What is the future of health care?

For those of us in academic medicine—where challenging the status quo in medical education, biomedical research, and patient care is the rule, not the exception—it’s an important question, one that suggests limitless possibilities and yet offers no guarantees.

In recent years, innovations in digital communication and information technology; basic and clinical research tools and applications; and interdisciplinary, team-based models for health sciences education and real-world clinical practice have come at a seemingly accelerated pace. A little more than a decade ago, the scientific community and the public celebrated the completion of the mapping of the human genome—a global collaborative research project that took 13 years and cost roughly $3 billion. Today, in laboratories at institutions across the nation and world—including the University of Iowa—scientists can sequence a person’s genome in a few weeks at a cost of just several thousand dollars. As turnaround times continue to improve and costs continue to drop, analyzing a person’s genetic blueprint soon may become as routine a test as screening for cholesterol. At the UI and other top medical centers around the country, we’re entering a new era of personalized medicine, where treatments for disease are tailored to an individual’s specific genetic information, lifestyle, and environment.

And without a doubt, new tools, new technologies, and new approaches will bring answers—and new challenges—to questions that were unfathomable a generation ago.

The future has always held the promise of opportunity, but the future also depends on what we do today. While we may not always be accurate in predicting tomorrow’s breakthroughs, treatments, or learning opportunities, we certainly can—and do—play an important role in understanding and transforming health care for the next generation of patients and providers.

In Shaping Medicine’s Future, the 2014 University of Iowa Health Care annual report, we highlight examples of medical education, biomedical research, and patient care and service that are shaping the lives of people in our communities, across our state, and around our nation and world. It’s a commitment shared by individuals across our organization—more than 12,000 faculty, staff members, students, residents and fellows, and volunteers—who have the skills, resources, expertise, and experience to see beyond traditional ways of learning, teaching, conducting research, and caring for patients and families.

That’s what people expect from University of Iowa Health Care.

That’s what we strive to deliver—today and in the future.

Jean E. Robillard, MD
Vice President for Medical Affairs
University of Iowa

Debra A. Schwinn, MD
Dean, UI Roy J. and Lucille A. Carver College of Medicine

Kenneth P. Kates, MBA
CEO, UI Hospitals and Clinics
Associate Vice President, UI Health Care
University of Iowa Health Care

Iowa’s comprehensive academic medical center is comprised of the UI Roy J. and Lucille A. Carver College of Medicine, UI Hospitals and Clinics, and UI Physicians, the state’s largest multispecialty group practice.

Through its commitment to innovation, interdisciplinary collaboration, quality and safety, and service, UI Health Care:

• Provides world-class medical care and expertise to patients, families, and communities.
• Educates and trains future generations of physicians and health care providers.
• Seeks knowledge and discoveries that advance biomedical science, leading to improved treatments and therapies.
• Maintains partnerships with health care professionals, hospitals, and health systems across Iowa and the region.
Making a difference in the lives of individuals and families—it’s the promise of medicine and a commitment shared by physicians, nurses, and other caregivers across University of Iowa Hospitals and Clinics. By working together in multidisciplinary teams; maintaining the highest standards of safety, quality, and service; and embracing compassion, creativity, and innovation, we never lose focus on the importance of treatments and therapies that enable patients to recover faster, return home sooner, and live longer.
Two-time stroke survivor savors life, helps others

The morning 18 years ago when Emma Fox-Gatica first had a stroke, she was so dizzy she couldn’t get out of bed.

While Emma had seemed perfectly healthy at the time, family history worked against her. Both her father and grandfather had suffered strokes. Now, after surgery, Emma’s children were being told that their mother might not walk or talk again.

“Little did they know who they were dealing with!” she laughs.

After a second stroke 10 years later, Emma received expert care at the UI Comprehensive Stroke Center. Directed by neurologist Harold Adams, MD, it’s the only certified center of its kind in Iowa.

Today, as a rare two-time stroke survivor, Emma views her strokes as blessings in disguise. “I am supposed to be here,” she states, referring to the stroke center, where as a volunteer she meets with stroke patients and their families. “I call them my children,” she says. “They can be 19 or they can be 99, it doesn’t matter.”

Stroke has taught Emma to “live in the moment,” especially when she is spending time with patients and families. “There is no way I give them anything close to what they give me,” she says.

Ebola preparedness

At UI Hospitals and Clinics, the commitment to provide extraordinary patient care while protecting the health and safety of patients, staff, and communities across the state remains strong every day. With that priority firmly in mind, the UI Hospitals and Clinics Bio-Emergency Response Team led the extensive planning necessary to prepare staff to identify and care for patients with presumed or confirmed Ebola infection.

While the risk of an Ebola case in Iowa City or on campus remained extremely low, UI Hospitals and Clinics staff members tracked the disease with daily updates from the federal Centers for Disease Control and Prevention (CDC) and the World Health Organization.

Hospital preparations included developing and disseminating a screening process for use in all clinical areas, plus conducting training and simulation sessions in the clinical areas most likely to encounter an Ebola patient. Patient care protocols were created and updated continually with new information from the CDC and distributed to the Emergency Department, all outpatient clinics, inpatient units, and staff who could have directly cared for the patient.

Environmental Services staff also developed cleaning, disinfecting, and waste management protocols. Multiple employee forums were held to provide the most up-to-date information about Ebola preparedness at UI Hospitals and Clinics and answer questions. Educational materials were also prepared for patients and families to ensure their comfort in knowing that faculty and staff members were ready and trained to care for a patient with Ebola virus, while protecting the health of others.
Patient Care

POEM procedure goes down easy

Sitting down to a meal should be one of life’s simple pleasures. For Dan Schmertman of Muscatine, Iowa, it was anything but that. He lived for years with achalasia, a disorder of the esophagus.

With achalasia, a muscular ring at the point where the esophagus and stomach come together does not relax during swallowing. This prevents food from entering the stomach, leading to regurgitation, heartburn, and chest pain. For some patients, unintentional weight loss also is a problem.

But thanks to a new procedure called per-oral endoscopic myotomy (POEM), relief is possible with minimal pain and a fast recovery.

POEM is a collaborative effort—UI cardiothoracic surgeon John Keech, MD, and interventional gastroenterologist Henning Gerke, MD, perform the procedure. UI Hospitals and Clinics is one of a small number of medical centers in the United States—and the first and only in Iowa—to offer it.

POEM involves inserting an endoscope (a thin, flexible tube with a light and video camera) through the sedated patient’s mouth. Using a tiny blade that passes through the endoscope, doctors make a small slit in the lining of the esophagus to reach, and carefully divide, the muscle that’s restricting the passage of food. Once completed, the endoscope is pulled back and the slit is repaired.

POEM typically results in minimal, if any, pain and a short recovery time.

Nowadays, Dan can “eat anything and everything, as much as I want,” he says, adding with a chuckle, “I may even have put on a few pounds—but I’m not complaining.”

Mealtime is much easier for Dan Schmertman, thanks to an innovative new procedure.

Lung transplant milestone

In June, UI Health Care leaders announced the 100th lung transplant at UI Hospitals and Clinics, a major milestone for the institution and for patients and families.

The state’s only lung transplant program has maintained a longstanding tradition of excellence since the hospital’s first lung transplant in 1988. Led by medical director Julia Klesney-Tait, MD, PhD, and surgical director Kalpaj Parekh, MD, the transplant team performs between 15 to 20 transplants each year, with outstanding results. The one-year survival rate for patients in the program is 92 percent (the national average is 85 percent) and the three-year survival rate is 80 percent compared to 66 percent nationally. For lung transplant patients, the length of stay in the hospital is five days less than the national average, and the program is currently ranked in the top three nationally for patient outcomes post-transplant.

The lung transplant service offers a multidisciplinary transplant team; coordinated care and communication with referring physicians; and lifelong post-transplant monitoring and care. Patients in the program establish a close working relationship with their care team, which also includes a transplant nurse coordinator, pulmonary rehabilitation specialist, and social worker. This personalized post-transplant management allows the team to provide individualized care that enhances outcomes.
Focus on Leukemia: photographer documents son’s courageous fight

Noah Brown was a college student: He played intramural sports, spent time with his girlfriend, and focused on his studies at Iowa State University. Then, in fall 2012, fatigue set in and persistent mouth sores appeared. A few months later, he learned the cause: leukemia. For treatment, Noah’s doctor recommended two options: the Mayo Clinic or the Holden Comprehensive Cancer Center at the University of Iowa.

“Our choice was easy; we chose Holden,” says Greg Brown, Noah’s father. “We’re really glad we did.” Over the next eight months, with the help of his highly specialized cancer team, Noah fought the leukemia. In December 2013, he was declared cancer-free. Thinking back, Noah says he was surprised at the diagnosis. “It never entered my mind that a pretty healthy kid like me would come down with cancer.” Greg and Noah’s mother, Staci, feel the same way. Each had their own ways of dealing with Noah’s illness. For Greg, a professional photographer, it was chronicling Noah’s journey through photos. He took pictures of almost everything—trips to lunch in a hospital cafeteria, injections, chemotherapy, ports, and needles.

He also documented the care team that came to mean so much to the Brown family. For his part, Noah is no longer afraid to dream. “My hopes for the future would be to just stay healthy, stay active. Not let cancer become a crutch, but something that just makes me stronger,” he says.

“We kept thinking, ‘This may be just our Noah, but there are many Noahs out there in the same position.’ So maybe just getting the story out will help in some way, help them get over the hump of, ‘I can’t do this.’ ”

– Greg Brown, Noah’s father
Small incision, huge impact for heart patients

Heart failure refers to the heart’s inability to pump enough blood to meet the body’s needs. It doesn’t mean the heart has stopped or is about to stop working, but heart failure is a serious—and eventually life-threatening—condition. In certain cases, a heart transplant is the last treatment option.

For some patients needing a heart transplant, a left ventricular assist device (LVAD) may be necessary. An LVAD serves as a “bridge” to transplant. It assists the heart’s left ventricle in pumping oxygen-rich blood throughout the body.

LVAD surgery traditionally meant a lengthy incision to split open a patient’s chest. Now, with new technology and expertise at UI Heart and Vascular Center and only a small number of medical centers around the country, minimally invasive LVAD surgery is available.

“With the quicker recovery, we can help more patients by offering this therapy before they are too sick.”
—Jay Bhama, MD

The ablation technique developed by IOWA Approach provides an alternative to current AF ablation treatments, with the potential to overcome the complexity and time intensity experienced with existing procedures.

Steven Mickelsen, MD, a cardiologist and visiting faculty fellow, is founder and chief scientific officer of IOWA Approach. Mickelsen received funding from UIRF to build and test his prototypes. He also worked with UIRF and UI Ventures to generate additional state investment in his company to continue early development.

Building on his 15-plus years of experience inside electrophysiology catheterization labs and his medical education, Mickelsen conceived and built the prototypes for multiple devices, combining the benefits of minimally invasive approaches to treat AF from inside the heart with surgical approaches that treat the outside of the heart. His invention aims to make ablations safer, faster, more accessible, and less expensive.

The investment from Boston Scientific will bolster IOWA Approach as it prepares for its first human cases in 2016.

The UI Research Foundation and UI Ventures are part of the University of Iowa Office of Research and Economic Development, which supports and advances research, scholarship, and creative activity on the UI campus.
Life’s rhythm, life’s work

Arrhythmias cause the heart to beat too quickly, too slowly, or erratically. And when the heart doesn’t beat properly, it cannot pump blood efficiently—and that can be serious for the brain, lungs, and rest of the body.

To treat arrhythmias, cardiologists often perform an ablation—a procedure involving a catheter with an energy source at its tip to deaden small areas of tissue and interrupt the abnormal electrical signals that cause heart rhythm problems.

Traditional cardiac catheterizations for ablations used X-ray images (fluoroscopy) to help identify catheter locations—a necessary but less than ideal solution for pediatric patients. By the late 1990s, new technologies such as 3-D mapping systems, used with fluoroscopy, provided greater accuracy and helped reduce a young patient’s exposure to radiation.

Heart rhythm specialists at University of Iowa Children’s Hospital, however, began asking themselves, “Do we need radiation at all?”

In recent years, the Iowa team—along with just a handful of other pediatric electrophysiology programs around the country—has been among the first to incorporate a radiation-free approach for certain ablation procedures. Today, about three-fourths of their cases are done without the use of X-rays.

“It’s a great example of embracing technology and innovation, but this isn’t simply ‘ooh-ahh’ stuff,” says Ian Law, MD, director of the pediatric cardiology division in the UI Stead Family Department of Pediatrics and an arrhythmia expert at UI Children’s Hospital. “There’s a real benefit for patients.”

Patients like Chloe Simpson of Fort Dodge, Iowa, who at 5½ weeks old became the youngest and smallest baby in the world to undergo a radiation-free catheter ablation at UI Children’s Hospital. Today, her heart is in perfect rhythm.

Ian Law, MD

Kate and Cory Simpson with daughter Chloe (photo by Brittany Drew Images)
Making genomic medicine personal

There are more than 70 known genes that cause deafness. Traditionally, finding a problematic gene meant testing for each gene individually—a time-consuming and costly process. But now with an innovative new testing platform called OtoSCOPE, medical professionals can test all the genes at one time to identify the cause of deafness.

UI Carver College of Medicine alumnus Eliot Shearer, MD, PhD, now a medical resident in the UI Department of Otolaryngology, helped design and implement the targeted sequence capture platform. He also established an efficient protocol that enables scientists to reproduce gene sequence samples. Shearer and Richard Smith, MD, UI professor of otorlaryngology, led the group of researchers who first described the functionality of OtoSCOPE in 2010. Since then, they’ve published additional papers describing improvements to the platform.

OtoSCOPE, which has contributed to a paradigm shift in the care of patients with hearing loss, is one of the successes of the Molecular Otolaryngology and Renal Research Laboratories (MORL) at the UI, which Smith directs. The MORL Clinical Diagnostics Division focuses on non-syndromic hearing loss and complement-mediated renal disease. In terms of non-syndromic hearing loss, for example, MORL provides the most accurate and comprehensive genetic testing available to clinicians who care for these patients. As with the testing services available for complement-mediated renal disease, MORL tests for hearing loss are performed by experts in human genetics. Moreover, prior to generating a final report, all results are discussed at a multidisciplinary meeting of clinicians, research scientists, bioinformatics specialists, human geneticists, and genetic counselors. This approach—unique to MORL—helps facilitate patient-specific interpretation of test results. That’s extremely useful information for caregivers and the patients and families they serve.
April marked the 35th anniversary of AirCare at UI Hospitals and Clinics—the state’s first hospital-based helicopter ambulance service.

AirCare flights, operated by Air Methods Corp., provide emergency treatment and transport for patients in central/eastern Iowa and eastern Illinois, with coverage capability extended to areas of Wisconsin, Minnesota, and Missouri. AirCare personnel collaborate with more than 100 emergency medical services and fire and law enforcement programs throughout Iowa and the region. It is the only flight program in Iowa affiliated with an emergency medicine residency training program, and it is the only program in the state supplementing its medical crew with flight physicians.

The program’s helicopters and specialty ground ambulances transport critically ill and severely injured patients, delivering medical care en route with an emphasis on supporting high-risk patients—trauma victims, individuals with time-sensitive or complex medical conditions, and pediatric patients. Newborn infants needing specialized neonatal care are among the service’s patients. Since its inception, AirCare has brought more than 3,000 babies to the neonatal and pediatric intensive care units at UI Children’s Hospital.

*AirCare: 35 years of emergency service to critically ill and injured patients*

Above: An archived image of an AirCare helicopter arriving on the scene of an accident. At right: The AirCare helicopter today.
AirCare became the nation’s 11th helicopter ambulance service when it launched its first flight on April 1, 1979. It began with one aircraft; in 1988, AirCare 2 began service from Waterloo, which extended the service’s flying range to 180 miles from Iowa City.

Since 1979, more than 25,000 patients have received AirCare transport, covering more than three-and-a-half million miles. The helipad at UI Hospitals and Clinics today is the state’s busiest, with an average of 2,500 landings and take-offs each year.

To celebrate the 35-year milestone, AirCare hosted an open house for staff members and the public in September at its hangar at the Iowa City Airport. The event featured tours of the helicopters, and photos and displays capturing the service’s history.

**Emergency Medicine marks its first decade as department**

The UI Department of Emergency Medicine celebrated 10 years as an academic department in the UI Carver College of Medicine over the first weekend in September, which included a continuing medical education program, tailgate reception during a home Hawkeye football game, and joint celebration with the UI Hospitals and Clinics AirCare service at the Iowa City Airport.

The events also celebrated the department’s emergency medicine residency program, the only one of its kind in Iowa. The program trains physicians on the stabilization, management, and diagnosis of individuals with acute illness and injury. Emergency Medicine residents at Iowa help certified medical staff care for more than 60,000 patients a year and admit approximately 15,000 patients annually. About two-thirds of the residency program graduates are working in Iowa or adjacent states. Emergency medicine is one of the most popular electives among UI Carver College of Medicine students, and it’s one of the top specialty choices among fourth-year students choosing medical residencies.

The department’s accredited residency program, which currently trains 27 physicians, was established at UI Hospitals and Clinics in 2003. The establishment of Emergency Medicine as an academic department in the UI Carver College of Medicine occurred a year later, and in 2008, the 35-bed, state-of-the-art Emergency Department opened at the hospital complex.

**This year, AirCare received designation by the Commission on Accreditation of Medical Transport Systems (CAMTS) for quality and safety practices. It is the first and only Iowa-based air ambulance service to receive CAMTS accreditation.**

More information about AirCare’s history is available at uihealthcare.org/aircare.

**AirCare team members**
Like most cancer researchers, Yatin Vyas, MD, MBBS, hopes for a time when there will be no cancer.

Until that day arrives, the pediatric cancer researcher says his immediate vision is to help develop a treatment that targets the individual cancer cells and doesn’t damage the little bodies containing them.

“My hope is that it will be a directed therapy, that we would identify a pathway for which we would have a drug, a pill form, that would go straight to the cancer and would allow the person to live with a minimum of side effects for a longer time,” Vyas says. “It can be done. The excitement is really palpable—people really believe there is something on the horizon.”

Vyas, who is the Mary Joy and Jerre Stead Professor of Pediatric Hematology/Oncology, has been one of the nation’s leading pediatric cancer researchers for more than 20 years. He knows the traditional cancer treatments—chemotherapy, surgery, and radiation—can take a toll on any cancer patient’s body, but this is especially true for children with cancer.

Vyas wants to remove that risk. He says personalized medicine—examining a patient’s cancer cells and treating them according to that person’s individual genetic makeup—will help researchers develop therapies that can target those cancer cells on their own, rather than sending radiation or chemotherapy to an entire region. He hopes one day to treat different cancers with a pill, not with radiation or chemotherapy.

As a researcher and a clinician, Vyas embraces the future of pediatric cancer treatment. He hopes someday there will be only one place where people encounter the tools currently used to deliver radiation and chemotherapy.

“They belong in a medical museum, right next to the iron lung,” Vyas says.

### Love lasts forever

*Love Lasts Forever: A Journal of Memories* isn’t like most other baby books. In fact, this journal is for a group no parent wants to be part of—those who have lost a child.

*Love Lasts Forever* was written by Sheila Frascht and Noelle Andrew, members of the pediatric palliative care team at UI Children’s Hospital. Frascht, a former pediatric intensive care nurse, is developer and coordinator of the Grief Services Program and a certified hospice and palliative pediatric nurse. Andrew, a former church pastor, has served as the UI Children’s Hospital pediatric chaplain for more than four years.

Frascht and Andrew have spent countless hours with families who have struggled to find words of comfort and support as they prepare to say goodbye to a child. In their search for materials to help grieving family members move forward, the two women realized that such resources typically were scarce and, in many cases, nonexistent. *Love Lasts Forever* is their collaboration, providing a practical outlet for families to record those special moments with or about their child.

*Love Lasts Forever* is included in a package of informational materials given to every family who experiences the loss of a child at UI Children’s Hospital. It is also available at amazon.com, and proceeds from the sale of the book are directed to the Pediatric Palliative Care Program at UI Children’s Hospital.
Building for Iowa’s kids

Progress continues on the new University of Iowa Children's Hospital, scheduled for completion in 2016. The 14-floor structure (12 stories above ground, two below ground) has been designed as a patient- and family-friendly healing environment and will serve as the centerpiece of a system of care for Iowa’s children and families, bringing together services and resources as part of a comprehensive network.

As 2014 came to a close, UI Children’s Hospital leaders reported that the building’s concrete structure was near completion, with a final major concrete pour set for January 2015. Interior framing and mechanical work inside the structure, along with window and light-well glass installation, also was underway. With the building’s design complete, the transition and activation planning phase has begun, which will help facilitate the eventual move into the new facility. In terms of design, each level of the new UI Children’s Hospital will have its own identifying icon and color as a way for families to easily distinguish different floors and areas of the hospital. Other design elements will include landscape imagery of farmlands, woodlands, wetlands, and prairies to create a uniquely “Iowa” look. Scenes also will be displayed on procedure and imaging room walls so that young patients may focus on warm and welcoming pictures instead of medical equipment.

Since 1919, UI Children’s Hospital has been dedicated to meeting the health care needs of children. With this new building, our commitment as Iowa’s only comprehensive children’s hospital and academic medical center will remain strong for future generations.
Nursing wins prestigious Magnet Prize

The American Nurses Credentialing Center awarded University of Iowa Hospitals and Clinics the 2014 Magnet Prize®, recognizing the innovative use of evidence-based practice to positively impact patient care. The highly esteemed honor is presented to only one group annually, and this year recognized UI Hospitals and Clinics for its innovative Iowa Model, which provides a framework and structure for nurses to implement new knowledge, research, innovations, resources, and other evidence in daily practice. To date, more than 30 countries have adopted the Iowa Model for improving patient care.

UI honorees in 2014:
Martha Blondin, MSN, RN
Linda Boehmer, BSN, RN
Mindy Bowen, BSN, RN
Laura Collins, BSN, RN
Jennifer Ehrlich, RN
Ellyn Harris-Hesli, MA, ARNP
Jolyn Morgan, MSN, RN
Jeanette Muller, RN, CHFN
Debra Picone, PhD, R
Colleen Shipley, BSN, RN-BC
Sharon Tucker, PhD, RN, PMHCNS-BC

UI nurses join the group of ‘100 Great Iowa Nurses’

Eleven nurses at UI Hospitals and Clinics were named to the 2014 list of “100 Great Iowa Nurses,” a partnership of the Iowa Nurses Association, Iowa Nurses Foundation, Iowa Hospital Association, and the UI College of Nursing to honor top nurses from around the state.

UIP Clinical Awards honor outstanding caregivers

In October 2014, seven University of Iowa physicians were honored by UI Physicians—the state’s largest multi-specialty and surgical group practice, comprised of the staff physicians who provide care at UI Hospitals and Clinics—as recipients of the 2014 UI Physicians Clinical Awards for excellence in patient care and service.

**Clinician of the Year Award**
James Howe, MD, Department of Surgery

**Innovations in Clinical Care Award**
Perinatal Palliative Care Team, Stead Family Department of Pediatrics

**Patient Satisfaction and Service Excellence Award**
Charles Clark, MD, Department of Orthopaedics and Rehabilitation

**Best Consulting Provider Award**
Michelle Fang, MD, Department of Internal Medicine

From Left: Becky Benson, MD; Andrea Greiner, MD; Martha Lang, M-Div; Mark Santillan, MD; Sheila Frascht, RN; Janine Petitgout, ARNP; Robin Ostegaard, CLS

**Excellence in Quality Award**
Brad Erickson, MD, Department of Urology

**Best Consulting Provider Award**
Colleen Kennedy Stockdale, MD, Department of Obstetrics and Gynecology

**Excellence in Our Workplace Award**
Kent Pearson, MD, Department of Anesthesia
Excellence acknowledged

Across University of Iowa Health Care, faculty and staff members often go above and beyond their respective areas of research, medical education, and patient care, demonstrating each day the commitment, perseverance, and collaborative spirit that help make their department or unit—and the university as a whole—among the best.

To list every achievement, recognition, honor, or milestone in these pages would be nearly impossible. Here is a small selection of notable individual achievements in 2014:

- **American Heart Association Award for Meritorious Achievement**
  - Dianne Atkins, MD, Pediatrics

- **American Heart Association James B. Herrick Award for Outstanding Achievement in Clinical Cardiology**
  - Kanu Chatterjee, MD, Internal Medicine

- **Carver College of Medicine Collegiate Teaching Award**
  - Kris DeMai, PhD, Biochemistry
  - Colleen Kennedy Stockdale, MD, Obstetrics and Gynecology
  - Sundar Krishnan, MBBS, Anesthesia
  - Manish Suneja, MD, Internal Medicine

- **Carver College of Medicine Faculty Service Award**
  - D. Lee Bennett, MD, Radiology
  - Richard Shields, PhD, Physical Therapy and Rehabilitation Science

- **Corridor Business Journal 40 Under 40 Award**
  - Katie Imborek, MD, Family Medicine

- **Corridor Business Journal Woman of Influence Award**
  - Ginny Ryan Buresh, MD, Obstetrics and Gynecology

- **Distinguished Mentor Award**
  - Peter Densen, MD, Internal Medicine

- **Dr. Ernest O. Theilen Clinical Teaching and Service Award**
  - Richard Kerber, MD, Internal Medicine

- **Emergency Medicine Foundation/Blue Jay Consulting Emergency Medicine Director of the Year**
  - Michael P. Miller, MD, Emergency Medicine

- **Excellence in Clinical Coaching Award**
  - Carlyn Christensen-Szalanski, MD, Emergency Medicine
  - Abhay Divekar, MBBS, Pediatrics
  - Anna Kitzmann, MD, Ophthalmology
  - Kelly Skelly, MD, Family Medicine
  - Kenichi Ueda, MD, Anesthesia

- **Fellows of the American Association for the Advancement of Science**
  - Paul McCray, MD, Pediatrics
  - David Price, PhD, Biochemistry

- **Fulbright Scholar**
  - Clarence Kreiter, PhD, Family Medicine

- **Humanism and Excellence in Teaching Award**
  - Adrienne Adams, MD, Obstetrics and Gynecology
  - Aubrey Chan, MD, PhD, Internal Medicine-Psychiatry
  - Luke Gabe, MD, Internal Medicine
  - Amandeep Mahal, MD, Obstetrics and Gynecology
  - James Vancura, DO, Internal Medicine
  - Andrea Ryan, MD, Internal Medicine-Psychiatry

- **Iowa Governor’s Volunteer Award**
  - Chris Buresh, MD, Emergency Medicine

- **J.P. Long Teaching Award in the Basic Sciences**
  - Alexander Sandra, PhD, Anatomy and Cell Biology

- **Jean Y. Jew Award**
  - Jessica Hook, PhD, Pediatrics

- **Leonard Tow Humanism in Medicine Award**
  - Ann Broderick, MD, Internal Medicine

- **Medical Advisor of the Year**
  - Denise Martinez, MD, Family Medicine

- **Neurosurgical Society of America Medal for Lifetime Achievement**
  - Arnold Menezes, MD, Neurosurgery

- **President and Provost Award for Teaching Excellence**
  - Thomas Schmidt, PhD, Molecular Physiology and Biophysics

- **President of the Association of American Cancer Institutes**
  - George Weiner, MD, Internal Medicine

- **President of the Association of Departments of Family Medicine**
  - Paul James, MD, Family Medicine

- **President of the Society of Surgical Oncology**
  - Ronald Weigel, MD, Surgery

- **President of the UI Faculty Senate**
  - Alexandra Thomas, MD, Internal Medicine

- **Regents Award for Faculty Excellence**
  - Charles Brenner, PhD, Biochemistry
  - Mary Wilson, MD, Internal Medicine

- **Society of Neurological Surgeons Career Research Award**
  - Matthew Howard, MD, Neurosurgery

- **UI Diversity Catalyst Award**
  - David Lubaroff, PhD, Urology

- **2014-2015 Carver College of Medicine Executive Committee**
  - Polly Ferguson, MD, Pediatrics—Chair
  - Deborah Segaloff, PhD, Molecular Physiology and Biophysics—Vice Chair
  - Brad Amendt, PhD, Anatomy and Cell Biology
  - D. Lee Bennett, MD, Radiology
  - Donald Black, MD, Psychiatry
  - Steven Clegg, PhD, Microbiology
  - Kathleen Kieran, MD, Urology
  - Al Klingelhutz, PhD, Microbiology
  - W. Thomas Lawrence, MD, Surgery
  - Kalpaj Parekh, MD, Cardiothoracic Surgery
  - James Pothak, MD, Psychiatry
  - Robert Raw, MD, Anesthesiology
  - Curt Sigmund, PhD, Pharmacology
  - Michael Wagoner, MD, PhD, Ophthalmology
It’s been estimated that today’s body of medical knowledge doubles every few years. At the University of Iowa Carver College of Medicine, students learn the importance of managing the constant progression of scientific and technological information while keeping a steadfast commitment to the human side of medicine—to be good listeners and advocates for their patients and their families. Through an innovative medical curriculum and unique learning opportunities in the classroom, research laboratory, and clinic, medical students at Iowa are poised to make major impacts on 21st century medicine.
Taking that next big step

UI Carver College of Medicine graduates receive residency assignments on Match Day

Like her Carver College of Medicine classmates, Wanakee Carr had spent the past four years preparing for Match Day—the envelope-opening event where medical school graduates around the world learn where they will begin their medical residencies.

Here’s how it works: Students create a field of hospitals and centers where they’d like to work, interview at many of them, and then rank them according to their preferences, according to the National Residency Matching Program. On the flip side, directors of residency programs at those institutions create a similar list—theirs ranking the candidates according to the program’s preferences. The lists of both the candidates and the programs are entered into a computer, and an algorithm creates a “match,” placing candidates with programs.

Although students learned on the Monday before Match Day whether they’d matched at all—those who didn’t match were given the rest of the week to find a program—the envelopes containing the student’s name and their matched program were not handed out until Friday, March 21, when medical students around the nation and world received their envelopes at the same time.

Like most other medical school graduates, Carr—a Des Moines native who served as the president of her fourth-year class—learned she’d matched, but didn’t yet know where.

On March 21, she got the news: Carr matched with an OB-GYN program at University of Kansas Hospital—her top choice. She chose to leave Iowa for her residency, but Carr expects to one day return to her home state.

“I do see myself coming back to Iowa at some point. I see myself back in Des Moines,” she says.

About Match Day 2014 at the UI Carver College of Medicine:
Among this year’s graduating class of 150 students, 39 percent (58 students) chose primary care specialties, which include family medicine, internal medicine, obstetrics and gynecology, and pediatrics. There were 16 matches in family medicine residency programs, 17 in internal medicine, 10 in obstetrics and gynecology, and 16 in pediatrics.

Among this year’s graduates, 49 will remain in Iowa for their first year of postgraduate training, and 37 of these 49 students will train at UI Hospitals and Clinics.
Iowa communities key to medical education

The UI Carver College of Medicine has long maintained strong connections with practitioners in cities and towns across Iowa. More than half of Iowa’s doctors have a connection to the university as a graduate of the college or a UI-affiliated residency or fellowship program.

And in fact, more than 700 Iowa physicians serve as volunteer clinical instructors who contribute to UI medical education right in their own communities.

Developing and monitoring Iowa’s physician (and non-physician provider) workforce and fostering relationships with medical practices, hospitals, and health systems across Iowa is the mission of the college’s Office of Statewide Clinical Education Programs (OSCEP).

UI-affiliated Regional Medical Education Centers—in Cedar Rapids, Davenport, Des Moines, Mason City, Sioux City, and Waterloo—and eight residency programs that comprise the Iowa Family Medicine Residency Network are just two of the many OSCEP initiatives that serve medical students, residents, and practitioners. Other community-based programs support private medical practitioners and Iowa hospitals. OSCEP also operates tracking systems that monitor the state’s doctors, as well as the workforces in dentistry, pharmacy, and other health professions.

Inspiring tomorrow’s scientists today

During the 2013-2014 academic year, more than 230 faculty, staff, and students devoted more than 1,000 hours to UI Health Care STEM (science, technology, engineering, and mathematics) programs through partnerships with K-12 educators and community education leaders.

More than 13,500 students—representing more than 100 schools and community educational organizations from 22 counties across Iowa—participated in UI Health Care STEM education programs over the course of the 2013-2014 school year. Activities included tours of research laboratories and health care facilities, classroom presentations, and hands-on demonstrations and exhibits.

The programs serve a dual purpose: to pique students’ curiosity about careers in health care and inspire them to take an active role in their own health.
New beginnings with New Horizons

The White Coat Ceremony is an annual rite of passage for first-year students at the UI Carver College of Medicine. In the presence of family, guests, and faculty members, students are welcomed to the college and ceremonially cloaked with their white coat. The students also stand to recite the Oath of Hippocrates, which is also traditionally sworn at graduation.

By establishing this ritual at the beginning of medical school, students become aware of the depth of their responsibilities at the outset of their education and training. It underscores the importance of the doctor-patient relationship and the obligations inherent to the practice of medicine: to be excellent in science, to be compassionate, and to lead lives of uprightness and honor. It reminds students that a physician’s responsibility is to “care” as well as “cure.”

This year’s class of first-year students is the first to enter medical school under the college’s New Horizons Medical Education Curriculum, a new program of study that was partially launched in 2013. The New Horizons curriculum, developed with core values of innovation, integration, and individualization, is comprised of a “triple helix” model of three strands: Mechanisms of Health and Disease; Medicine and Society; and Clinical and Professional Skills. The strands are interwoven to ensure the integration (and revisiting) of material across the four years of medical education. Students are assured clinical, classroom, and lab experiences that enable them to identify and develop their strengths as they prepare for careers in medicine.

New Horizons Curriculum: Year 1

**Medical Gross Anatomy**
- Complete dissection of the human body to understand form and function

**Foundations of Cellular Life**
- Genetics, embryology, molecular biology, biochemistry, cell biology, histology
- Prepares students for Mechanisms of Health and Disease courses

**Mechanisms of Health and Disease (3 of 4 required MOHD courses)**
- Delivery of oxygen and its use; metabolism; genetics and development; immunology and inflammation; structural and locomotive systems; neuropsychiatry

**Medicine and Society (2 of 3 required MAS courses)**
- Social determinants of health (access to insurance, poverty, etc.), community resources, health and risk assessments for patients and physicians, public health, epidemiology

**Clinical and Professional Skills (2 of 3 required CAPS courses)**
- Clinical reasoning, communication, physical examination, evidence-based clinical practice, biomedical ethics
- Physician-mentors supervise students during six encounters in the Early Clinical Experience.

- Interactions with standardized patients
- Collaborations with students from other UI health science colleges
Creative crowdsourcing

When the Albert and Mary Lasker Foundation asked for creative ways to overcome a decade-long crisis in U.S. medical research funding, second-year UI medical student Nick Andresen proposed creating a centralized online database where potential donors could learn about credible scientific projects. The idea earned Andresen third place in the Lasker Foundation 2014 Essay Contest. Andersen’s essay, “Crowdsourcing a Medical Research Donation Database,” also earned him a $2,000 award.

Small colleges, big-time collaboration

Imagine if students and professors at small colleges had access to the state-of-the-art instruments, research facilities, and faculty expertise available at a major research institution like the UI. That's exactly what happens for participants in the FUTURE (Fostering Undergraduate Talent—Uniting Research and Education) in Biomedicine Program at the UI Carver College of Medicine. The program places faculty and students from Iowa’s primarily undergraduate institutions with UI medical research faculty for nine weeks during the summer. Since its inception in 2009, the program has hosted 25 professors from 17 Iowa colleges. Many of the program’s alumni have developed ongoing and productive collaborations with their UI partners, resulting in at least seven co-authored research papers and 35 presentations at scientific conferences, as well as several successful grant applications.

Wartburg College student Jessa Bidwell (below left) and Stephanie Toering Peters, associate professor of biology at Wartburg, studied synapse development in the lab of C. Andrew Frank, PhD, UI assistant professor of anatomy and cell biology.
Cystic fibrosis mucus defect present at birth

Mucus is key to keeping our lungs clean and clear of bacteria, viruses, and other foreign particles that can cause infection and inflammation. When we inhale microbes and dust, they are trapped in the mucus and then swept up and out of the lungs via a process called mucociliary transport.

Research by UI scientists, published in the Aug. 15 issue of the journal *Science*, showed that cystic fibrosis (CF), a life-shortening, inherited condition that affects about 30,000 Americans, causes a specific defect in this process, reducing the lungs’ ability to clear particles and germs out of the airway.

The UI team discovered that mucus emerges from specialized glands below the airway surface in long strands. In normal, non-CF airways, these strands detach and are swept up to the throat carrying any trapped particles with them. However, in CF airways these strands don’t detach properly from the gland, which allows mucus and trapped particles to accumulate on the airway surface.

If mucus can’t be cleared out of the airway properly, the airway can get plugged up, making it difficult to breathe for people with CF.

“Now that we know more about what we are up against in CF, we can direct our research,” says Mark Hoegger, first author of the study and an MD/PhD student in the UI Carver College of Medicine’s Medical Scientist Training Program.

The new findings also directly link the mucus defect to loss of function of the CFTR protein, the underlying genetic cause of CF.

The newly discovered CF mucus abnormality may also play a role in problems caused by the disease in other organs, like the GI tract and the pancreas. The finding may also have implications for other airway diseases with abnormal mucus and mucociliary transport, such as asthma and chronic obstructive pulmonary disease.

Hoegger works in the lab of UI researcher and Howard Hughes Medical Institute investigator Michael Welsh, MD, who was co-senior author of the study with UI researcher David Stoltz, MD, PhD.
The new 7 Tesla MRI scanner will advance imaging research at the UI

In early June, UI Health Care researchers welcomed a new magnetic resonance imaging (MRI) instrument—a 7 Tesla Whole Body Scanner—that will advance research on the human brain and body. The new scanner, weighing 42 tons, was deposited by crane into the lower level of the Pappajohn Biomedical Discovery Building. The UI is one of only about 20 research institutions in the United States—and one of only about 40 worldwide—with the instrument. The scanner uses a powerful 7 Tesla magnetic field (most MRI machines have field strengths of 1.5 or 3 Tesla) and radio waves to produce clearer, higher-resolution images of the human body and brain, allowing researchers to measure, for example, subtle changes in the size, function, and metabolism of specific brain structures. The UI purchased the scanner after winning an $8 million grant in 2010 from the National Center for Research Resources, part of the National Institutes of Health.
UI researchers find early predictor for preeclampsia

UI researchers have discovered a biomarker that could give expectant mothers and their doctors the first simple blood test to reliably predict, as early as six weeks into the pregnancy, whether the pregnant woman may develop preeclampsia.

Preeclampsia is a cardiovascular disorder generally occurring late in pregnancy and often resulting in early delivery, creating immediate and potentially lifelong risks to both mother and baby. It causes high blood pressure and protein in the urine, and affects between 5 and 7 percent of all pregnancies in the United States, equating to roughly 500,000 in the U.S. per year. More than 100,000 women worldwide die from the disease yearly.

In the paper, “Vasopressin in Preeclampsia: A Novel Very-Early Human Pregnancy Biomarker and Clinically-Relevant Mouse Model,” study authors Mark Santillan, MD, assistant professor of obstetrics and gynecology; Justin Grobe, PhD, assistant professor of pharmacology; and Donna Santillan, PhD, research assistant professor of obstetrics and gynecology, demonstrate that elevated secretion of arginine vasopressin can be an early biomarker of a preeclamptic pregnancy.

Researchers found that maternal plasma copeptin—an inert, stable biomarker of vasopressin secretion with a substantially longer half-life in the blood than vasopressin—is a clinically useful biomarker that predicts preeclampsia. Using samples from the Maternal Fetal Tissue Bank, a major part of the UI Women’s Health Tissue Repository, copeptin levels were measured throughout pregnancy in maternal plasma from preeclamptic and control women. The researchers reported that copeptin levels were significantly higher throughout the preeclamptic pregnancies when compared to control pregnancies.

The research paper was published online July 9 in the American Heart Association’s journal Hypertension.

Surgery boosts risks for smallest infants

Very low birth-weight (VLBW) babies who undergo major surgery (procedures requiring general anesthesia) appear to have an increased risk of death or subsequent neurodevelopmental impairment, according to a UI study published June 16 in the online edition of JAMA Pediatrics. The study, the largest of its kind to date, looked at the risks associated with surgery by comparing outcomes in more than 12,000 VLBW infants enrolled in the Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network Generic Database from 1998 through 2009. Overall, surgery increased the risk of death and of neurodevelopmental impairment in VLBW infants who survived to 18 to 22 months. Any type of surgery increased the risk of death or neurological impairment by about 30 percent compared to VLBW infants who did not have surgery, and the risk was 50 percent higher for VLBW babies undergoing major surgery compared to those VLBW infants who had no surgeries. In addition, multiple surgeries further increased the risk of death or neurological damage in these babies.
How brain damage impairs moral judgment

A University of Iowa study, published in the April edition of the journal Brain, suggests that the brain’s ventromedial prefrontal cortex (vmPFC) is critical for the acquisition and maturation of moral competency—going beyond self-interest to consider the welfare of others. UI researchers, led by Daniel Tranel, PhD, professor of neurology, found that patients who had damage to this area of the brain early in life, unlike patients in whom the brain injury occurred during adulthood, endorsed significantly more self-serving judgments that broke moral rules or inflicted harm on others. For example, one person who had suffered damage to the vmPFC early in childhood said that it would be fine to lie on their resume or to harm their annoying boss. By understanding how damage and dysfunction in the prefrontal cortex early in life disrupts moral development, the findings may help inform efforts to treat and prevent antisocial behavior and related conditions.

Damage to the vmPFC shows up as black areas in two patients’ brain scans. In both patients, the damage occurred prior to age 18. Images courtesy of the UI Department of Neurology.

Drug memory

UI researchers have discovered a new form of neurotransmission that influences the long-lasting memory created by addictive drugs, like cocaine and opioids, and the subsequent craving for these drugs. Loss of this type of neurotransmission, which involves proteins called acid-sensing ion channels (ASICs), creates changes in brain cells that resemble the changes caused by drug addiction. Using mouse models, the researchers found that loss of ASIC increased addiction behaviors. The study findings, published June 22 in Nature Neuroscience, suggest that targeting this type of neurotransmission might lead to new therapies for treating drug dependency.

Compounds protect brain cells following TBI

Over the past decade, traumatic brain injury (TBI) caused by blast injury has emerged as a common health problem among U.S. military personnel deployed in Iraq or Afghanistan. A University of Iowa study, published Sept. 11 in Cell Reports, indicates that a new class of compounds, called the P7C3 series, blocks damage to axons—the tendril-like fibers that sprout from neurons to form synapses—and preserves normal brain function following TBI. Mice treated with these compounds 24 to 36 hours after TBI from a blast were protected from problems with learning, memory, and movement. The findings may help establish a basis for new ways to treat TBI, according to senior study author Andrew Pieper, MD, PhD, associate professor of psychiatry.
UI study finds potential genetic link between epilepsy and neurodegenerative disorders

A UI study published online July 14 in the Proceedings of the National Academy of Sciences revealed a new pathway in the pathology of epilepsy. Researchers identified the basic cellular mechanism that goes awry in prickle mutant flies, leading to epilepsy-like seizures. The pathway was previously shown to be involved in neurodegenerative diseases, which could be a key genetic link between epilepsy and Alzheimer’s disease.

Brain mapping may explain epilepsy death

The UI Human Brain Research Laboratory (HBRL)—comprised of a multidisciplinary group of scientists and physicians—uses direct recordings of neural activity inside humans’ brains to investigate sensory, perceptual, and cognitive processes. This work is possible, in part, because patients undergoing invasive brain mapping in preparation for epilepsy surgery volunteer to participate in related research studies. For these patients, electrodes are placed inside their brains to identify the exact location that causes a seizure. Once the electrodes are placed, the patient spends a week or more in the UI Epilepsy Monitoring Unit as brain activity is continuously recorded. “Down time” during this brain-mapping period makes it possible for volunteers to take part in studies that rely on the implanted electrodes’ recording capabilities.

One group of UI researchers, in particular—which includes George Richerson, MD, PhD, professor and chair of neurology; Matthew Howard, MD, professor and chair of neurosurgery and director of the HBRL; and Mark Granner, MD, professor of neurology and neurosurgery and director of the Epilepsy Monitoring Unit—are looking into possible causes of sudden unexplained death in epilepsy (SUDEP), an under-recognized condition.

The Iowa team is focused on seizure-induced breathing abnormalities as a cause of SUDEP and the role serotonin, a neurotransmitter, plays in respiratory function. Ultimately, understanding the effect of seizures on breathing may help doctors identify patients most at risk for SUDEP and suggest therapies that could prevent it.

Walking may help patients with Parkinson’s

A new study led by University of Iowa researchers suggests that brisk walking may improve the physical and mental symptoms of patients with mild to moderate Parkinson’s disease.

In the study, 60 people with mild to moderate Parkinson’s disease took part in sessions of walking at moderate intensity while wearing heart rate monitors three times a week for 45 minutes per session for six months. The participants also took tests measuring their motor function, aerobic fitness, mood, tiredness, and memory and thinking abilities.

The study found that brisk walking improved motor function and mood by 15 percent and attention/response control scores by 14 percent, reduced tiredness by 11 percent, and increased aerobic fitness and gait speed by 7 percent. On the test of motor function, participants improved by an average of 2.8 points, which is considered a clinically important difference. These improvements were in comparison to baseline measurements of the participants at the beginning of the study.

“The results of our study suggest that walking may provide a safe and easily accessible way of improving the symptoms of Parkinson’s disease and improve quality of life,” says study author Ergun Uc, MD, associate professor of neurology at the UI Carver College of Medicine and a neurologist with UI Health Care and the Iowa City Veterans Affairs Health Care System. The findings were published July 2 in the online issue of Neurology, the journal of the American Academy of Neurology.
Drug treatment and weight loss can restore lost vision, NIH-funded study shows

A clinical trial conducted by UI researchers and their colleagues across the United States and Canada found that combining a glaucoma drug with a low-sodium, weight-reduction diet is better at treating vision loss caused by idiopathic intracranial hypertension than weight loss alone.

The study, published in the April 23/30 issue of the Journal of the American Medical Association (JAMA), is the first to provide hard evidence that the drug acetazolamide (Diamox) improves vision outcomes in idiopathic intracranial hypertension (IIH).

Also known as pseudotumor cerebri, IIH involves increased pressure around the brain and optic nerve. The condition, which mostly affects overweight young women, can cause vision loss, severe headaches, neck and shoulder pain, and tinnitus.

“Our results show that acetazolamide can help preserve and actually restore vision for women with IIH, when combined with a moderate but comprehensive dietary and lifestyle modification plan,” said Michael Wall, MD, UI professor of neurology and ophthalmology and visual sciences and director of the Neuro-Ophthalmology Research Disease Investigator Consortium (NORDIC) study.

Acetazolamide is best known as a glaucoma drug. It has been commonly prescribed for IIH, but without much evidence that it helps. The NORDIC IIH Treatment Trial tested the benefits of acetazolamide plus a weight loss plan versus the weight loss plan with a placebo pill over six months. One hundred and sixty-one women and four men with IIH and mild vision loss participated in the study.

Patients in both treatment groups had improved vision, but those receiving the drug and diet had about twice the improvement of the placebo-plus-diet group.

On the left is a normal optic nerve (light circle at center) and on the right is the optic nerve swelling seen in IIH. Courtesy of Michael Wall, MD, University of Iowa.

A map for eye disease

University of Iowa researchers created the most detailed map to date of a region of the human eye long associated with blinding diseases. The high-resolution molecular map catalogs thousands of proteins in the choroid, which supplies blood and oxygen to the outer retina. By seeing differences in the abundance of proteins in different areas of the choroid, researchers can begin to determine which proteins may be critical actors in vision loss and eye disease.
Gambling runs in families

First-degree relatives of pathological gamblers are eight times more likely to develop gambling problems in their lifetime than relatives of people who are not pathological gamblers, according to a UI study published in the March issue of the Journal of Clinical Psychiatry. Donald Black, MD, professor of psychiatry, and colleagues also found that relatives of pathological gamblers had higher rates of major depression, bipolar disorder, social anxiety disorder, substance use disorders, post-traumatic stress disorder, and antisocial personality disorder.

Pinpointing auditory memory

You’re humming a tune, but you can’t remember its name. Why is the song title slipping your mind? Your brain’s left temporal pole could be the cause of the problem. Damage to this region, according to a UI study in the May 2014 issue of the journal Neuropsychology, is associated with difficulty in recalling the titles for songs, famous or otherwise. Previous studies have shown that the left temporal pole is important for recalling proper names; the UI study is believed to be the first to address musical melodies.

Racing to Wynn

The University of Iowa Stephen A. Wynn Institute for Vision Research and Lazier Partners Racing teamed to raise awareness for the institute’s research by providing the lead sponsorship of an Indianapolis 500 racecar. Buddy Lazier, the 1996 Indy 500 winner, drove the No. 91 University of Iowa Stephen A. Wynn Institute for Vision Research Dallara/Chevrolet/Firestone car in the 98th running of the 500-mile race in May. Jacqueline Lazier, daughter of Buddy and Kara Lazier, was born with a rare eye disorder called aniridia. Combined with glaucoma, aniridia has caused the 12-year-old to lose vision in her right eye. The Wynn Institute studies aniridia and glaucoma, as well as other inherited eye diseases.

Green is good

Using a screening method that previously identified a compound in apple peel as a muscle-boosting agent, UI scientists found that tomatidine—a natural compound in green tomatoes—is even more potent for building muscle and protecting against muscle atrophy. In a study published online April 9 in the Journal of Biological Chemistry, UI researchers led by Christopher Adams, MD, PhD, associate professor of internal medicine, discovered that tomatidine stimulated growth of cultured skeletal muscle cells from humans. The research team next added tomatidine to the diet of mice. The result? Bigger, stronger mice that could exercise longer. Moreover, the compound prevented and treated muscle atrophy. Although the test mice had larger muscles, their overall body weight didn’t change due to a corresponding loss of fat, suggesting that tomatidine may have potential for treating obesity.
A better way to detect staph

Chances are you won’t know you have a staph infection until test results come in, days after symptoms first appear. But what if your doctor could identify the infection much more quickly?

UI researchers, led by James McNamara, PhD, UI associate professor of internal medicine, have created a noninvasive chemical probe that detects a common strain of staph bacteria by creating a molecular “beacon” that shows where the bacteria are wreaking havoc. It’s a new way to detect staph that takes less time than current diagnostic approaches and builds on existing technology but with a twist that allows the probe to be more specific and last longer. The process is described in the Feb. 2 online edition of *Nature Medicine.*

The staph bacteria are located via a light-emitting molecule (green), which is released when a bacterial enzyme (in orange) slices and separates the probe (in blue), shown in this illustration.

*Illustration courtesy of McNamara lab, University of Iowa.*

*Images courtesy of McNamara lab, University of Iowa*
The 20th annual University of Iowa Dance Marathon, held Feb. 7–8, 2014, at the Iowa Memorial Union on the UI campus, raised more than $1.8 million—the largest amount in the event’s history. More than 2,000 people—dancers, sponsors, and volunteers, joined by pediatric patients and their families—took part in the event that begins on Friday and continues for 24 hours. Over the past 20 years, UI Dance Marathon has raised more than $14.5 million to support pediatric cancer research and other programs that benefit patients and families at UI Children’s Hospital.
UI dedicates $126 million biomedical hub

The University of Iowa ushered in a new age of accelerated research in biomedicine with the formal opening of the $126 million John and Mary Pappajohn Biomedical Discovery Building (PBDB). The 256,000-square-foot building on the UI health sciences campus houses “high-risk, high-reward” research in diabetes, deafness, and brain science as well as complex diseases affecting the heart and lungs.

The state-of-the-art facility is named for John Pappajohn, a venture capitalist and philanthropist from Des Moines, and his wife, Mary, who committed $26.4 million in 2009 to help establish the Pappajohn Biomedical Institute and contribute to the building's construction.

The Pappajohns are among the university’s most generous supporters. Among their many significant UI contributions include naming gifts for the Pappajohn Business Building, the John Pappajohn Pavilion at UI Hospitals and Clinics, the John and Mary Pappajohn Clinical Cancer Center, and the John Pappajohn Entrepreneurial Center. Their gift commitment for the Pappajohn Biomedical Discovery Building and the Pappajohn Biomedical Institute is the largest single gift commitment ever for the UI from individual Iowa donors.

“We are inspired by the institute’s collaborative, interdisciplinary, entrepreneurial, and university-wide dimensions. Those who stand to gain the most from this world-class research enterprise will be generations of patients nationwide and around the world,” said John Pappajohn, who earned his bachelor's degree in commerce from the UI and was awarded an honorary doctoral degree from the UI in 2010.
The programs and institutes housed in the PBDB are already hard at work making life better for our state and larger society through the latest in biomedical discovery.

– UI President Sally Mason
New home for diabetes research

The dedication of the Fraternal Order of Eagles Diabetes Research Center (FOE DRC) took place Aug. 23. The new facility, featuring 20,000 square feet of advanced research space with cutting-edge medical equipment, allows the FOE DRC, with its 100 researchers, to pursue innovative diabetes research and find treatments and cures for the epidemic that affects more than 9 percent of the U.S. population. The Eagles, an international service organization, raised $25 million through its 800,000 members across North American to support the diabetes research center.

Sharer family’s $1 million gift supports UI Fraternal Order of Eagles Diabetes Research Center

In January, the brothers of Teresa (Sharer) Benoit of Laurel, Iowa, presented the final installment of a gift from their sister totaling more than $1 million to the University of Iowa Fraternal Order of Eagles Diabetes Research Center. Jack Sharer and Michael “Mick” Sharer presented the gift in honor of Teresa, who had diabetes most of her life and died in March 2013. She directed that a portion of her estate support diabetes research at the UI.

Jack Sharer (left), and Michael “Mick” Sharer (second from right), present the final installment of a gift totaling more than $1 million to Daryl Granner, MD, and Kathleen Barbee of the FOE Diabetes Research Center at the UI. (Photo by Jill Tobin, UI Foundation.)
$7.8 million gift boosts genetics research

UI alumnus Franklin D. Trueblood’s lifelong interest in medical innovation inspired an estate gift that will dramatically enhance genetics research in the UI Carver College of Medicine.

The $7.8 million gift contributes to For Iowa. Forever More: The Campaign for the University of Iowa, the UI’s $1.7 billion comprehensive campaign. The gift will enhance research, help the UI Carver College of Medicine recruit and retain top faculty, and speed the translation of discovery to patient care for people throughout Iowa and beyond.

Originally from Belle Plaine, Iowa, Trueblood completed undergraduate studies and then earned his law degree in 1925 at the UI. He established his own law practice in Chicago, where he lived until his death in 1989. It was in Chicago that Frank met Elsie E. Foerstner, with whom he shared a close friendship for the rest of his life. When Trueblood died, Foerstner was named as the lifetime income beneficiary of Trueblood’s charitable remainder trust, with the UI named as remainder beneficiary.

Foerstner, originally from South Amana, Iowa, graduated from the UI in 1941 with a Bachelor of Science in Commerce degree and then moved to Chicago for a job at Kraft Foods. She and Trueblood first met at a UI alumni event in the 1950s. The two remained committed to their alma mater through the years, regularly returning to campus for football games and other events. Foerstner died in April 2014, at which point the university received the remainder of the Franklin D. Trueblood Trust, with funds designated for genetics research in the UI Carver College of Medicine.

Estate gifts benefit future medical students

Charitable bequests totaling $2 million will endow scholarships in the UI Carver College of Medicine.

David R. Flatt, a 1975 UI medical school graduate, and Nancy C. Flatt of Green Valley, Ariz., made a $1 million bequest to establish the Dar-es-Salaam Scholarship Fund, which will support UI medical students who demonstrate a strong interest in primary care specialties, with a preference for those pursuing work with an medically underserved population.

Loren D. Nelson, who earned a bachelor’s degree (1970) and a medical degree (1976) at Iowa, and Nancy R. St. Clair of Jackson, Wyo., made a $1 million bequest to establish the Loren D. Nelson and Nancy R. St. Clair Scholarship Fund, which will provide support for selected medical students.

UI alumnus gives $1.5 million for UI Health Care

A $1.5 million gift from University of Iowa alumnus Norman E. Johnson and his wife, Barbara J. (Bartlett) Johnson, of Naples, Fla., and Franklin, Tenn., will benefit the UI Department of Otolaryngology and the new UI Children’s Hospital. The couple gave $1 million to create the Paul N. Johnson Professorship in the UI Carver College of Medicine, providing ongoing support for an otolaryngology faculty member whose area of expertise is in craniofacial abnormalities. The Johnsons also gave $500,000 to the UI Children’s Hospital Building Fund.
A promise to Iowa

Programs help keep Iowans healthy and informed

Showcasing the latest advances in medicine and research and providing answers to medical questions that help promote Iowans’ health and wellness are an important part of the UI Health Care mission. During the 2013-2014 academic year, 41 UI faculty, staff, and students served as presenters in Mini Medical School programs or community health seminars, reaching nearly 2,100 people at sessions held in Iowa City or cities such as Cedar Rapids, Davenport, Des Moines, and Ottumwa.

From cancer care to women’s health, weight management to genetic testing, the topics and materials are prepared and delivered to be both fun and informative. That’s good medicine—for individuals and the Iowa communities in which they live.
UI Health Alliance serves patients, communities across Iowa

Advancing medical education, biomedical research, and patient care and service requires an ongoing commitment as well as the collaborative resources to adapt to an ever-changing health care landscape.

Yet with change comes opportunity. Through the University of Iowa Health Alliance—established in 2012 as a first-of-its-kind partnership in Iowa between UI Health Care, Mercy-Cedar Rapids, the statewide Mercy Health Network (which also includes hospitals affiliated with Catholic Health Initiatives and CHE Trinity Health, Livonia, Mich.), and Genesis Health System in Davenport—UI Health Care is proud to help ensure the delivery of safe, high-quality medical care for Iowans in communities around the state and region.

New UI Health Care partnerships in 2014:

**April**—Pediatric Associates of Iowa City and Coralville—a general pediatric care private practice serving eastern Iowa families since 1974—joins UI Health Care

**April**—Wheaton Franciscan Healthcare—Iowa joins the UI Health Alliance as its fifth organizational member, bringing additional health care providers and facilities to the Alliance in Cedar Falls, Oelwein, Waterloo, and surrounding areas in northeast Iowa

**April**—UI Health Alliance signs an agreement with the state of Iowa to serve as an accountable care organization (ACO) for Iowans enrolled in the Iowa Health and Wellness Plan, the new state Medicaid expansion program

**September**—UI Health Care introduces new general and specialty urology care services to southeast Iowa patients at Keokuk Area Hospital

**October**—UI Health Care and Genesis Medical Center in Davenport launch a new initiative bringing UI neurologists and neurosurgeons to the Quad Cities area for specialty care of the brain, spine, and nervous system

**December**—UI Health Care and Covenant Medical Center in Waterloo announce a new relationship, with UI Children’s Hospital specialists providing advanced neonatal care at Covenant’s neonatal intensive care unit; specialized prenatal obstetrics care for women with high-risk pregnancies; and a pediatric specialty clinic at Covenant Clinic Pediatrics

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The integrated financial report for University of Iowa Health Care consolidates the financial statements of its three entities: UI Hospitals and Clinics, the UI Roy J. and Lucille A. Carver College of Medicine, and UI Physicians.

Consolidated net revenues and expenses for fiscal year 2014:

### Revenue

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</table>

### Expenses

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$1,033,791,108</td>
<td>61.3%</td>
</tr>
<tr>
<td>Faculty</td>
<td>$288,551,784</td>
<td>27.9%</td>
</tr>
<tr>
<td>SEIU</td>
<td>$250,082,302</td>
<td>24.2%</td>
</tr>
<tr>
<td>P&amp;S</td>
<td>$232,369,156</td>
<td>22.5%</td>
</tr>
<tr>
<td>Menta</td>
<td>$176,861,499</td>
<td>17.1%</td>
</tr>
<tr>
<td>Residents/fellows</td>
<td>$66,040,956</td>
<td>6.4%</td>
</tr>
<tr>
<td>Other</td>
<td>$19,885,411</td>
<td>1.9%</td>
</tr>
<tr>
<td>Supplies</td>
<td>$285,519,799</td>
<td>16.9%</td>
</tr>
<tr>
<td>Licenses, fees, other expenses</td>
<td>$143,295,483</td>
<td>8.5%</td>
</tr>
<tr>
<td>Depreciation, amortization</td>
<td>$79,355,309</td>
<td>4.7%</td>
</tr>
<tr>
<td>Repairs, maintenance</td>
<td>$75,530,159</td>
<td>4.5%</td>
</tr>
<tr>
<td>Services</td>
<td>$10,799,615</td>
<td>0.6%</td>
</tr>
<tr>
<td>Occupancy, billing, overhead</td>
<td>$59,229,423</td>
<td>3.5%</td>
</tr>
<tr>
<td>Total</td>
<td>$1,687,520,896</td>
<td>100%</td>
</tr>
</tbody>
</table>
## Hospital Service Record FY2014

### Patient Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Acute Admissions</strong></td>
<td><strong>32,405</strong></td>
</tr>
<tr>
<td><strong>Total Acute Patient Days of Care</strong></td>
<td><strong>199,367</strong></td>
</tr>
<tr>
<td><strong>Births</strong></td>
<td><strong>2,076</strong></td>
</tr>
<tr>
<td><strong>UI Hospitals and Clinics Clinic Visits</strong></td>
<td><strong>749,684</strong></td>
</tr>
<tr>
<td><strong>Outreach and UICMS Clinic Visits</strong></td>
<td><strong>164,628</strong></td>
</tr>
<tr>
<td><strong>Emergency-Trauma Center Visits</strong></td>
<td><strong>56,418</strong></td>
</tr>
<tr>
<td><strong>Major Surgical Operations</strong></td>
<td><strong>29,180</strong></td>
</tr>
<tr>
<td><strong>Cardiac Operations</strong></td>
<td><strong>525</strong></td>
</tr>
<tr>
<td><strong>Minor Surgical Procedures</strong></td>
<td><strong>104,041</strong></td>
</tr>
<tr>
<td><strong>Cochlear Implants</strong></td>
<td><strong>123</strong></td>
</tr>
<tr>
<td><strong>Digestive Disease Procedures</strong></td>
<td><strong>15,831</strong></td>
</tr>
<tr>
<td><strong>Fetal Diagnosis and Therapy Procedures</strong></td>
<td><strong>172</strong></td>
</tr>
<tr>
<td><strong>In Vitro Fertilization/Related Procedures</strong></td>
<td><strong>996</strong></td>
</tr>
<tr>
<td><strong>Cardiac Catheterization Procedures</strong></td>
<td><strong>7,857</strong></td>
</tr>
<tr>
<td><strong>Organ and Tissue Transplants</strong></td>
<td><strong>575</strong></td>
</tr>
<tr>
<td>Bone Marrow</td>
<td>166</td>
</tr>
<tr>
<td>Heart</td>
<td>19</td>
</tr>
<tr>
<td>Liver</td>
<td>34</td>
</tr>
<tr>
<td>Lung</td>
<td>14</td>
</tr>
<tr>
<td><strong>Units of Blood Products Transfused</strong></td>
<td><strong>24,713</strong></td>
</tr>
<tr>
<td><strong>Pulmonary Diagnostic Procedures</strong></td>
<td><strong>11,542</strong></td>
</tr>
<tr>
<td><strong>Cardiac Electrophysiology Studies</strong></td>
<td><strong>1,735</strong></td>
</tr>
<tr>
<td><strong>Days on Ventilator Care</strong></td>
<td><strong>26,625</strong></td>
</tr>
<tr>
<td><strong>Hyperbaric Oxygen Treatments</strong></td>
<td><strong>2,452</strong></td>
</tr>
</tbody>
</table>
### Radiographic Examinations and Treatments – 325,636
- **Diagnostic** – 233,937
- **PET Scans** – 3,506
- **Head and Whole Body Scans** – 55,727
- **Magnetic Resonance Imaging** – 24,645
- **Nuclear Medicine** – 7,791
- **Radiation Oncology Treatments** – 42,471
- **Electrocardiograms (EKG)** – 58,899
- **Electroencephalograms (EEG)** – 4,236
- **Electromyograms (EMG)** – 2,589

### Laboratory Tests – 5,004,862

### Pharmacy Orders – 2,323,000

### Social Service Consultations – 145,982

### Volunteer Service Hours – 126,364

### Renal Dialysis Treatments – 29,417

### Meals Served – 2,270,631

### Pounds of Laundry Processed – 5,414,861

### Patients Transported by:
- **Air and Mobile Critical Care Services** – 1,228
- **Helicopter Service** – 926
- **Mobile Ground Unit** – 302

### Bed and Clinic Complements
- **Inpatient Beds** – 729
- **Intensive Care** – 169
- **Acute Care** – 560
- **Non-acute** – 2

### Staff Physicians and Dentists – 862
- **Resident Physicians and Dentists** – 552
- **Fellow Physicians** – 203
- **Subtotal** – 1,617

### Professional Nurses – 1,904

### Other Professional Staff – 2,033
- **Other Hospital Staff** – 2,793

### Total Hospital Staff – 8,347

### Educational Programs
- **University Health Science College Students in Training** – 1,777
  - **Medical Students** – 681
  - **Dental Students** – 87
  - **Nursing Students** – 483
  - **Pharmacy Students** – 526
- **Resident and Fellow Physicians and Dentists in Training** – 755
- **Other Iowa Health Profession Students in Training** – 1,295

### Total in Health Education at UI Hospitals and Clinics – 3,827

### Human Resources
- **Staff Physicians and Dentists** – 862
- **Resident Physicians and Dentists** – 552
- **Fellow Physicians** – 203
- **Subtotal** – 1,617

### Professional Nurses – 1,904

### Other Professional Staff – 2,033
- **Other Hospital Staff** – 2,793

### Total Hospital Staff – 8,347

### Bed and Clinic Complements
- **Inpatient Beds** – 729
- **Intensive Care** – 169
- **Acute Care** – 560
- **Non-acute** – 2
Serving Iowans and their communities

University of Iowa Health Care provided more than $216 million in community benefit—programs, services, and activities that provide treatment or promote health as a response to identified community needs—to more than 635,000 people across the state of Iowa, according to the most recent annual assessment of community benefits reported to the Iowa Hospital Association (IHA).

Community benefit data is submitted to IHA as part of a larger effort to report services that exceed mission-driven patient care activities and provide a measurable increase in health care access and the availability of health care resources. All 118 of Iowa’s hospitals contribute annually to the IHA report.

| Community Health Improvement Services | $14,475,437 |
| Health Professions Education          | $14,663,088 |
| Subsidized Health Services            | $875,275    |
| Research                              | $47,082,108 |
| Financial and In-Kind Contributions   | $233,055    |
| Community Building Activities         | $227,038    |
| Community Benefit Operations          | $29,148     |
| Financial Assistance                  | $14,416,942 |
| Government-Sponsored Health Care      | $45,444,679 |
| Unpaid Cost of Medicare               | $79,048,815 |

Total Community Benefit Contribution
$216,495,585