quality research space are all connected. Our current lack of available high-quality research space is a limiting factor holding us back."

In December, University Regents took a first step toward possible resolution of the research space issue by approving the U-M's offer to purchase the former Pfizer Global Research and Development facility in Ann Arbor, with nearly 2 million square feet of additional laboratory and office space. If everything goes as planned, researchers could begin moving into new lab space as soon as late 2009.

"Now that we've passed the \$300-million milestone and soon could be

acquiring more research space, this is the perfect time to step back and review our entire research portfolio," says Kunkel. "It gives us an opportunity to align related research efforts, expand ongoing university-wide research collaborations, and determine where we want to be five to 10 years in the future."

As part of the strategic planning process, U-M faculty teams will develop recommendations for the future research strategy, according to Kunkel. "Our goal is to develop a strategy for one unified campus that will maximize future growth by leveraging our existing research strengths into new areas. The plan must be fiscally sound to ensure we have the resources required to attract more research investigators."

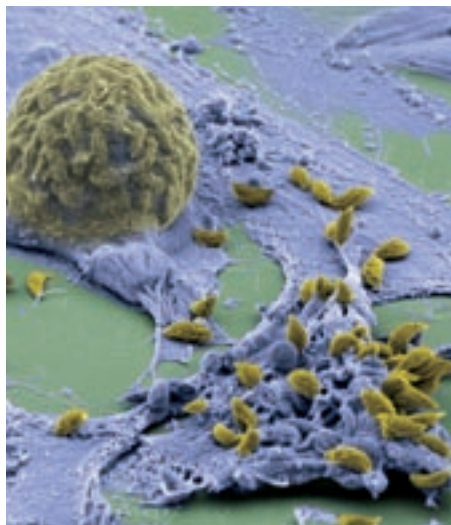
"We will be investing in people who can be leaders in science and medicine," says Woolliscroft. "This has the potential to be transformative for U-M." —SALLY POBOJEWSKI

## Michigan OKs Stem Cell Research

**MICHIGAN VOTERS HAVE APPROVED PROPOSAL 2** — a constitutional amendment that eases restrictions on embryonic stem cell research conducted in the state. The amendment makes it legal for Michigan scientists to derive new embryonic stem cell lines from human embryos created for use in fertility treatment that otherwise would be discarded. Before passage of Proposal 2, Michigan was one of the most restrictive states in the country for human embryonic stem cell research. “The citizens of Michigan voiced their hope for the future of biomedical research, and their desire for our state to be known as a welcoming environment for life sciences discovery and industry,” says Robert Kelch (M.D. 1967, Residency 1970), U-M executive vice president for medical affairs. —SP [MORE ON THE WEB](#) ↗

## Parasite Imprisoned by Protein Mutation

**UP TO 23 PERCENT OF AMERICANS ARE UNWITTING HOSTS** for a common parasite called *Toxoplasma gondii*, which causes toxoplasmosis. After the initial infection, the parasite goes dormant, lurking in central nervous system cells, where it can reactivate and damage the brain, eyes and other organs. Scientists in the Department of Micro-



In the foreground, parasites (yellow-green) rupture out of a dying host cell (blue); in the background an intact host cell contains a large parasite-filled vacuole.

biology and Immunology have identified a protein called TgPLP1, which creates pores in infected cell membranes allowing the parasite to break out and infect other cells. Mutant forms of the parasite without TgPLP1 were unable to escape from host cells to spread the infection. The discovery could help scientists develop drugs or vaccines to prevent toxoplasmosis and related diseases, including malaria. —SP

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## Kuhl Receives Japan Prize



**DAVID E. KUHL, M.D.**, a U-M professor of radiology whose research was fundamental to the development of medical imaging, has won the 2009

Japan Prize — one of the world’s most prestigious science and technology awards.

Kuhl often is called the “father” of emission tomography. His research led to the development of advanced computed tomographic imaging technology, including PET and SPECT scanners being used today in clinics and hospitals around the world.

“Too frequently, we don’t realize the impact one individual can make to the future of medicine,” says Dean James Woolliscroft, M.D. “The groundbreaking work that David Kuhl began in the 1950s is now a vital part of modern diagnostic and clinical medicine.”

From the late 1950s through the 1970s, Kuhl and his colleagues at the University of Pennsylvania resolved many technical barriers to create the first cross-sectional images of radioactive tracers within the human body. In the early 1970s, Kuhl was the first to measure regional blood volume in the brain using 3-D SPECT imaging of radioactive tracers, which opened the field of nuclear medicine to new kinds of scientific research.

In 1986, Kuhl moved to the U-M to serve as chief of nuclear medicine. In his current research, Kuhl is developing advanced emission computed tomography technology that could make early diagnosis possible for patients with Alzheimer’s and Parkinson’s disease. —SP

## In the Clinic

# Remedies for Troubled Times

## The U-M Health System faces the nation's economic crisis

**WHEN THE U-M HEALTH SYSTEM** was forced to reduce its workforce by 250 full-time equivalencies (FTEs) in December 2008, it became clear that even health care wasn't immune to the nation's economic meltdown.

Since FTEs include part-time and contract workers, the net job loss was limited to about 50 individuals. Nonetheless, "That's 50 people who got the equivalent of a pink slip," says Doug Strong, director and CEO of the U-M Hospitals and Health Centers. "It's a wrenching experience to do that in this economic climate." Avoiding any more such experiences is one of the chief aims of the U-M's multifaceted response to the crisis.

Fortunately, the Health System had a head start, partly because it's had to adapt for some time to the state's distressed economy, but mostly because years of prudent planning and resource stewardship have built a foundation that can weather the storm.

"We're as well positioned to meet the current and future challenges as any academic medical center in the nation," says Executive Vice President for Medical Affairs Robert Kelch, M.D., "because of our resources, our previous planning and especially because of the talents



of our people. It's raining outside, but we've got the best roof in the world."

The roof won't hold without maintenance, however. With uncompensated care in Michigan increasing by almost 70 percent in the last three years, a reduced rate of increase in demand for services, and a drop in the combined value of the Medical School and hospital endowments of more than 20 percent in the last six months, the remedy is unlikely to come from the

revenue side. Thus, says Strong, "Unless we change our expense per case, we experience financial deterioration."

"Even before this crisis, we couldn't continue business as usual," says Medical School Dean James Woollicroft, M.D. "I challenged our leadership last May to work through what a 25 percent cut to their budget would mean, to get people to focus on what's mission-crucial." The Michigan Quality System, based on "lean manufacturing"

principles, engages the people who do the work in identifying opportunities to reduce waste and improve efficiency. In addition, says Woolliscroft, as part of the overall Health System plan, the Medical School is “about 80 percent of the way through a strategic plan for our clinical mission, and we have in the works a strategic planning process for our whole educational mission.”

Another thing it’s going to take is a 25 percent reduction in the annual capital budget. “We’re trying to get by on investing less in existing buildings, new clinical equipment or new information technology, as a way to conserve cash,” says Strong. In the longer term, projects on the drawing board will get closer scrutiny, although there are no plans to slow or stop projects already under way.

Kelch says he’s regularly asked why the U-M is building a \$750-million children’s hospital in such troubled times. “That confuses wise capital investments that position you to be strong in the future vs. short-term avoidance of operational decisions that must be made no matter what,” he says. “That would be a panic, where you’re so short-term you can’t see the wisdom of making sure that 10 years from now you have the right facilities. To do that would be very short-sighted.”

Woolliscroft points out that the Medical School has been through more than a couple of depressions, panics and other bumps in the road in its 160-year history. “Guess what, there will be more in the future,” he says. “We just need to stay focused on how we make the place stronger.”

—JEFF MORTIMER

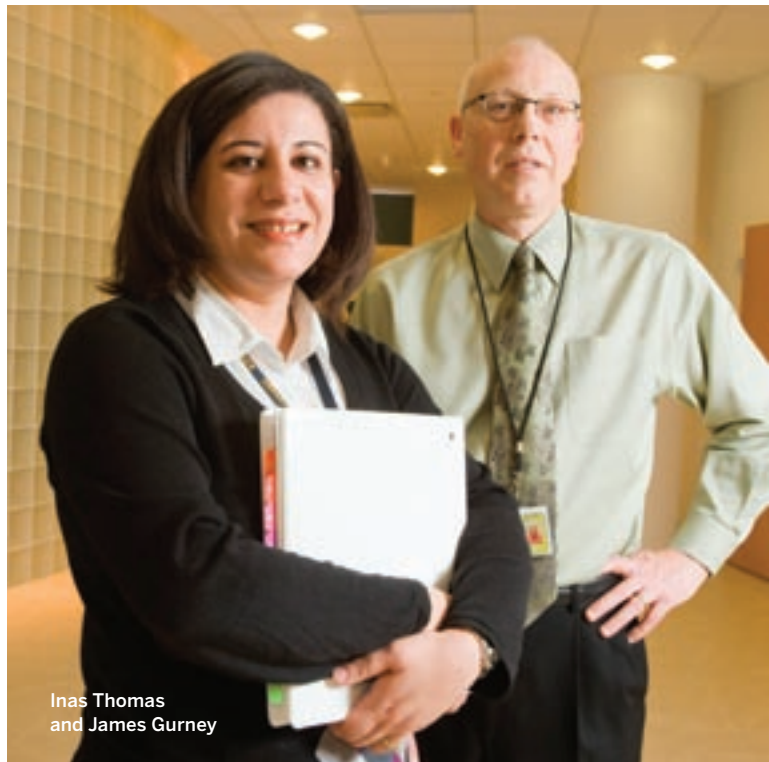
## Childhood Leukemia Can Weaken Men’s Bones

### BOYS WHO SURVIVE THE MOST COMMON TYPE OF CHILDHOOD

cancer, acute lymphoblastic leukemia (ALL), are more likely to have low bone mineral density as young adults, putting them at higher risk for osteoporosis and bone fractures, according to results of a recent U-M study. Among the general U.S. population, 11 percent of 30-year-old men and 19 percent of 30-year-old women on average have low bone mineral density. Researchers led by James G. Gurney, Ph.D., an associate professor of pediatrics, found that 36 percent of male adult cancer survivors and 16 percent of female adult cancer survivors in the study had abnormally low bone mineral density — a condition called osteopenia. U-M researchers believe radiation and chemotherapy used to treat the cancer may impair production of certain hormones and growth factors that affect bone health.

“Studies like this one show the importance of monitoring for bone health in all cancer survivors,” says Inas H. Thomas, M.D. (Residency 2006), a pediatric endocrinology fellow who was the study’s first author. “This is particularly important, since drug treatments or simple interventions, such as vitamin D and calcium, may be beneficial.” —SP

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Inas Thomas  
and James Gurney

## In the Clinic

# New Surgical Treatment for Severe Scoliosis

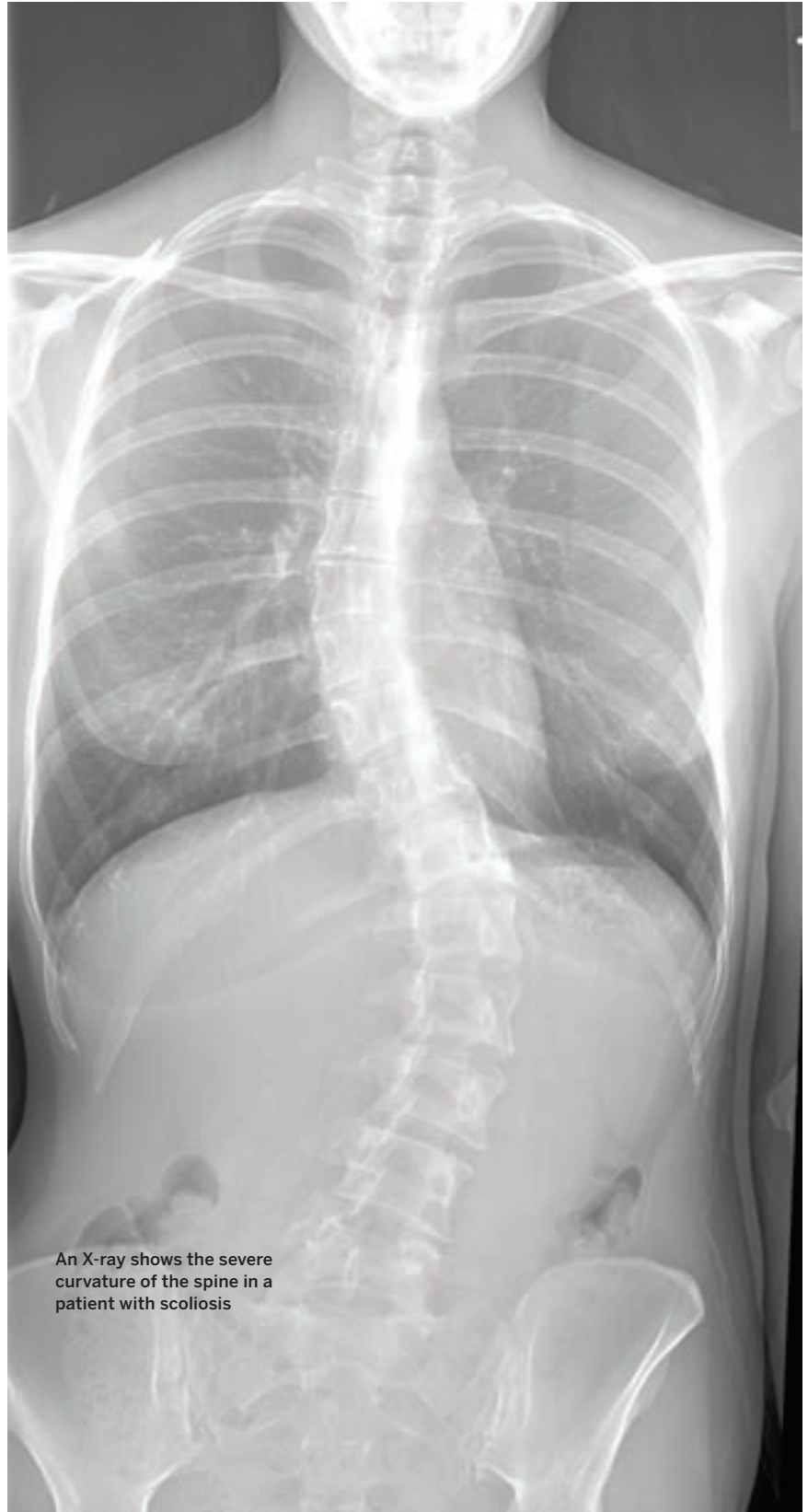
**SCOLIOSIS, OR CURVATURE OF THE spine,** is a painful and debilitating condition. Until recently, just two surgical options were available to straighten the spines of patients with scoliosis severe enough to require surgery. Both were major operations with significant side effects — including muscle damage, long scars and blood loss, according to Frank La Marca, M.D., a spinal surgeon and assistant professor of neurosurgery and orthopaedic surgery.

Now, surgeons at the U-M Health System and a few other medical centers are offering a new type of minimal access spinal surgery, which La Marca believes could revolutionize the way severe scoliosis is treated. The minimally invasive approach requires very small incisions in the skin and no stripping of the muscles; instead, surgeons maneuver their instruments between the muscle fibers.

“The procedure is still experimental, but so far our patients have been able to return to work much faster, their postoperative course has been shorter and their postoperative pain has been less,” says La Marca. “My hope is that it will become the standard of care on a national scale in the future.”

—SP

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An X-ray shows the severe curvature of the spine in a patient with scoliosis

## Latest Guidelines Offer Options for IBS Patients

**UPDATED GUIDELINES FOR TREATMENT OF IRRITABLE BOWEL SYNDROME, or IBS, have been released by the American College of Gastroenterology. Based on the latest medical research and expert consensus, the guidelines provide a comprehensive and practical set of recommendations for the diagnosis and treatment of IBS that will be valuable to physicians and their patients.**

Two U-M gastroenterologists — William Chey, M.D., professor of internal medicine, and Philip Schoenfeld, M.D., associate professor of internal medicine — were members of the task force that developed the new recommendations. “There are many things we can do to help IBS patients; it’s not a hopeless situation,” says Chey.

IBS is the most common disease diagnosed by gastroenterologists, but it’s also one of the most misunderstood. A chronic disorder of the lower intestine that affects 10 percent to 15 percent of the U.S. population, IBS causes cramping, abdominal pain, bloating, constipation and/or diarrhea. Women are twice as likely to be affected as men. Despite intensive research, the precise cause of IBS remains unknown. —SP [MORE ON THE WEB](#) ↗



## Health Briefs

Many physicians pay too much and receive too little reimbursement for common childhood vaccines used in their clinics, according to a U-M survey. Results show that vaccine costs and reimbursement rates vary widely from practice to practice. Now that physicians know what other physicians are paying for vaccines, they can use the information to negotiate better prices.

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A new first-of-its-kind study under way at the U-M Health System and 10 other U.S. hospitals will help doctors determine which emergency treatment is best for children who suffer severe, prolonged seizures that can be life-threatening. The study compares two drugs commonly used in emergency rooms to treat seizures in children with a condition called “status epilepticus.”

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If patients with Alzheimer’s disease are unable to give informed consent to participate in a research study, is it ethical for close family members to consent for them? State and federal guidelines are unclear on the ethics of surrogate consent, but a recent study shows the general public accepts the idea. Survey data indicates that most older Americans would want family to enroll them in such a study, if they could not do so themselves. —SP

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## In the School

# Taking It to the Floors

Nursing students  
experience more  
direct care

**A COLLABORATION BETWEEN THE** Health System and the School of Nursing is testing improved approaches to educating student nurses by providing them more direct clinical experience. During the 2008 fall semester, a group of junior nursing students participated in the pilot program designed to immerse students more intensely and meaningfully in the day-to-day life of the hospital and the work of nurses, and to acclimate them early on to a team-based model of health care.

Involvement in patient care has been a critical aspect of nursing education for decades. But this new initiative, known as Phase I of the Initiative for Excellence in Clinical Education, Practice, and Scholarship — and the brainchild of School of Nursing Dean Kathleen Potempa, D.N.Sc., and Health System Chief of Nursing Services Margaret Calarco, Ph.D. — takes it several steps further.

In the traditional model, Potempa says, students and faculty entered the unit as “guests,” often for just a day at a time. Assigned to one or two patients, they were relatively segregated from other unit activities, leaving their experience largely devoid of context.

“This new model puts education in the



framework of faculty-driven practice and research,” says Potempa.

Students received an intensive refresher course in clinical skills after the summer break, attended additional lectures in patient safety and trained in team dynamics. “We wanted them to hit the ground running,” says Potempa. Then, in addition to the semester’s traditional coursework, students and faculty together took to the floors of the hospital, becoming embedded in a specific unit for days at a time.

Students in the pilot program have the chance to get to know the patients they care for and observe the outcome of their care over several days. Not only do they get to witness the intricate teamwork of nurses, nursing supervisors, physicians, assistive staff, surgical technicians and others involved in patient care — they get to be a part of it.

Overseeing students at all times are a staff nurse clinical mentor and clini-

cal faculty member who are aware of the students’ strengths and weaknesses. “The faculty member might say to a student, ‘I’d like to spend a little more time with you today,’” explains Marilyn Svejda, Ph.D., an associate professor of nursing and the project’s director. “‘This patient needs care that you haven’t performed before. Then we’ll talk about how this fits in with total care.’”

The inaugural semester came after a full year of planning that was a team effort all its own. In spring 2007 at a two-day meeting, faculty, staff nurses, students and clinical leaders in the School of Nursing and the Health System discussed ways to improve nursing education at the University. Says Potempa, “What was dramatic was that so many people, from so many different sectors, could come up with a pretty consistent view of what was needed.”

—WHITLEY HILL

## Bradford Selected as Otolaryngology Chair

**THE MEDICAL SCHOOL HAS SELECTED** one of its own — Carol R. Bradford (M.D. 1986, Residency 1992) — to chair its Department of Otolaryngology, pending approval by the U-M Regents.

Bradford is a professor of otolaryngology with long-term ties to the U-M. She earned her undergraduate, masters and medical degrees from the U-M, and has been a faculty member since 1992.

Previously, Bradford was director of the U-M Head and Neck Surgery Division, co-director of the Head and Neck Oncology Program, and associate chair for clinical programs and education. Bradford specializes in head and neck cancers, including the removal of skin cancer and reconstructive surgery. Her research focuses on identifying and evaluating biomarkers that can predict outcomes in head and neck cancer patients, and developing therapies to combat certain types of head and neck cancer. —SP

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LEFT: COURTESY OF CAROL BRADFORD; RIGHT: MARTIN V. LOET, U-M PHOTO SERVICES

## El-Sayed Named Rhodes Scholar

**HE HEARD THE** chair of the selection committee call his name, but until he saw it written on the official list, Abdulrahman (Abdul) El-Sayed didn't believe it was true. The 24-year-old University of Michigan M.D./Ph.D. student had just won a Rhodes Scholarship. In September 2009, he would be moving to England to spend two or three years studying at the University of Oxford with all expenses paid. "It was a surreal experience," El-Sayed says.

Of 769 American students recommended by their colleges or universities for a Rhodes Scholarship, he was one of just 32 — and the only one from the U-M — chosen to receive one. While at Oxford, El-Sayed plans to complete a master's degree in global health science, and continue his Ph.D. research on the impact of socio-cultural factors on the health of minority populations. Then it's back to Michigan to finish his last two years of medical school and write his Ph.D. dissertation.

El-Sayed came to Ann Arbor in 2003 with plans to graduate from the U-M, go to medical school and become a neurosurgeon. But then, during the second semester of his senior year, he discovered research. "Research is what I love to do most in the world after being with my family and making sure I'm the best person I can be," he says.

Ten years from now, El-Sayed sees himself working at an academic medical school somewhere in the United States with a dual appointment in medicine and epidemiology. "Wherever I end up," he says, "Michigan will be my home. I can't enumerate everything I owe to this school." —SP

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El-Sayed addresses his classmates at 2007 undergraduate commencement.