

ROCHESTER MEDICINE

UNIVERSITY OF ROCHESTER MEDICAL CENTER • SCHOOL OF MEDICINE AND DENTISTRY • VOLUME 1 • 2014



The Future is Now

Preparing students for mind-boggling changes in medicine

The Pain Frontier

Leading the charge against
a quiet epidemic

Looking for Trouble

New center seeks problems
in need of solutions

103

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On the cover

Erin Keegan (BS '13, MS '14) is among the first students to attend the Center for Medical Technology and Innovation

Good things come to those who wait. This phrase, extolling the virtue of patience, certainly has merit. However, there are times when waiting is not an option. To ensure success, it is often necessary to take immediate and deliberate action in the face of uncertainty. At the University of Rochester Medical Center, this is one of those times.

As the ink dries on our new, five-year strategic plan, we are already embracing our updated mission and vision. We are vigorously engaged in achieving our objectives. We are launching initiatives to keep us at the forefront during this turbulent and transformative time in academic health care. We aren't waiting patiently for success to find us. We are diligently seeking it out. Through extraordinary innovation, we are decreasing costs and improving quality in patient care, scientific discovery, and teaching.

Innovation takes many forms at URMC, as you will see in this issue. When people hear the "I" word, they often think of emerging technologies. In *The Future is Now*, we survey some of our most prominent alumni. You'll find out what high-tech tools intrigue them the most as they practice medicine, look for cures, or prepare the next generation of physicians. Then take a look at how URMC is ensuring all of our learners —

students, residents, fellows, and practicing clinicians — are up-to-date with these game-changing technologies.

Innovation can also mean a new way of doing something. In *The Pain Frontier*, we discover how our Neuromedicine Pain Management Center is integrating research and evidence into policy and practice. The fresh approach to controlling chronic pain is garnering national accolades. The word *innovation* is also about finding the unexpected in a familiar place. As you know, copper is everywhere in our daily lives. *The Copper Link* explains what this exposure might be doing to our brains.

This issue contains just a minute sampling of the innovative ways we are adapting to the changing world of academic medicine. However, it provides ample evidence we aren't standing by, waiting for good things to come. At URMC, the future is now.



Brad Berk

Bradford C. Berk, M.D., Ph.D. (MD '81, PhD '81), CEO, University of Rochester Medical Center; Senior Vice President for Health Sciences

Innovation is not a new word at URMC. The School of Medicine & Dentistry has long been recognized for its ingenuity. Our educational approaches, including the Biopsychosocial Model, the Unification Model, and the Double Helix Curriculum, were groundbreaking. As the nation's health care system undergoes dramatic change, we continue to lead the way.

We are breaking down a lot of walls these days, both literally and figuratively. In *The Future is Now*, you'll get a peek inside our newly opened Center for Experiential Learning. We've replaced decades old labs and lecture halls with state-of-the-art learning space that accommodates the development of interdisciplinary, team-based learning. We're creating curricula to train our medical students, nursing students, residents, fellows, faculty and staff in new technologies, information systems, and approaches to health care delivery.

We're also implementing new approaches to research. We are working to take what's coming out of the bench and apply it more

quickly than ever. We're forging critical partnerships, particularly with the River campus. In *Looking for Trouble*, you'll find a unique example of this. By bringing together bioengineers, health care professionals, and the biomedical industry, our Center for Medical Technology Innovation is exploring commercialization opportunities that will ultimately save lives.

While all this change is exciting, rest assured we remain committed to the values that make our medical school, residency programs, and fellowships so extraordinary. At the end of this issue, you'll find a new section that celebrates our past as we soar into the future.



Mark B. Taubman

Mark B. Taubman, M.D.
Dean of the School of Medicine and Dentistry, Vice President for Health Sciences

Machete-Wielding Moments

I have kissed a dolphin, rappelled a 21-story building, wielded a machete through an Argentinian jungle, and gotten stuck in a volcanic ash cloud.

Today, however, I'm at my cluttered desk on Elmwood Avenue, spooning leftover vegetable chowder out of a Tupperware bowl, and writing a sentence that includes the words "amyloid beta." I couldn't be happier.

As the new editor of *Rochester Medicine*, I have become the official storyteller for the School of Medicine and Dentistry. Everyone at the medical center has their vegetable chowder days. It's my mission to find their machete-wielding moments and share them with you. It's a dream job for a former public radio and television journalist looking for a better balance between work and all of the other stuff that makes breathing so worthwhile. Plus, I get to put on scrubs every now and then.

This issue will look and feel a little different than usual. I've been doing some research, reviewing data from the Council for Advancement and Support of Education, and talking with our Alumni Council I've been trying to find out what makes you want to spend time with *Rochester Medicine*.

We're starting to implement changes. Each issue will take on a theme — like innovation in academic medicine. We're giving ourselves lots of space to unravel each topic from many angles — something a single story could never do. We're shortening our *Medical Rounds* "news" section, and bringing you more up-to-date information on our brand new blog (!) instead. We're introducing the *Tradition* section. Each issue will end with a thoughtful essay and gorgeous photos to remind you just how special this place is. Soon we'll be charging up the cover so, hopefully, you won't be able to resist seeing what's inside.

But the magazine remains a work in progress. In the box below, you'll find lots of ways you can help make *Rochester Medicine* "meliora." Your voice is the most important one in this endeavor, and I look forward to hearing from you.



Julie Philipp
Editor

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ROCHESTER MEDICINE

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Record number of rankings in US News

Six URMC specialties are ranked among the best in the nation



Six URMC specialties are ranked among the best in the nation according to the 2014 *Best Hospitals* guidebook, compiled by *US News & World Report*. This is an unprecedented number of URMC programs to land on the magazine's top 50 lists in a single year. The specialties earning rankings are: Endocrinology (21st), Neurology and Neurosurgery (29th), Gynecology (32nd),

Nephrology (32nd), Urology (39th), and Gastroenterology and GI Surgery (48th).

Other programs are also doing well when compared to nearly 5,000 other eligible hospitals across the nation. In the remaining specialties ranked by the publication, URMC's programs for Cancer, Cardiology, Geriatrics, Orthopaedics, Pulmonology, and Otolaryngology all scored in the top 25 percent. Earlier

this year, the Pediatric Orthopaedics program was ranked number 45 in the 2014 *Best Children's Hospitals* listings.

URMC CEO Bradford C. Berk, M.D., Ph.D. credits faculty and staff for their efforts to improve quality, patient safety and satisfaction. He adds the rankings reflect URMC's "growing reputation for first-rate care."

URMC talking with India's leading hospital network

Officials from URMC recently traveled to India's southern city of Hyderabad to begin building a formal partnership with Apollo Hospitals, one of the country's largest private hospital networks. Under terms being discussed, physicians from Rochester would help develop Apollo's clinical,

research, and education programs in emergency medicine, neurosurgery and neuromedicine, and gastroenterology, GI surgery, and gastrointestinal oncology. The goal is to align Apollo's clinical programs with Western standards of medical care. In return, the affiliation gives URMC a unique opportunity to extend its brand internationally.

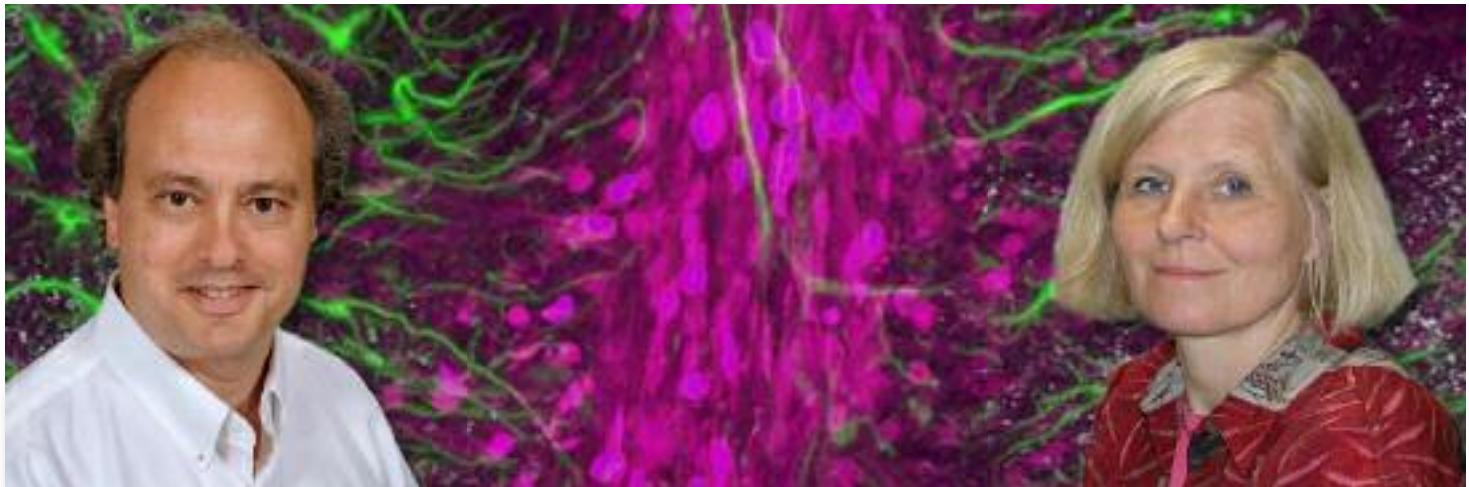


UR medical students meet Obama

Tina Jensen (MD '14) and Mykael Garcia (MD '14) were both a bit worried when a U.S. Secret Service agent pulled them aside near Park Avenue in August. He quickly put their fears to rest, telling them they had been selected to meet President Barack Obama. Obama was on a bus tour through upstate New York, and had stopped in Rochester for lunch.

"I was so excited, I started shaking," Jensen recalls.

The students, who were participating in a program at URMC's Center for Community Health, were able to shake the President's hand, exchange a few words, and take pictures.



Building a smarter mouse

URMC researchers gained national attention after finding human glial cells help mice learn faster. Their study, published in the journal *Cell Stem Cell*, adds to growing evidence showing these previously overlooked brain cells are essential to human intelligence. It also demonstrates a new way to look at neurological disorders that might be connected to glial abnormalities.

As the mice grew, the human glial cells retained their human characteristics while effectively pairing up with mice neurons.

Co-senior authors Steven Goldman, M.D., Ph.D. and Maiken Nedergaard, M.D., D.M.Sc. injected a form of human glial cells, called astrocytes, into the brains of newborn mice. As the mice grew, the human glial cells retained their human characteristics while effectively pairing up with mice neurons. These mice were measurably faster at learning things like mazes than their counterparts were.

"This tells us glial cells have a species-specific role in intellectual capability and cognitive processing. We've suspected this might be the case, but this is really the first proof," says Goldman. Listen to a story about the study on NPR's *All Things Considered* by going to www.rochestermedicine.urmc.edu.

Strong Memorial Hospital a "Magnet" for nurses

Strong is being recognized as a 2013 Magnet® hospital, a designation that serves as the gold standard for nursing excellence around the globe. Fewer than 7 percent of American hospitals have received this honor from the American Nurses Credentialing Center (ANCC). The Magnet Recognition Program approval process is rigorous, requiring thousands of pages of documentation and a four-day visit from an ANCC appraisal team. This is not the first time Strong has achieved Magnet status, but the re-designation incorporates new, more stringent standards for patient outcomes. A growing body of research indicates Magnet organizations enjoy better patient outcomes, including lower mortality rates, when compared to non-Magnet institutions.

URMC teams with Roswell Park Cancer Institute

URMC and Roswell Park Cancer Institute (RPCI) have received accreditation from the Accreditation Council for Graduate Medical Education (ACGME) for a joint, two-year fellowship program in Complex Surgical Oncology. This is a new, board-certified subspecialty, requiring a five-year residency in general surgery, a two-year ACGME-accredited fellowship, and board examinations.

Roswell Park has had a highly successful surgical oncology fellowship program for decades, funded by the National Cancer Institute. To earn ACGME accreditation, however, the Roswell program had to be part of an accredited residency in general surgery. So RPCI turned to URMC.

"URMC has an outstanding general surgery program, and we view this as an opportunity to not only strengthen our fellowship program, but also strengthen the relationship between our two institutions," explains Donald L. Trump, M.D., president and CEO of RPCI. Surgeons accepted into the joint fellowship program will train at URMC and RPCI. This is the second formal cooperative effort between the two organizations. URMC's Wilmot Cancer Center and RPCI launched a research partnership in 2010.

40 + 1 Innovators who changed the world

They might not be household names yet, but URMC virologists William Bonnez, M.D., Richard Reichman, M.D., and Robert C. Rose, Ph.D. are keeping company with the likes of Bill Gates, Mark Zuckerberg and Jane Goodall in a new book about life-changing ideas. The Spanish book, titled *40 + 1 Innovators* profiles some of the world's foremost innovators in several areas, including medicine. Bonnez, Reichman, and Rose were noted for their pioneering work on the human papillomavirus (HPV) vaccine. The vaccine is proven to provide 90 percent immunity against cervical cancer.



ONLINE To keep up to date with the latest news coming from URMC, visit our blog at: www.rochestermedicine.urmc.edu

**STRONG
MEMORIAL HOSPITAL**



By Julie Philipp

The Future is now

By Julie Philipp





He's a practicing cardiologist, but Eric J. Topol (MD '79) has not used a stethoscope for the past three years and 10 months. Philip Pizzo (MD '70) and other researchers at Stanford University can sift through a database containing 1.88 million anonymous patient records. Deborah C. German (R '79), founding dean of the University of Central Florida (UCF) College of Medicine, shows off her school's medical library — containing only 812 books.



All of these numbers add up to one thing: mind-boggling changes in academic medicine. Over the past two decades, dramatic advancements in technology have transformed the way people shop, find entertainment, get their news, and book vacations. Now technology is taking serious aim at our beating hearts, the diseases lurking in our genomes, and glucose swimming in our blood. The roles of doctor and patient are metamorphosing, and a new kind of health care is about to break through. No one knows exactly when that will happen or what it will look like, but there are clearly cracks in the cocoon of tradition.

Throughout the country, URMC alumni are on the leading edge of transformation. *Rochester Medicine* asked three prominent alumni to identify the single most exciting new technology each one is using to care for patients, conduct medical

research, or teach the next generation of doctors. They all said the same thing. “It is impossible to pick just one.”

In his 2011 commencement address, Topol told students graduating from SMD they were about to become “part of the biggest shakeup in the history of medicine.” *Rochester Medicine* caught up with the chief academic officer at Scripps Health again, shortly before he appeared in a *Today Show* report on genetic testing. Topol has been a frequent primetime champion for change since the 2012 publication of his book, *The Creative Destruction of Medicine*. His top picks for emerging medical technology are genomic sequencing, smartphones, and wireless biosensors. Collectively, he says, these innovations allow doctors to “digitize” a human being.

“We have an endless sea of information about a person that we didn’t have access to before. Much of it is in real time,” says Topol.

Often sporting sensors on his own

abdomen, wrists or fingers, Topol has already “digitized” himself. His smartphone is busy picking up his body’s signals, and his genome is mapped.

“I’ve done everything but the fetal genomic sequencing for pregnant women,” he laughs. “Now everyone can have the ability to drive his or her own medical care.”

Topol envisions a world where everyone knows the diseases or abnormalities written into their DNA. He says all consumers will have more control over their life stories — choosing to have a mastectomy to thwart BRCA1, insert a nanosensor to detect the first hint of a heart attack, or use a biosensor to keep tabs on blood sugar levels during meals. Clinicians will monitor patient vital signs using smartphones and apps, and it will be easy for patients to do the same. Patients will do more preventing, and physicians will do less healing.

“The doctor of the future will be more



Top: Topol shows how he turns his smartphone into a portable ultrasound.

Left: Pizzo helped build a system to provide researchers with easy access to a vast number of de-identified patient records.

Facing top: UCF students use cadaver station computers to identify disease and cause of death during Gross Anatomy.



of an advisor, helping patients understand this enormous amount of individual data," says Topol.

An enormous amount of data is buried in a research gold mine at Stanford, where Pizzo recently stepped down as dean of the School of Medicine. He helped establish the Stanford Translational Research Integrated Database Environment (STRIDE). Investigators come from all over the globe to see STRIDE, which Pizzo places high on the list of technological advancements rocking his world.

Amassing medical records dating back to 1995, a Stanford biomedical informatics team designed STRIDE to support clinical and translational research. At its core is an electronic database with 1.88 million (and counting!) patient charts from two hospitals. It also features tools to help researchers put together patient cohort groups, review clinical data, and conduct studies. They can

do all of this without infringing on the privacy of their subjects, whose records are de-identified.

"It's so easy to forget how available information has become in such a short period of time, and how much we take that for granted," says Pizzo.

It's not so easy to take the changing times for granted when you step inside the Harriet F. Ginsburg Health Sciences Library at UCF. There, the conversion essentially smacks you in the face.

"When people walk in, their first reaction is almost always, 'Where are the books?'" says German.

The medical school library has more than three million holdings, but fewer than 1,000 books. The facility is 98 percent digital, meaning students and faculty carry the library with them wherever they go. Using their iPads, phones, and laptops, they can access nearly everything at any time.

The materials aren't as stagnant as books; electronic publications are much more nimble when it comes to keeping up with the rampant expansion of medical knowledge. German, a bibliophile, initially struggled with the concept of a fully electronic library. Now it is the first innovation she lists, though it was not an easy choice.

"We have used new technology to help us do so many things that, prior to now, we would not have been able to," says German, who had the luxury of starting from scratch when UCF opened its medical school in 2009.

The state-of-the-art school has customized computer terminals at every cadaver station in its anatomy lab. While performing dissections, students learn from full-body CT scans of the cadavers and surf the Web for clues to identify disease and cause of death. Computerized mannequins occupy a dozen exam rooms in the school's simulation center.

"We are the future right here," says German.

**Rochester Medicine asked three prominent alumni to identify the single most exciting new technology each one is using.... They all said the same thing.
"It is impossible to pick just one."**



The future is here

The School of Medicine & Dentistry has earned a widespread reputation for setting trends in medical education and equipping its students for lifelong learning. These attributes have never been so important. In response to rapid-fire innovation, medical schools are redefining themselves. SMD could be helping shape the way America prepares its next generation of doctors.

Every physician has a war story from his or her early days on the battlefield.

"You know, the near misses, the bad consequences, the oddball patient," says Sarah E. Peyre, Ed.D., director for the URMC Center for Experiential Learning (CEL).

But today's war stories — like just about everything else in medicine — are dramatically different compared to those of previous generations. Medical students are facing the same types of patients, but now the patients are made out of soft plastic.

"Now students are saying, 'oh, that was tough. I hope I never get a real patient like that,'" laughs Peyre.

Simulation mannequins, which provide opportunities for students to rehearse or practice procedures before performing them, have been part of medical school education since a Norwegian toy manufac-

turer created Rescue Annie in the 1950s. The lifelike mannequin, modeled after a young, unidentified girl who drowned in the Seine, is still being "resuscitated" by CPR trainees around the world. But Annie is showing her age. Today's patient simulators, available for many more procedures, are programmable. Users can be presented with a new case, common or anomalous, each time they work with a mannequin. On a large monitor, students can watch vital signs and clinical outputs generated by a computer inside the model. As students maneuver medical devices or inject pharmaceuticals, the mannequin responds in real time. A poorly performed endoscopy can lead to audible moans of pain from the virtual patient. The wrong choice of medication can be calamitous.

"It's okay. The 'patient' is not really

going to die, so faculty can let students go and push their decision-making skills," Peyre notes.

The permeation of virtual simulation is just one factor influencing a cutting-edge redesign of what SMD faculty teach, as well as how and where their students learn lessons. In addition to technological advancements such as those in simulation, educators have a new understanding of how people absorb information. The sheer amount of information is literally beyond comprehension. Health care reform is demanding new skill sets from trained clinicians, and tech savvy students are looking for much more than lecture halls and lab benches. It is clearly time to revolutionize.

On the front line (S wing), brand new SMD classrooms boast smartboards, digital video cameras, unprecedented wireless



connectivity, computers, large monitors, collapsible walls, folding chairs, and stackable tables. Future renovation plans include a multi-million-dollar, 14-bay clinical skills suite filled with virtual patients and a mock operating room. Bunsen burners, fixed wooden benches, and drawn-out lectures are among the casualties of this reformation.

"We know our brains really love multimedia, connectivity, technology and flash. Students want to actively look up information on their smartphones in reaction to what a professor is telling them. They want to move more quickly between activities, before their brains start to wander. They need to work in groups and develop inter-professional relationships with nursing students. Faculty are interested in tapping into videoconferences and live feeds. They want to videotape their students working

with standardized patients, so that can be used as a learning tool. They're looking to combine online teaching with personal interaction. Those are the sorts of things this new space allows us to do," Peyre explains.

The physical and technological changes must be incorporated into the courses, and faculty require new resources and support.

"We can't just plug some new piece of technology in the corner. It has to be tied into our goals and objectives, so there is a strong curricular development piece to this. We also need to determine what our faculty need to be experts at, and foster those skills. We need to see where departments are working in silos when there is opportunity to join together...."

Revolutionary change rarely comes with a blueprint, but SMD has been known to be somewhat fearless when it comes to shifting

from the status quo. The Double Helix Curriculum added a distinctive Rochester twist to medical education. As SMD moves into the future, that innovative tradition and culture appear to be intact.

"We want to create the next Rochester model of ingenuity," says an undaunted Peyre.

Above left: CEL learners practicing on a simulation mannequin in cardiac distress.

Above top: All UR medical students are equipped with iPads to access a fully electronic curriculum.

Above bottom: Before and after pictures inside CEL

The Pain Frontier



CHRONIC PAIN IS A QUIET EPIDEMIC THAT HAS YET TO GRAB THE ATTENTION IT DESERVES.

THAT'S NOT THE CASE AT URMC's NEUROMEDICINE PAIN MANAGEMENT CENTER, WHICH IS BEING LAUDED FOR ITS PIONEERING WORK.

Everyone has laughed, at least a little, at the old joke:

Patient, waving arm: "Doctor, my arm hurts when I do this."

Doctor: "Then don't do that."

That punch line, however, is the closest millions of Americans ever come to finding a cure for their pain. They simply do their best to work around it, letting pain govern their lives like a malevolent dictator. According to an Institute of Medicine (IOM) report, more than 116 million Americans suffer from persistent pain — yet it remains one of the most enigmatic conditions doctors face. It's no laughing matter.

"We are decades behind other medical disciplines, like cardiology and infectious disease, when it comes to deciding who gets what treatment," says John Markman, M.D., director of URMC's Neuromedicine Pain Management Center. "Real innovation needs to take place around chronic pain."

Markman isn't sitting around waiting for others to lead the charge. He is somewhat revolutionary in his field, though that's not immediately apparent upon introduction. He's just finished getting a patient's advice on how to stymie the bugs eating his backyard honeysuckle. Now he's in his office, sparring with a cranky coffee machine that is (oddly enough) too small to fit an ordinary cup. There's a smattering of wall art, and an Ian McEwan novel about a neuro-

John Markman (MD '96) leads a multi-disciplinary team of clinicians and researchers in a novel approach to chronic pain.

surgeon is tucked into a pile of books. The only conspicuous evidence of Markman's transformative work in pain management is nestled with a few odds and ends on the windowsill. It's a 2013 Clinical Center of Excellence award from the American Pain Society (APS).

"We never envisioned we would come this far in six years," he says, offering me an M&M.

URMC was the *only* academic medical center to be named an APS Center of Clinical Excellence this year; fewer than two dozen exist altogether. Considering chronic pain costs the nation somewhere close to \$600 billion annually in medical expenses and lost wages, the APS designation holds a lot of weight. The award's lack of prominence in Markman's office is indicative of the epidemic itself. UR alumnus Philip A. Pizzo (MD '70), who co-chaired the IOM report committee, calls chronic pain a "significant, overlooked problem" in America.

That's not the case here, however. Back in 2007, Markman and Webster H. Pilcher, M.D., Ph.D., chair of Neurosurgery, were meeting with other members of the department to talk about their chronic pain patients. The origins of their patients' pain were numerous: shingles, diabetic neuropathy, chemotherapy treatment, a car accident, surgery, spinal stenosis, fibromyalgia, and much more. There was no single route in for treatment, and coordinating interventional, medical, rehabilitative and psychological care was clunky at best.

"We were working at a distance and working in parallel, rather than working together to deliver care. We wanted to try to find a way to deal with that problem," Markman explains.

Multidisciplinary care models existed in many areas of health care, but neurological disease-related pain was rarely one of them. When specialties did collaborate, it was on the diagnostic end. As the science around pain evolved, however, so did treatments targeting the nervous system. The time was ripe for an integrated approach to care.

"The modern notion of pain is that it's in the nervous system. Whatever the cause of pain, we see enormous commonalities in the symptoms patients have, the persistence of their problems, and the devastating impact on their lives," Markman says.



"We also see commonality in the treatment of pain. And a single modality or approach rarely brings about its resolution."

Markman and Pilcher started piecing together the Neuromedicine Pain Management Center, which opened in 2008. Today, neurologists, anesthesiologists, neurosurgeons, nurse practitioners, radiologists, therapists and nurses flow in and out of the center's exam rooms, procedure areas, and clinical trial labs. Colleagues put their heads together in hallways or sit in office chairs to toss about ideas, compare notes, view images, and make treatment plans. Patients, who sometimes travel miles to get here, might see two or three different caregivers in a single afternoon. It is a flourishing ecosystem designed to push pain to the bottom of the food chain, thus removing its ability to control peoples' lives.

Pain management at the center starts with a measurement.

"The gold standard for pain has always been self-report, what the patient says it is. Unlike infectious disease, diabetes or coronary disease, we don't have bacterial cultures, blood draws or stress tests to objectively match treatment to patient," says Markman. "So the center developed, and continues to enhance, ways to measure the functional limitations of our patients. How well can they walk through Wegmans, or how long can they stand in front of the mirror to shave?"

Using a model similar to a stress test, Markman and his team document their patients' functional impairment and pain intensity levels before and after new medications, injections, surgery, and other therapies.

By embedding clinical trials into clinical practice, the center is building evidence to standardize the use of certain treatment methods for certain types of patients. Along the way, doctors here are also discovering new pain treatment therapies.

"The center's focus on the application of scientific advances in neuromedicine to the treatment of chronic pain is unparalleled in the nation," says Pilcher.

The American Pain Society greees.

"This program seems to nail it in translational research," the society wrote in its review of the center. "This is something rare."

Find a link to the Institute of Medicine report, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research*, at: www.rochestermedicine.urmc.edu



URMC is the only academic medical center to be named an APS Center of Clinical Excellence this year.



The Copper Link

By Mark Michaud

RESEARCHERS AT URMC'S CENTER FOR TRANSLATIONAL NEUROMEDICINE DISCOVER A BUILDUP OF COPPER LEADS TO ALZHEIMER'S DISEASE IN MICE.

The presence of copper in our food supply is ubiquitous. This essential trace mineral is found in drinking water flowing through copper pipes. It's contained in many foods, such as seafood, whole grains, legumes, nuts, lots of fruits and vegetables, dried herbs, yeast and even baker's chocolate. It's mingled with our multi-vitamins, and stashed inside our black pepper shakers.

All of this could be cause for concern.

While copper plays a critical role in nerve conduction, bone growth, the formation of connective tissue, and hormone secretion, URMC researchers say it also appears to be one of the main environmental factors triggering the onset and accelerating the progression of Alzheimer's disease. Their findings, published in the *Proceedings of the National Academy of Sciences*, show a gradual buildup of copper in the brain prevents the clearance of toxic proteins from the brain. At the same time, it appears to speed up accumulation of these toxins.

"It is clear that, over time, copper's cumulative effect is to impair the systems by which amyloid beta is removed from the brain." — Rashid Dean, Ph.D.

"It is clear that, over time, copper's cumulative effect is to impair the systems by which amyloid beta — a protein that accumulates in patients with Alzheimer's disease — is removed from the brain," says Rashid Dean, Ph.D., a research professor in the URMC Department of Neurosurgery, a member of the University's Center for Translational Neuromedicine, and lead author of the study. "This impairment is one of the key factors that cause the protein to accumulate in the brain and form the plaques that are the hallmark of Alzheimer's disease."

Under normal circumstances, amyloid beta — a byproduct of cellular activity — is removed from the brain by a protein called lipoprotein receptor-related protein 1 (LRP1). These proteins, lining the capillaries that supply blood to the brain, bind with the amyloid beta in brain tissue and escort them into the blood vessels. From there, they are removed from the brain.

The accumulation of copper, however, appears to disrupt this process. In this study, Deane and his colleagues began by dosing mice with copper over a three month period. The exposure consisted of trace amounts of the metal in their drinking water — just one-tenth of the maximum amount allowed by the Environmental Protection Agency.

"These are very low levels of copper,

equivalent to what people would consume in a normal diet," says Deane.

The researchers found the copper made its way into the cellular walls of the capillaries feeding blood to the brain. As it accumulated, the copper inhibited the function of LRP1 through a process called oxidation. This, in turn, prevented the removal of amyloid beta from the brain.

The researchers then looked at the impact of copper exposure on mouse models of Alzheimer's disease. They found copper stimulated activity in neurons, leading to an increase in the production of amyloid beta. The copper also interacted with amyloid beta in a manner that caused the proteins to bind together in larger complexes. This essentially created logjams that were impossible for the brain's waste disposal system to clear.

This one-two punch — preventing clearance and stimulating production of amyloid beta — provides strong evidence that copper is a key player in Alzheimer's disease. However, the metal is essential to many functions of the body, and researchers urge caution.

"The key will be striking a balance between too little and too much copper," says Deane. "Right now, we can't say what the right level will be, but diet may ultimately play an important role in regulating this process."



UR Bioengineering students head into the operating room at Strong Memorial Hospital.

Looking for Trouble

University of Rochester opens
Center for Medical Technology Innovation (CMTI)

THE SCHOOL OF MEDICINE & DENTISTRY IS COLLABORATING WITH THE HAJIM SCHOOL OF ENGINEERING AND APPLIED SCIENCES TO OPEN CMTI. THE NEW CENTER IS FORGING CONNECTIONS BETWEEN BIOENGINEERING STUDENTS, HEALTH CARE PROFESSIONALS, AND THE MEDICAL TECHNOLOGY INDUSTRY. THE GOAL IS TO IDENTIFY PROBLEMS ...
AND DEVELOP SOLUTIONS.

Assistant Professor Ankur Chandra, M.D., RPVI, is a problem solver. When he needed an inexpensive way to generate three-dimensional models for teaching, he and students in his vascular bioengineering lab built their own 3D printer. Instead of using ink, the device draws in a polymer cord and then spits it out again in very thin layers. The layers accumulate to form solid objects. The "homemade" printer cost thousands

less than commercial printers and it makes its own replacement parts. (They're biodegradable, of course.)

But that doesn't necessarily mean Chandra is the biggest problem solver in his family. His mother might also be in the running.

She sat with him in the kitchen one morning, right after he earned his undergraduate degree, and thoughtfully listened

as he described his dilemma. Chandra was the proud owner of a baccalaureate in Bio-medical Engineering, but he had no idea what to do with it. He had amassed a slew of engineering skills, but he knew almost nothing about health care.

"I had all these ways to solve problems, but I didn't know what the problems were," he recalls.

His mother helped convince him to enroll in medical school so he could look for the problems. He put on a white coat and began studying medicine at Case Western Reserve University. He eventually became a vascular surgeon, all the while hoping his new path would someday merge with the old. It has.

House of Problems, House of Solutions
Chandra has been named clinical director of the UR's new Center for Medical Technology Innovation (CMTI). Here, biomedical engineering students are working side by side with surgeons. Students are confronting real-world medical problems in the operating room, and trying to engineer real-world answers back in the lab. They are making important contacts in the medical device industry and learning about entrepreneurship. At the end of their academic experience, the most ingenious could conceivably top off their degrees with patent royalties



"We're here in this big house of problems," says Chandra from his office in the medical center, "and just across the street is a big house of solutions in search of problems."

or a promising startup company.

The School of Medicine and Dentistry and the Hajim School of Engineering and Applied Sciences are collaborating on CMTI. It takes about five minutes to walk between the two schools.

"We're here in this big house of problems," says Chandra from his office in the medical center, "and just across the street is a big house of solutions in search of problems."

A few years ago, Chandra began trying to bridge the two houses in response to what he considers a disturbing trend. As clinical use of medical technology is expanding, so is the divide between physicians using medical devices and engineers making them. Gone are the days when surgeons, like the late Arthur B. Vorhees, Jr., could dash out of the operating room, grab a swatch of fabric in the lab, and stitch up a synthetic artery to save a patient's life. Devices are becoming increasingly complex, highly engineered, and subject to a daunting and expensive approval process. They are built inside large corporations by people who rarely, if ever, step into a hospital. Critical, yet potentially highly scrutinized, consultation between physicians and device manufacturers is facing mounting scrutiny amidst growing public mistrust.

"We need to figure out ways to successfully interface clinicians and engineers," says Chandra.

The center is dedicated to that task, designing programs and courses for undergraduate and graduate students. It is forging

connections with businesses, high-tech organizations, and entrepreneurs. It is tapping into the expertise of the Simon Graduate School of Business and UR's Office of Technology Transfer. And, as Chandra once did at Case Western, CMTI students are going into the medical center in search of problems.

Bringing Ideas to Life

Spencer Klubben (MS '14) knows how to spot a problem in the operating room.

"Sometimes it's just grunts, or cursing, or something like that, and other times it's pretty straightforward. The doctor or nurse will say to me, 'Look, this does not work.'"

Klubben is among the first students to enroll in CMTI's Medical Technology Innovation masters program. His undergraduate degree is in Biomedical Engineering. Just days after starting his masters' in July, however, Klubben found himself standing in Strong Memorial's operating room for 13 hours straight. He and a partner spent the rest of the summer observing colorectal surgeries and brainstorming a list of 100 problems. Other students were watching cardiovascular and orthopaedic procedures. With steady input from clinicians, nurses and surgical staff, students discovered poorly designed tools, voids in technology, and room for procedural automation that could reduce the risk for human error.

"URMC is a treasure trove of ideas," says Greg Gdowski, Ph.D., executive director of

CMTI and associate professor in Biomedical Engineering. "There are 1,400 clinicians, all of whom likely have novel ideas based on what they do in their practices."

Working in pairs, the students are narrowing down their ideas and choosing projects to prototype. They are consulting with entrepreneurs and visiting high tech incubators. They will soon begin hammering out the engineering, business, legal, and regulatory details associated with each innovation. Eventually, some students could create intellectual property for the University — even if it's after the year-long program ends.

"It's very possible I'll want to keep working on whatever device I decide on, to see how far I can take it," says Klubben. "It's also possible I'll go to a company and say 'Hey, you should license this device from the UR — and then hire me.'

Not an Entry-Level Engineer

"The students who go through this process will have something on their resumes that others don't," says Amy Lerner, Ph.D., academic director of CMTI and associate professor in Biomedical Engineering.

By working intensely with partnering companies, CMTI students will benefit more than they would from a typical internship. They will gain extensive insight into specific product lines, including the manufacturing process, the surrounding business environment, regulatory issues, and physician reimbursement policies. They might form concrete ideas about improving or expanding a product line. If they have a question about how products are used, they will know doctors whom they can call for an answer.

"You put all that together, and our graduates aren't entry-level engineers when they leave," Gdowski says with a smile. "Companies like experience."

The center is capturing the attention of businesses like Idea Boxx. The Rochester-area startup is exploring ways to bring antiquated medical devices and processes into the 21st century. Founder Richard Aab says he's excited about cultivating a partnership with CMTI. He hopes to engage students in defining procedures to validate the benefits and actual uses of products.

"It really gets them out of the purely academic environment to apply what they are learning, while at the same time helping us build an economic engine that will benefit the entire community," says Aab, who is a member of the UR board of trustees and URMC board. "Ultimately, the most important result will be improved outcome and safety for patients."

Sound Medicine: Finding harmony between science and humanities

By Julie Philipp



AS A U OF R STUDENT, PHILIP GRUPPUSO FOUND A WAY TO MERGE MEDICAL SCHOOL WITH MUSIC. NOW, HE SAYS, LIBERAL ARTS ARE EVEN MORE CRITICAL TO PREPARING THE NEXT GENERATION OF DOCTORS.

When Philip Gruppuso, (MD '77) applied to become a medical student at the U of R he was granted an interview with Samuel Adler. Adler was a university department head, but he knew very little about medical instruments.

He had no use for scalpels, stethoscopes, or syringes. That's because his appointment was not within

the School of Medicine & Dentistry. Adler was professor of Composition at the Eastman School of Music.

"Professor Adler interviewed me for medical school, which was a remarkable thing. That's why I went to Rochester," says Gruppuso.

Gruppuso, the son of a housepainter and a secretary, was following his parents' upwardly mobile advice to become a doctor. But he arrived in Rochester with an undergraduate degree in music, and no intention of giving up his piano. For the next four years, he could be found entertaining the Saturday dinner crowds at the former East Avenue Hotel or Hojack Yards, a once popular spot in Webster. He spent summers directing and composing music for a community theater program, and frequent wedding gigs helped pay his tuition. Nearly four decades later, Gruppuso is a steadfast proponent of blending med school with music — or any other liberal arts pursuit.

"I appreciate the central role of science in medicine. Good physicians, however, also have an understanding of the human condition and are empathetic. The humanities are essential to developing that and communicating it to patients," says Gruppuso.

Gruppuso spends a lot of time thinking about the best way to turn students into doctors. He only recently stepped down as associate dean for Medical Education at Brown University, a post he held for eight years. Prior to that, he was director of Brown's M.D.-Ph.D program. He remains a professor in Pediatrics, giving lectures on biochemistry, nutrition science, and endocrinology. Gruppuso is well aware of the need for medical schools to revamp their repertoires in response to dramatic changes in health care and technology.

"This is a challenging time in medical education," he says. "We're at a time of peculiar contradictions."

For starters, he notes, the knowledge base has drastically increased since his time in Rochester. Yet today's students don't need to memorize as much information. Using their smartphones and tablets, they can find instant answers on the Internet. Another paradox: Students are more accomplished, have more demanding curricula, and spend more time in school than previous generations. Yet Gruppuso believes they are far more stressed about their futures than he was. Residency placement is a bigger concern, and many worry their professional salaries won't justify their medical school debt.

"It's hard to watch. Pre-medical and medical education need to change. There are brilliant people working on this daunting task. All medical schools are innovating and redesigning curriculum. To me, that's a pretty



Photo by Natalie Gruppuso

clear indication we haven't figured it out yet."

Gruppuso is certain, however, that a "liberal medical education" needs to be part of any solution. While giving a TEDx talk on this subject last year at Brown, he pulled up an image from the manuscript of Beethoven's Grosse Fuge. It appears furiously scribbled. Notes and symbols bounce haphazardly across the page, and full lines are heavily scratched out. This, Gruppuso told the audience, is what a patient chart looks like when someone has a complicated disease. It is indeterminate, with complex layers — yet everyone hopes the end result is masterful.

"Doctors don't work in a linear fashion. When we practice evidence-based medicine, the evidence changes all of the time. That can be pretty unsettling, but I've been comfortable with it throughout my whole career," explains Gruppuso, a pediatric endocrinologist. "I think that is because I did something other than just study physics, biology, and chemistry. I also studied music composition."

As associate dean, Gruppuso inherited Brown's program in liberal medical education and then quickly orchestrated an overhaul of the medical school curriculum. The liberal medical education program exposes undergraduates to the university's liberal arts programs before automatically opening the door for them to study medicine. No MCAT required. At the medical school, all students enjoy a flexible curriculum that leaves room for them to follow their passions. Students are encouraged to engage in scholarly pursuits well beyond the traditional scope of a medical school.

The students don't need to look far for a role model who embodies this blend of science and humanities. Yes, Gruppuso is

a teacher and a researcher, who has kept an RO1 grant going for more than two decades. True, he's been a practicing physician and a medical school administrator. However, he's also a well-known fixture in Providence, Rhode Island's jazz and blues scene. He's trying to master a Domenico Scarlatti sonata on his living room piano. He has his own woodworking shop, and he relishes the ongoing task of restoring his family's 200-year-old home. His wife publishes poetry, and their twin daughters are art school graduates living and working in New York City.

His diverse interests seem to effortlessly intertwine, even in very abstract works of art.

"I think about a painting by Mark Rothko, and somehow feel connected to the way I feel and what I learn when I interact with patients," he said during his TEDx talk.

The universal threads of human experience have been woven into art and music and language since the beginning of civilization. So while most patients lack medical degrees — or even a comprehensive grasp of their own anatomies — there is a place where physicians and patients can intimately understand one another. For Gruppuso, teaching medical students how to get to that place is key to their ability to heal.

"The primary constituency of a medical school is not the students. It is the students' patients," Gruppuso reminds us.

VIDEO BONUS

To watch a video of Gruppuso's TEDx talk, visit our website at:

www.rochestermedicine.urmc.edu





Judy DiMarzo Survivorship Program

The new Judy DiMarzo Survivorship Program at the James P. Wilmot Cancer Center is being funded by a generous gift from *Judy's Fund: Hope for Cancer Survivors*. The fund was established by the family and friends of Rochester resident Judy DiMarzo, who lost her nine-year battle with lymphoma in 2009.

The survivorship program will help the increasing number of patients who are beating cancer because of breakthroughs in research and treatment, earlier detection, and more accurate diagnoses.

As the first comprehensive survivorship program in the greater Rochester region, the program will help patients navigate the complexities of cancer survivorship care and serve as the next step in a patient's care after completion of cancer treatment. Patients and their families receive personalized treatment summaries and care plans. These are also shared with each patient's primary care physician to help ensure continuity of care.

So far, more than 60 patients with lymphoma or breast cancer have participated in a survivorship visit. By the end of 2013, the program will cover other cancers including: colon, gastric, rectal, prostate, head and neck, lung, chronic lymphocytic leukemia, testicular, central nervous system malignancy, and sarcoma. There are plans to add cancers such as bone marrow transplant / leukemia, pancreas, thyroid, renal, and bladder in 2014.

Patients and families are seen in survivor-

ship clinics run by nurse practitioners, physician assistants, and nurses within each specialty. This ensures the providers know specific treatments and clinical trials, and they often know the patients as well.

"While Judy was receiving treatment, our family learned so much about the meaningful difference Wilmot Cancer Center has on the community and patients that are cared for each day," said Richard DiMarzo, Judy's husband. "To give back to a place that touched our lives so deeply will not only help create a program to better support cancer survivors, but also allow us to have Judy in the minds of others—a true gift for our family."

Pictured from left: Richard DiMarzo; Jonathan Friedberg, M.D., M.M.Sc., Samuel E. Durand Chair of Medicine and director, Wilmot Cancer Center; Alicia Coffin, M.S., R.N., O.C.N., lead program coordinator, Judy DiMarzo Cancer Survivorship Program; and Paul Hanrahan, Judy's Fund representative.

Hansjörg Wyss Professorship in Orthopaedic Surgery

Hansjörg Wyss, a Swiss entrepreneur and philanthropist, has given \$2 million to establish the Hansjörg Wyss Professorship in Orthopaedic Surgery. Wyss' gift supports geriatric fracture clinical and research work led by Stephen I. Kates, M.D. in the Department of Orthopaedics and the Center for Musculoskeletal Research (CMSR).

"Mr. Wyss' generous gift is a testament to the caliber of our outstanding endeavors in the orthopedic field, as well as the pioneering efforts of Steve Kates to address geriatric fractures," said Mark B. Taubman, M.D., dean of SMD. "It undoubtedly will accelerate our efforts to improve the health of orthopaedic patients worldwide."

Kates is one of the country's top orthopaedic surgeons. He serves as chief of the Metabolic Bone and Geriatric division and associate director of CMSR. He is principal investigator on an ambitious research program designed to increase understanding of orthopaedic infections, particularly the drug-resistant Methicillin-Resistant Staphylococcus Aureus (MRSA).

"Improving fracture care for older adults has been my personal mission for the past 10 years. This extraordinary gift enables the University of Rochester to continue having a significant impact on treatment and prevention at a national level," Kates said.

Kates is working with the American Academy of Orthopaedic Surgeons and the Orthopaedic Trauma Association to establish a consistent standard of care nationwide, based on Highland Hospital's Geriatric Fracture Center's care model.

"I am pleased to be able to support Dr. Kates' excellent work studying, treating, and teaching the management of fractures in geriatric patients," said Wyss. "Fractures in geriatric patients are an important clinical issue today and are predicted to increase dramatically over the next decade. I congratulate Dr. Kates on what he has accomplished so far, and I look forward to seeing the positive impact of my gift."

Kates and Wyss have a longtime connection through the AO Foundation, a non-profit Swiss organization supporting research and development in the orthopaedics field. The AO Foundation currently funds Kates' research into orthopaedic infections. Wyss is a founder and honorary member of the AO Foundation.

Endowed Professorships

Five new endowed professorships have been announced: Georgia and Thomas Gosnell Distinguished Professor in Palliative Care; Georgia and Thomas Gosnell Professor in Quality and Safety; Shohei Koide Professor in Biochemistry and Biophysics; Denham S. Ward, MD, PhD Professor; and Richard and Margaret Burton Distinguished Professor in Orthopaedics. Endowed professorships are among the most prestigious honors an institution can bestow upon distinguished faculty. Increasing the number of endowed professorships is a key initiative of the School as part of *The Meliora Challenge: The Campaign for the University of Rochester*.

① Georgia and Thomas Gosnell Distinguished Professor in Palliative Care, and Georgia and Thomas Gosnell Professor in Quality and Safety

Timothy Quill, M.D. (M '76, R '79, FLW '81), second from left, and Robert Panzer, M.D. (R '80, FLW '82), fourth from left, have championed the University's efforts in Palliative Care and Quality and Safety programs. Quill, director of the Palliative Care Program, was installed as the inaugural Georgia and Thomas Gosnell Distinguished Professor in Palliative Care; Panzer, chief quality officer for the medical center and Strong Memorial Hospital, was installed as the inaugural Georgia and Thomas Gosnell Professor in Quality and Safety. Also pictured from left: President Joel Seligman, Georgia Gosnell, medical center CEO Bradford Berk, M.D. (MD '81, PhD '81), and Dean Mark Taubman, M.D.



② Shohei Koide Professor in Biochemistry and Biophysics

Pictured from left: Dean Mark Taubman, M.D., Shohei Koide, Ph.D., and chair of the Department of Biochemistry and Biophysics, Jeffrey Hayes, Ph.D., who was chosen to be the inaugural Shohei Koide Professor in Biochemistry and Biophysics. Hayes was recognized as an outstanding scientist, educator, and administrator. Koide was a faculty member in the Department of Biochemistry and Biophysics from 1995 to 2002. During his tenure, he developed technology, which has been widely adopted in industry and academia, to create antibody-like proteins that can specifically bind medically relevant targets. His patents generated the funds that allowed the university to create this professorship in his name.



③ Denham S. Ward, MD, PhD Professor

Medical center CEO Bradford Berk, M.D. (MD '81, PhD '81), left, with Michael P. Eaton, M.D., chair of the Department of Anesthesiology, center, who was honored for his contributions to the university and his field during a ceremony installing him as the inaugural Denham S. Ward, MD, PhD Professor. The ceremony also recognized another extraordinary anesthesiologist, Denham S. Ward, M.D., Ph.D., right, who twice served as chair of the Department of Anesthesiology (1992–2001 and 2008–2011). The professorship was established through leadership gifts by Ward and his wife, Debra, and the generosity of many other individuals.



④ Richard and Margaret Burton Distinguished Professor in Orthopaedics

Edward M. Schwarz, Ph.D., director of the Center for Musculoskeletal Research, second from right, was installed as the Richard and Margaret Burton Distinguished Professor in Orthopaedics for his extraordinary contributions to musculoskeletal health. Pictured with Schwarz, from left: Margaret Burton, Richard I. Burton, M.D., (R '64), Dean Mark Taubman, M.D., medical center CEO Bradford Berk, M.D. (MD '81, PhD '81), and Regis O'Keefe, M.D., Ph.D., the Marjorie Strong Wehle Professor in Orthopaedics and department chair.



If you see any alumni whom you would like to contact, use the Online Directory at www.alumniconnections.com/URMC to find address information.

Submit your class notes to your class agent or to RochesterMedicineMagazine@urmc.rochester.edu.

Note: MD Alumni are listed alphabetically by class, Resident and Fellow alumni follow in alphabetical order, and Graduate Alumni are listed separately in alphabetical order.

MD Alumni

Class of 1948

Marvin A. Epstein writes, "On June 14, my dear wife Ruth and my children planned and executed a magnificent, three-day celebration of my 90th birthday. All of my immediate 'families' came to Walnut Creek. I say 'families' because I am very close to Ruth's family as well as my own. Ruth and I have been married 37 years. Many close friends were included in the events of that weekend."

Class of 1953

Robert L. Brent (BA '48, PhD '55, HNR '88) is a co-recipient of the 2013 John Scott Award for his work on environmental causes of birth defects, including exposure to drugs, chemicals, ionizing radiation, microwaves and ultrasound.

The John Scott Award is given to men and women whose inventions have contributed in an outstanding way to the comfort, welfare and happiness of mankind. John Scott was an Edinburgh druggist in the early 1800s. He set up a fund calling upon the Corporation of Philadelphia, entrusted with the management of Dr. Benjamin Franklin's legacy, to bestow a premium and a copper medal upon "ingenious men or women who make useful inventions." The first awards were given in 1834.

Among previous recipients are Mme. Curie, Thomas Edison, the Wright brothers, Edwin Land, Jonas Salk, Irving Langmuir, Glenn Seaborg, Frederick G. Banting, Guglielmo Marconi, John Bardeen, and Sir Joseph H. Thomson. Awardees Dr. Kary B. Mullis and Professor Richard E. Smalley recently won the Nobel Prize in Chemistry.

Class of 1954

The People's Republic of China (Taiwan) awarded **Donald A. Henderson** (ScD '77) with

the Order of Brilliant Star with Grand Cordon. It was presented to him by President Ma Ying-jeou on July 4. The award honors civilians for their contributions to societal development.

In a ceremony held at the Office of the President in Taiwan, Henderson was recognized for "outstanding contributions to protecting the people around the world from the threat of smallpox infection, as well as promoting friendship and cooperative relations between Taiwan and the United States." The eradication of smallpox, under Henderson's leadership of the World Health Organization's smallpox eradication campaign, is a widely acclaimed global public health achievement.

In addition to attending the award ceremony, Henderson was invited to deliver the keynote address for the Asia-Pacific Economic Cooperation's Conference on the Innovation, Achievement, and Sustainable Development in Public Health Emergency Response System 10 Years After the SARS Epidemic.



Eugene J. Gangarosa (BA '50, MS '55), Professor Emeritus of Global Health, was presented with the 2013 Charles Hatcher Jr. MD Award for Excellence in Public Health from the Rollins School of Public Health (RSPH) at Emory University. Gangarosa, an international expert and advocate for clean, safe water helped establish RSPH, where he continues to teach students about foodborne and waterborne diseases.

Class of 1960

Infectious disease researcher and clinician, **Harvey J. Alter** (BA '56) chief of Clinical Studies and associate director of Research in the Department of Transfusion Medicine at the National Institutes of Health Clinical Center, was selected to receive the 2013 Canada Gairdner International Award. Alter shares the award with Daniel Bradley, Ph.D., consultant at the Centers for Disease Control and Prevention, and Michael Houghton, Ph.D., researcher and professor at the University of Alberta, Edmonton, Canada, for their critical contributions to the discovery and isolation of the hepatitis C virus, which has led to development of new diagnostic

and therapeutic agents.

"Dr. Alter's career-long achievements in blood safety have done much to advance the cause of human health," said NIH Director Francis S. Collins, M.D., Ph.D. "We at NIH are thrilled that he is being recognized with this prestigious international honor."

The Canada Gairdner International Award is given to individuals who have demonstrated outstanding leadership in medicine and medical science and whose work has contributed significantly to improving the quality of human life.

Alter earned his medical degree at URMC, and trained in Internal Medicine at Strong Memorial Hospital and at the University Hospitals of Seattle. He came to the NIH Clinical Center as a senior investigator in 1969. In 2000, Alter was awarded the Clinical Laser Award and in 2002, he became the first Clinical Center scientist elected to the National Academy of Sciences and in that same year was elected to the Institute of Medicine. Only a small number of scientists nationally are elected to both these scientific societies.

William E. Powell (BA '56) received the Claude C. Coddy III, M.D. award for the Retired Physicians Achievement in Arts and Literature 2012 for his novel *From There to Here – Anatomy of a Divorce*. Coincidentally, it was presented on his birthday in January.

Class of 1967

Gerald R. Berg has been awarded the Yale Diagnostic Radiology Award of Excellence in Education, by the Yale Residency Class of 2012 in recognition of his "selfless dedication to resident education." Berg has been on the clinical faculty at Yale since 1974 and has worked with Yale residents and fellows in both Nuclear Medicine and Diagnostic Radiology.

Class of 1968

Anesthesiologist **Edward D. Miller** was the keynote speaker at the University of Rochester School of Medicine and Dentistry commencement in May.

Miller, now retired, is a 1968 graduate of the School of Medicine who went on to become the first CEO of Johns Hopkins Medicine. He also served as dean of the Johns Hopkins University School of Medicine and vice president for Medicine at Johns Hopkins University. He is recognized by URMC for ushering in a revolution in medical education and health care delivery.

At this year's commencement, Miller was honored with the Charles Force Hutchison and Marjorie Smith Hutchison Medal. It is awarded to UR alumni in recognition of their outstanding achievement and notable service to the community, state, or nation.

Roger Nicoll assumed the directorship of the graduate Neuroscience program at the University of California San Francisco. He was a founding member of this program when he arrived in 1975. Basic research into the cellular and molecular basis of learning and memory remains his primary focus. He has received numerous awards, including election to the National Academy of Sciences in 1994 and the National Academy of Sciences Award for Excellence in 2010. No plans to retire, ever.

Class of 1970

Charles B. Rodning, professor of Surgery at the University of South Alabama (USA) College of Medicine, was recognized at the 50th anniversary celebration of the University. He was chosen for his work in Humanism in Medicine.

Fifty research, scholarly, and creative works were selected by a diverse committee comprised of faculty and administrators. The significance and the impact of these works are representative of the exceptional research, scholarship, and creative works that have been accomplished over the past 50 years at USA.

Class of 1976

Richard Schuster (R '80) and spouse **Barbara L. Schuster** ('77 MD, R '80) served as visiting professors to the University of Zagreb School of Medicine in Croatia.

Cooperation between the University of Zagreb School of Medicine and the University of Georgia Health Sciences Campus and College of Public Health consisted of joint participation in a conference, including lectures from world renowned experts on health topics.

Barbara Schuster, UGA Health Sciences Campus dean, gave a lecture titled *Active Learning: The Medical Partnership Approach to Medical Education*. Richard Schuster, director of the Center for Global Health at the University of Georgia, gave a lecture titled *Disease Management: A Systems Approach to Medical Care*.

Class of 1977

Barbara L. Schuster – See MD Class of 1976

Class of 1980

Richard K. Brown took early retirement from Kaiser Permanente in San Diego, where he maintained a very full primary care practice for nearly 30 years. He and his wife, Eileen, whom he met during his third year rotation in R Wing, are adjusting to this new "togetherness" and looking forward to lots of travel.



David B. Nash, Class of 1981

Dick is loving the slower pace of life. He wonders how many of his classmates are thinking about retiring.

Class of 1981

David B. Nash, founding dean of the Jefferson School of Population Health (JSPH) at Thomas Jefferson University (TJU) and the Dr. Raymond C. and Doris N. Grandon Professor of Medicine at TJU, gave the 2013 commencement address at JSPH. This was the fourth class to graduate from the unique school.

Class of 1982

More than 100 dignitaries, donors and supporters helped celebrate the inauguration of the \$2 million John M. Tew, Jr., MD, Chair in Neurosurgical Oncology at the University of Cincinnati, awarded to **Ronald Warnick**, professor of Neurosurgery and Radiation Oncology and medical director of the UC Brain Tumor Center at the UC Neuroscience Institute. The chair is an endowment at the UC College of Medicine that will fuel research in brain cancer and brain metastasis in perpetuity.

"I was a brain tumor fellow at the University of California San Francisco with a job offer from the University of Pennsylvania," Dr. Warnick recalls. "Just before signing the contract, I received a call from John Tew. It was the sheer force of his personality that persuaded me to visit Cincinnati. I arrived in 1991, and since then we have worked side by side on many important projects in neurosurgery and neuro-oncology."

Class of 1985

The University of Rochester Medical Center (URMC) Clinical and Translational Science Insti-

tute (CTSI) has appointed **Karl D. Kieburtz** (MPH '85) as director and senior associate dean for Clinical Research.

"As one of the leading academic experts in the design and operation of clinical trials, Dr. Kieburtz is the obvious choice to build upon the medical center's history as an innovative national leader in the field of experimental therapeutics and translational medicine," said Mark Taubman, M.D., dean of the URMC School of Medicine and Dentistry. "We are deeply grateful that he has accepted this new leadership role and look forward to working with him to continue to strengthen and grow our clinical research enterprise."

Kieburtz, the Robert J. Joynt Professor in Neurology, is the director of the Center for Human Experimental Therapeutics (CHET), a position he will retain. CHET is a unique academic-based center that offers a full array of services and scientific expertise essential to the conduct of early-learning phase clinical trials for industry, foundations, and government sponsors.

Mark Eisenberg has been honored with the Jewish General Hospital Award for Excellence in Clinical Research for his work in cardiology and cardiovascular epidemiology at the hospital's 79th annual general meeting in September. The award recognizes researchers whose insight and initiatives in clinical research have resulted in unique and significant contributions to patient treatment and care.

He has also been elected to fellowship in the Canadian Academy of Health Sciences and was inducted at the annual general meeting in Ottawa, Canada in September. Membership in the academy is considered one of the highest honors in the Canadian health sciences community. It is based on demonstrated leadership, creativity, distinctive competencies and commitment to advance academic health sciences.

Class of 1986

Apple Inc. has invited **Jeffrey M. Lyness** (BA '82) to join the Apple Distinguished Educator Class of 2013. This year, the University of Rochester Medical Center's School of Medicine and Dentistry became one of the nation's first medical schools to implement a fully electronic curriculum. Lyness, senior associate dean for Academic Affairs, was instrumental in making that happen. Lyness is now being asked to share his passion and ideas for innovative teaching with educators around the world.

Apple Distinguished Educators (ADEs) collaborate on solutions to global education challenges, advise Apple on technology integration in learning environments, share their expertise with educators and policymakers, and motivate one another to continually transform education. Selected through a competitive process, ADEs reside in nearly 40 countries worldwide.

"I hope to learn much about the ways people at other institutions, and in other parts of the world, are using technology," says Lyness. "I will bring back what I learn to share with my colleagues at URMC. I'll also spread the word about the incredible things we are doing here."

Class of 1991

Jeffrey Alan Stone (BS '87), has been inducted as a Fellow in the American College of Radiology (ACR). The induction took place at a formal convocation ceremony during the ACR Annual Meeting and Chapter Leadership conference in Washington, D.C. last May. This is one of the highest honors the ACR can bestow on a radiologist, radiation oncologist or medical physicist. ACR Fellows demonstrate a history of service to the College, organized radiology, teaching or research. Approximately 10 percent of ACR members achieve this distinction.

Stone is associate professor of Radiology and a consultant at the Mayo Clinic Florida. He is a member of the ACR and the Florida Radiological Society.

Class of 1992

Linda H. Chaudron, professor of Psychiatry and senior associate dean for Diversity at the University of Rochester School of Medicine and Dentistry, has been chosen for the 2013 Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) program. In becoming an ELAM fellow, Chaudron joins a venerable list of women administrators in academic medical centers across the nation, including others from URMC.

"We are committed to advancing women into senior leadership and, year after year, we put forth strong nominees for ELAM,"

said Mark B. Taubman, M.D., dean of the School of Medicine and Dentistry. "As our eighth fellow and senior associate dean for Diversity, Linda Chaudron will add even greater depth to the decisions we make during these challenging times."

ELAM is the only program in North America dedicated to preparing women for senior leadership roles in academic health science institutions. Fellows receive training in strategic finance and resource management, personal and professional leadership, organizational dynamics, and community building. The curriculum centers around the development of an Institutional Action Project designed to address a strategic institutional priority.

ELAM alumnae from the U of R School of Medicine and Dentistry include Yuhchyau Chen, M.D., Ph.D., Susan G. Fisher, Ph.D., Diane M. Hartmann, M.D., Susan L. Hyman, M.D., Vivian Lewis, M.D., Susan H. McDaniel, Ph.D., and the late Tana Grady-Weliky, M.D.

Class of 1994

After returning from six months in Afghanistan, **Steven Pflanz** moved to San Antonio, Texas, to his new position as chief of Air Force Physician Utilization.

Class of 1998

Eileen F. Granahan has joined the Pediatrics department at Harvard Vanguard Medical Associates in Quincy, Massachusetts.

Granahan received her medical degree from the University of Rochester School of Medicine and Dentistry before completing her pediatric residency at Yale-New Haven Hospital. Her most recent position was as a pediatrician at Core Pediatric in Exeter, New Hampshire.

Granahan has done charitable work around the world including Haiti, Peru, the Solomon Islands and most recently, in the Amazon Basin of Ecuador with Flying Doctors of America.

Class of 2007

Allergist **Sarah C. Peterson** (BS '03) has accepted a new position at Northwest Community Healthcare's (NCH) Medical Group. Peterson is board-certified in internal medicine. She performed her internship, residency, and Fellowship in Allergy and Immunology at McGaw Medical Center of Northwestern University in Chicago.

Resident / Fellow Alumni

The American Psychiatric Association (APA) presented **Richard Ciccone** (R '72), director of the Psychiatry and Law Program at URMC, with the 2013 Isaac Ray Award, which honors outstanding contributions to forensic psychiatry and the psychiatric aspects of jurisprudence.

Forensic psychiatry is the application of psychiatric knowledge to help answer legal questions and deliver justice. Most widely known for its criminal applications, such as the insanity defense and competency to stand trial, forensic psychiatry is also relevant in civil law. For example, it can be used in determining psychiatric damages resulting from an accident, or settling custody matters.

Ciccone was president of the American Academy of Psychiatry and the Law (AAPL) and, in 1979, was the founding director of AAPL's forensic psychiatry course that he led for more than decade. An examiner on the American Board of Psychiatry and Neurology, he helped write the first board examination in forensic psychiatry, given in 1994. He worked on developing a forensic psychiatry curriculum and a set of standards for accreditation by the Accreditation Council for Graduate Medical Education (ACGME). Under his leadership, URMC was among the first in the nation to offer an accredited fellowship in forensic psychiatry.

Ciccone has assisted with preparation of amicus briefs to the U.S. Supreme Court on behalf of the American Psychiatric Association, where he chaired the Commission on Judicial Action for seven years. He has presented his work internationally, and spent time as a visiting professor at the University of Siena in Italy each year from 1994 to 2000.

Jeffrey M. Lyness (BA '82, MD '86, R '87) – See MD Class of 1986

Louis J. Papa (R '92) was awarded the 2013 Edward Mott Moore Physician Award by the Monroe County Medical Society (MCMS).

The award is the highest honor bestowed by the MCMS in Rochester. It is presented annually to a physician and a layperson in recognition of outstanding and dedicated service to the medical profession and the community.

Papa has been a primary care provider for 17 years with the Olsan Medical Group, part of URMC's Primary Care Network. His interest toward improving the access and quality of health care for the entire Rochester community has been demonstrated through teaching, mentorship and community outreach, according to Olsan Medical Group site director Michael S. Schneider, M.D., who nominated

Papa for the award.

"Dr. Papa has a career-long history of personal volunteerism supporting the needs of the homeless and underinsured," Schneider said. "Beyond his volunteer positions at the St. Mary's Mobile Health Unit for the Homeless, the Open Door Mission and St. Joseph's Neighborhood Center, he has taken leadership positions in these organizations to offer continuous improvement and innovation toward improved access to social and health services."

In addition to an active medical practice, teaching responsibilities and community involvement, Papa has held various professional positions, including serving as president of the MCMS, and as a regional board member of Excellus Rochester, Greater Rochester Health Foundation, the 20/20 Commission and the Community Technology Assessment Advisory Board of Rochester. He also is a regular panelist on the national PBS program *Second Opinion*.

This year, URMC's Strong Fertility Center celebrated 30 years of helping families grow through in vitro fertilization by honoring **Henry A. Thiede** (FLW '63). Retired chair of the Department of Obstetrics and Gynecology and professor emeritus, Thiede's vision helped create one of the first in vitro fertilization (IVF) programs in New York State. Just four years after the birth of the world's first "test-tube baby," Thiede proposed the creation of an IVF program at URMC in 1982. URMC physicians began the first IVF treatment cycle in July 1983, achieving the first pregnancy on the sixth attempt. The program's first birth occurred in July 1984.

"It is a great privilege to pay tribute to the physician whose wisdom and vision launched one of the earliest successful programs for in vitro fertilization and the longest-running program in upstate New York," said Strong Fertility Center director Kathleen M. Hoeger, M.D., professor of Obstetrics and Gynecology at URMC. "What better way to show our appreciation than to surround Dr. Thiede with the physicians and staff he inspired and mentored, and the families who've benefitted from his commitment to providing optimal services to our community."

"When we reflect on those who have influenced our professional lives, we turn to individuals dedicated to improving medicine, public health and community welfare. Dr. Thiede spent his entire career addressing these three areas," said James R. Woods, M.D., professor and chair of the Department of Obstetrics and Gynecology who holds the professorship in Thiede's name. "It is his shoulders upon which the success of our Department rests."

Graduate Alumni

Robert L. Brent (BA '48, MD '53, PhD '55, HNR '88) – See *MD Class of 1953*

Eugene John Gangarosa (BA '50, MD '54, MS '55) – See *MD Class of 1954*

Karl David Kieburz (MPH '85, MD '85) – See *MD Class of 1985*

Dori Knoff (MPH '89) is the mother of two children, ages 17 and 14. She is manager of Oncology Research at the Marshfield Clinic in Marshfield, WI. She is training for a disaster relief position with the American Red Cross. Her daughter will be attending UR in Fall 2014 as a pre-med student.

Vanessa M. Morales-Tirado (MS '05, PhD '08) has accepted a new position as assistant professor, Department of Ophthalmology, Hamilton Eye Institute, University of Tennessee College of Medicine.

Marcia J. Scherer (MS '86, MSE '86, PhD '86) was recently quoted in an AMNY.com news article: Social media fatigue has some New Yorkers cutting the cord. Find a link to this article at www.rochester-medicine.urmc.edu

Fred C. Tenover (MS '81, Ph.D. '81) is vice president of Scientific Affairs at Cepheid, a molecular diagnostics company in Sunnyvale, California. He is also consulting professor of Pathology at Stanford University School of Medicine in Palo Alto and adjunct professor of Epidemiology at Rollins School of Public Health at Emory University in Atlanta, Georgia. He writes, "It may seem odd to hold faculty appointments in universities on opposite coasts, but the two departments offer me the opportunity to address the critical issue of antimicrobial resistance in both the medical and public health sectors."



A RARE REPOSITORY OF

Tradition is a new section of *Rochester Medicine*, featuring short stories and images about the people, places, and customs that have helped define the School of Medicine & Dentistry since its opening in 1925.

Librarian Christopher Hoolihan, M.L.S., thought the young undergraduate's face looked, well, kind of odd. She was leaving the Miner Library rare books section after spending the entire day poring over texts from the 1800s. She had been doing research for her paper on hysteria in 19th century women. The literature described all sorts of symptoms, including vertigo,

a creeping feeling under the skin, agitation, hot flashes, and a weakness in the knees.

About 10 minutes later, Hoolihan heard a call on the loudspeaker directing an emergency response team to the library's restroom. The responders found the young woman in her own state of "hysteria," exhibiting many of the afflictions she had been reading about. They whisked her over





Hoolihan says holding a book in your hand creates a connection to the past that is lost in the digital version.

MEDICAL KNOWLEDGE

to the emergency room, where doctors quickly settled her down.

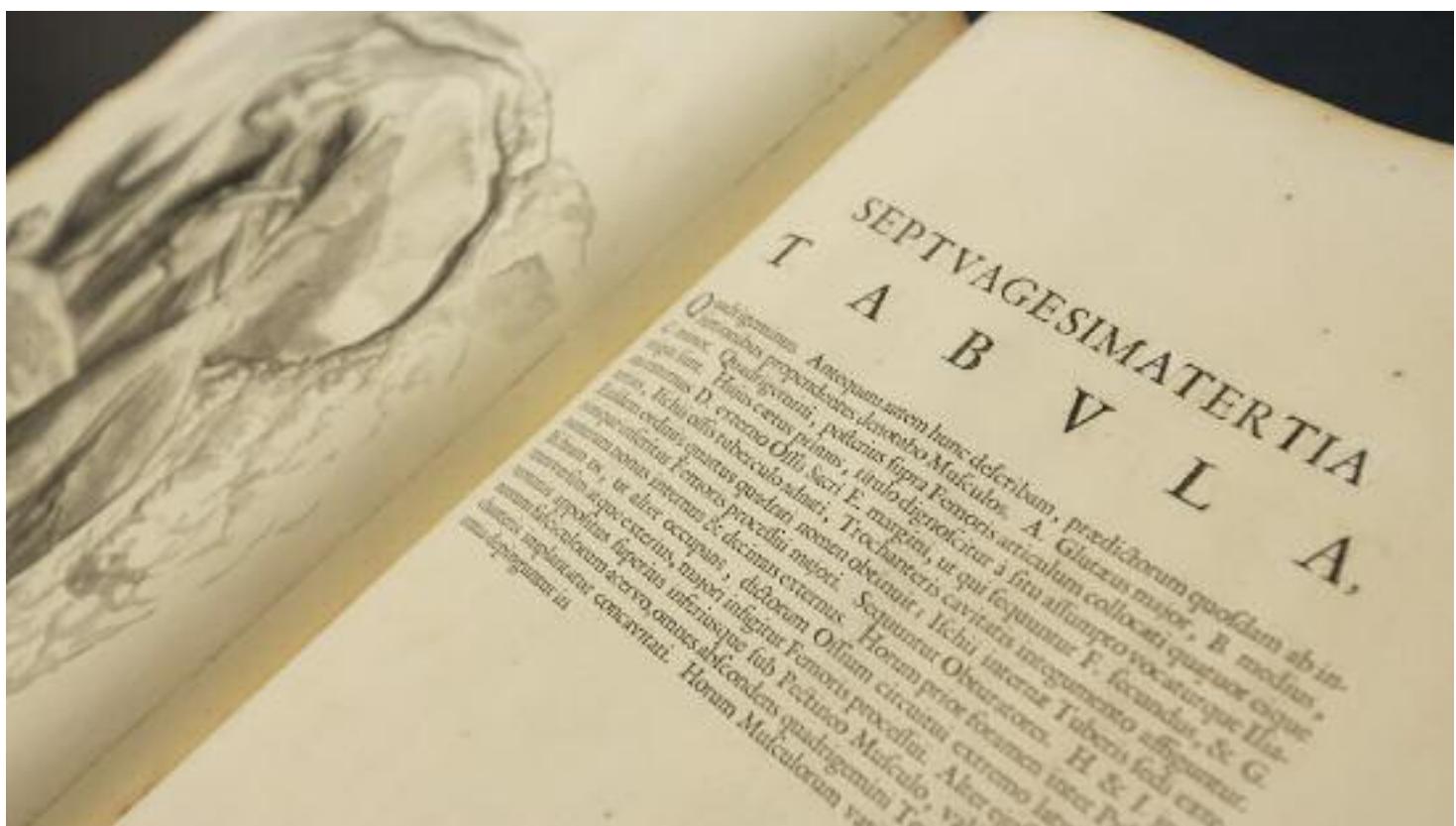
While this is an extreme case, it's not uncommon for visitors to lose themselves in Miner's rare books collection. It is the kind of place where people come with a singular purpose, and leave with so much more. The person might be a surgeon, intent on drafting a speech about the history of his specialty.

She might be a historical novelist seeking nautical medicine expertise for her 18th-century seafaring characters. She might be a resident tracking down an early description of a disorder to use during Grand Rounds, or a researcher probing for a citation that describes the first application of a drug.

"When they get that pile of books in front of them, they are easily diverted and

usually wish they had more time," says Hoolihan, who has been at Miner for nearly three decades. "It's hard for many of them to get up and walk away."

The oldest book in the collection is a Latin treatise on stopping the spread of plague. Written sometime around 1485, the small manuscript offers this preventive advice for readers: Leave Rome.



"I think what surprises readers the most is how much people knew 500 years ago. Students are amazed to see how perfectly accurate gross anatomy was." —Christopher Hoolihan

The Herbal, published in London in 1633, has a prescription to cure "green sickness" in young maidens. The girls are advised to boil chopped watercress in "broth of flesh," and then eat it morning, noon and night for 30 days. This, of course, will return "lively color" to their cheeks. Another book, *Mosquito or Man?*, is an early exploration into the transmission of yellow fever. The library's

outstanding array of pre-1800 anatomical atlases includes a first edition of Andreas Vesalius' *De Humani Corporis Fabrica*.

"I think what surprises readers the most is how much people knew 500 years ago. Students are amazed to see how perfectly accurate gross anatomy was," says Hoolihan, turning the linen pages of *Fabrica* to show hundreds of meticulously drawn dissections.

The book is rare, yes, but it's also available to the masses through the National Library of Medicine's online archive. With the click of a mouse, you can flip virtual pages. As you hover over pictures or sections of text, boxes pop up and provide additional insight into the material. You can launch the magnifying tool to study the prints closely. This technology



In addition to books, the Miner archives hold a Nobel Prize and collections of tools once used to practice medicine.

is undoubtedly why fewer people are using the rare books housed at Miner.

But Hoolihan believes something is truly lost in the electronic translation.

"When you are handling 17th- and 18th-century volumes, you feel continuity with the past, with the person whose book you are holding. When you look at a screen, it's just an image. It is entirely different."

Watch *Tradition: The Making of Miner* online. You'll meet Dr. George Washington Corner, who traveled the world during the Great Depression to find books for the U of R's new School of Medicine & Dentistry library. This will be the first in a series of *Tradition* videos.

www.rochestermedicine.urmc.edu

Find a link to the online version of Andreas Vesalius' *De Humani Corporis Fabrica* at the National Library of Medicine.

www.rochestermedicine.urmc.edu



James T. Adams, M.D.

Longtime professor of Surgery James T. Adams, M.D., died May 9 after a battle with pancreatic cancer. Adams was 83.

Adams was considered a backbone of the URMC Surgery Department, where he had been a beloved faculty member since 1962. Colleagues describe him as legendary, iconic, a phenomenal clinician and teacher, and a true family man. Predominantly a gastrointestinal surgeon, Adams also made significant advances in the realm of venous surgery. He served briefly as chief of Vascular Surgery during a transitional time for the division, partnering on the development of the Adams-DeWeese clip. Fashioned in 1966, the clamp-like device was commonly used for patients with thromboembolic disease. Adams also lent important insights into the management of pancreatitis. In all, he authored more than 90 scientific articles during the course of his career.

Generous supporters of the arts, Adams and his wife, Jacqueline (Jacquie), left their signature on the U of R's Memorial Art Gallery, donating pieces and establishing an endowment fund to support education programs there.

Adams is survived by his wife, children Pamela and William Mostyn, Mark and Andrea Adams, Sari and William Middlebrook, and three grandchildren.

Philip P. Bonanni, M.D.

Gifted teacher, respected colleague, physician leader and patient care champion Philip P. Bonanni, M.D., passed away on June 10 after a short illness. He was 74 years old.

A graduate of the UR School of Medicine and Dentistry, Bonanni was a longtime professor of Medicine, Clinical Nursing, and Medical Humanities at URMC. During his tenure, he received numerous awards including the Lawrence A. Kohn Teaching Fellowship and the James M. Stewart Award for distinguished teaching. He was also recognized as an Outstanding Graduate Program Preceptor by the School of Nursing. He was Visiting Nurse Services Distinguished Physician of the Year in 1996. He was past president of the Monroe County Medical Society and recipient of the Society's Edward Mott Moore award. He was also past president of the Rochester Academy of Medicine, which presented him with the Albert David Kaiser Medal in 2011.

At the time of his death, Bonanni was chair of Medicine at Unity Health System, which he joined in 2004. Bonanni is survived by his wife Anita, children James (Jeanne Anne), Christopher (Lori), Elena High (David), and Felicia Wray (Taylor), and 10 grandchildren.

Marylou Ingram, M.D.

Marylou Ingram, M.D., died peacefully in her sleep on August 12 at her home in Pasadena, California. She had recently been released from the hospital after suffering a stroke. Ingram was 93 years old.



Ingram was one of only a handful of women to graduate from the UR School of Medicine and Dentistry in 1947, and led a long and illustrious career in academic medicine, medical research and teaching. Her pioneering work focused on experimental hematology, radiation biology, cellular biology and immunology. Ingram played a key role in developing automated cell analysis systems, and her work landed on the cover of *Scientific American* in 1970.

She was a faculty member in the URMC Department of Radiation Biology and Biophysics until 1969. She then spent time at the University of California, University of Miami, and Huntington Medical Research Institute (HMRI). She remained actively involved in her research program at HMRI until her death.

Ingram also had a passion for poetry and the power of communication by written word. Two of her former students, Alexander Nakeff, Ph.D. and Carleton C. Stewart, shared the following poem she wrote:

About Poems

*When sonnets thrived and, like most poems, grew
On formal verbal lattices, they drank
Their nutrients through the sturdy frames that held
And guided their ascendancies and from
The compost where dead words and phrases fell
When pruning shaped the verse, and set them free
Poems now, no longer tethered, grow
Relaxed, colloquial, guided only by
The poet's will to capture and convey
A piercing insight, striving to be shared
But if the author's vision is too dim
No form or meter, no syntactic trim
Can give the writer what true poets need:
The power to see the germ within the seed.*

Rocco M. Vivenzio, M.D., C.M.D.

On April 26, Rocco M. Vivenzio, M.D., C.M.D., a pioneer in long-term and geriatric care, died from cancer at the age of 63.

An associate professor of Geriatrics, Vivenzio had recently been named 2013



Medical Director of the Year by the American Medical Directors Association. He was one of the first nursing home medical directors in the region, and was the medical director of several area nursing homes at the time

of his death. He served as medical director of the Strong Health Geriatrics Group from 1999 to 2011, expanding the network from seven nursing homes to 13 nursing homes and 21 assisted living facilities.

He was instrumental in implementing innovative quality, safety and communications protocols. He is remembered as a tireless and enthusiastic mentor by countless medical professionals and students.

Actively involved in the community, Vivenzio served as a member or medical advisor of nearly 30 boards and committees throughout his career. He was an active advocate for ready access to senior services. He is survived by his wife Madaline and daughters Laura, Maria and Kathryn.

Fred Sherman, Ph.D.



Fred Sherman, Ph.D., an internationally recognized scientist and faculty member since 1962, died September 16. He was 81.

Sherman was one of only three URMC faculty members appointed to the National Academy of Sciences (NAS). He was chair of the Genetics Division at NAS from 2000 to 2003. He served as chair of the URMC Department of Biochemistry and Biophysics from 1982 until 1999. His robust research program lasted nearly half a century, and he was continuously funded by the National Institutes of Health. Sherman performed groundbreaking research on the structure of genes and the effects of genetic mutations on proteins in yeast. He was also a proponent of the use of baker's yeast as a genetic model system. His insights changed the course of biological research worldwide. Many of his students and postdoctoral associates went on to make major scientific contributions and fill important academic and industrial positions.

Sherman was well known for his sense of humor, as well as the frequent hallway pirouette. He took ballet and attended aerobics classes long into his retirement. Sherman is survived by his wife, Elena Rustchenko-Bulgac, Ph.D., research associate professor in the Department of Biochemistry and Biophysics, children Rhea and Mark, six grandchildren, and his sister, Clarice Zuckman.

In Memoriam

This list covers February 2013 – August 2013

Oluwole A. Adebo (RES '74)

Paul C. Agnew (RES '56)

James C. Arseneau (RES '70)

Frank J. Ball (PhD '45)

Maurice O. Barney (RES '53)

Costan W. Bernard (RES '60)

Robert D. Brennan (RES '56)

Roger A. Brumback (RES '86)

Michael J. Burek (MS '93, PhD '95)

William R. Bush (PhD '54)

William D. Calley (MD '58)

Robert Capparell (MD '44)

Nathan Cedars (MD '47)

William L. Clark (MD '44)

Catherine R. Cohen (MD '69)

William D. Crandall (MS '38, MD '41)

Charles C. Cunningham (MD '51)

Ronald W. Estabrook (PhD '54, HNR '80)

Joseph A. Eyer (PhD '57)

Joseph F. Finelli (MD '53)

Paul R. Foote (RES '46)

Donal M. Foster (MS '41, MD '47)

Daniel E. Fountain (MD '56)

Stanford B. Friedman (MD '57)

Alice Garrison (BA '46, MD '49)

Arnold B. Grobman (MS '41, PhD '44)

Roger R. Hewitt (MS '60, PhD '63)

Edward S. Irwin (RES '58)

Joe H. Johnson (RES '43)

Malcolm C. Johnston (PhD '65)

John H. Kennell (BA '44, MD '46)

Charles M. Kerr (RES '70)

Barry Kirschbaum (RES '01)

Alice D. Kitchen (RES '70)

Arthur A. Like (RES '58)

Richard M. Lott (MD '47, Res '51)

David B. Lovejoy (MD '75)

Jean M. Marshall (PhD '51)

Maureen S. Micek (RES '93)

Kurt H. Mueller (PhD '49)

Peter S. Mueller (MD '56)

Eric S. Overland (RES '73)

Continued next page

In Memoriam

Continued

This list covers February 2013 – August 2013

- | | |
|--------------------------------------|-------------------------------------|
| William H. Pease (PhD '55) | Brent Tatum (RES '91) |
| Porter G. Perham (RES '60) | Victor J. Tofany (MD '50) |
| Patricia M. Perkins (MD '48) | Judith Van Liew (PhD '58) |
| Nunzio Pernicone (PhD '71) | Philip Wade (RES '73, RES '91) |
| Hugh M. Pratt (BA '48, MD '50) | Carl G. Welty (RES '58) |
| Jack E. Presberg (BA '45, MD '47) | Bill B. Wiley (PhD '56) |
| Richard Raffman (RES '52) | Paul A. Wojtaszek (MS '89, PhD '92) |
| Harry S. Romanowitz (RES '76) | Mohsen Ziai (HNR '99) |
| Nevin S. Scrimshaw (MD '45, RES '47) | |
| Lewis N. Stieglitz (RES '72) | |
| Eric C. Stull (MD '74) | |
| Edwin A. Sumpter (RES '72) | |
| James Swierkosz (FLW '80) | |

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Let us know! Contact the Office of Advancement and Alumni Relations at 800-333-4428 or send an email to alumni@admin.rochester.edu.

Alumni Awards Call for Nominations

The University of Rochester School of Medicine and Dentistry Alumni Council recognizes the achievements of SMD alumni through the alumni awards program. The Alumni Council relies on its fellow alumni to nominate their peers for these prestigious awards.



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All graduates of the MD, PhD, MS, and MPH programs, and former residents, are invited to submit nominations for the following awards:

The **Distinguished Alumnus(a) Award** recognizes achievement that has had an impact on a national and global scale by individuals whose lives and work exemplify the standards and objectives of the School.

The **Alumni Service Award** recognizes outstanding support, commitment, and service which have furthered the interests of the School.

The **Humanitarian Award** recognizes an alumnus of the school who has provided unique, compassionate care to patients who have special needs because of specific afflictions, poverty, or living conditions that lack resources.

The **Alumni Achievement Award** recognizes an outstanding alumnus who has excelled in teaching, community service, research, clinical and/or health policy, *who completed their training at SMD within the last 25 years*.

For a complete description of award criteria and nomination instructions, please visit
www.urmc.rochester.edu/smd/alumni/alumniawards.cfm.

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