



From the Chair

Any accurate understanding of a patient's condition requires the acquisition of some essential information, their vitals. The details obtained in an evaluation are a quick snapshot of the spectrum of a person's health, each data point an indicator of a variety of processes at play. It is with this mind that we have relaunched our annual publication under a new name, Vitals. We believe the data points represented by the variety of stories within this magazine are not meant to be seen as comprehensive of all the activity within the Department of Internal Medicine at the University of Iowa. Instead, they should be taken as indicators of the direction our department is headed, a readout of our health.

In the following pages you will read about breakthroughs and innovations in research, education, and patient care, our foundational missions. As leaders in the field in a multitude of areas, our philosophy is consistent. By understanding and respecting the work of our predecessors, our path forward becomes clearer. Whether we are rigorously testing the durability and ease of use in current personal protective equipment or we are developing new tools to measure our trainees' clinical skills, we assimilate all that has been tried before and develop new models for the next generation.

The representative examples of our department's achievements depicted in these pages also reveal a picture of one large team breaking down barriers between traditionally separate groups. We all value our responsibility to our students and trainees, our scientific community of peers, and our community's health as well as that of our planet. Our commitment to ensuring historically under-represented and marginalized populations have access to the same high-quality health care grows deeper every year. As does our belief that therapeutics and preventive measures for some of the world's most intractable diseases lie just within our reach.

These pages also acknowledge that much of the work we do at the University of Iowa would not be possible without the generosity of private citizens and foundations, individuals and groups who share our core vision. We are as grateful for their faith in the diligence of thousands of physicians, researchers, and staff ready to put that trust into action.

In summary the vitals are stable. The patient is improving. Our Department is thriving.





Research discoveries are expected THE UNIVERSITY to have a \$ 2.4 billion OF lowa lowa's economy in 2020 to have a \$ 2.4 billion impact on





@IntMedatIowa researcher Ryan Boudreau, PhD, received a five-year \$1.9M @NIH R01 to support his investigation of the cardiovascular effects of a genetic variant in SCN54.



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11:30 AM - 18 Apr 2019



Nearly 120 posters competed for just six places at last month's @leukocytebiol meeting. Three of those six went to lowa trainees.



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4-12 PM - 18 Nov 2018



Our adult and pediatric #cysticfibrosis care teams both received 5-year reaccreditation from @CF_Foundation, their highest recognition for excellence in care.



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7:00 PM - 23 Dec 2018



CADRE earns five-year renewal

Cutting-edge research into how health care is delivered safely, efficiently, and with the greatest benefit to the patient has been happening at the lowa City VA Medical Center, conducted by members of the Center for Access and Delivery Research & Evaluation (CADRE), for more than five years.

Led by Director Eli Perencevich, MD, MS, and Associate Director Bonnie BootsMiller, PhD, CADRE's application for renewal was approved to be one of the VA Health Services Research & Development's Centers of Innovation (COIN).

Five Years, Five Excellent Achievements

> Michihiko Goto, MD, MSCI, has formed a Patient Safety Center of Inquiry with a three-year, \$778,000 grant from the VA.

Hilary Mosher, MD, successfully renewed Iowa City's bid to host one of six VA Quality Scholars Programs in the country.

Mary Vaughan-Sarrazin, PhD, received a three-year, \$950,000 R01 NIH grant to evaluate stroke prevention in individuals with atrial fibrillation.

Michael Ohl, MD, MSPH, received a four-year, \$2M CDC grant to expand delivery via telehealth technology of HIV prevention drugs to rural areas.

Eli Perencevich, MD, MS, Marin Schweizer, PhD, and other Department of Internal Medicine faculty have renewed the University of Iowa's bid to be one of the CDC's Prevention Epicenters.

Iowa City's CADRE is one of now 18 COINs, from Rhode Island to California, renewed through 2024. It is not difficult to see how CADRE presented a compelling argument. Members of CADRE have been steadily demonstrating their effectiveness as researchers, scholars, educators, and clinicians for years.

Commenting on CADRE's renewal as a COIN, Perencevich said that he is grateful for the VA's support. Though there are plenty of areas in health services needing attention that each COIN addresses, CADRE members focus intensely on a number of critical areas that, if properly understood and adjusted, could result in meaningful change throughout the health care system.

Preventing multidrug-resistant healthcare-associated infections, improving access to primary and subspecialty care for rural veterans, or ensuring patients receive just the medications they need in the proper doses, are each monumental tasks to effect change. "But realizing improvements in any one of these areas can produce incredible benefit for patients, providers, institutions, and the healthcare system as a whole," Perencevich said. "We're excited to see what CADRE investigators will do in the next five years."



serving as Associate Director of the Primary Care Analytics Team-lowa City, through which we conduct research and quality improvement work to understand and support the VA

TE III

implementation of the patient-centered medical home, completing analysis of a national study of VA geriatric primary care teams, conducting a study of team formation practices through my work in the Institute for Clinical and Translational Science, and I serve as the Director of Ethnographic Methods and Implementation Core at CADRE.

What is a benefit of running a research project through CADRE?

If you are affiliated with CADRE, you are a member of an interdisciplinary group that collaborates to help everyone achieve their goals. During the academic year, CADRE hosts a weekly seminar where investigators can get feedback on grant ideas and manuscripts, and monthly seminars specializing in secondary data analysis or ethnographic methods. My colleagues at CADRE are intrinsically motivated by a shared mission to improve health care delivery systems and Veterans' health, while conducting high quality scientific research, which makes our collaborations personally and intellectually rewarding.

One size does not protect all

Loreen Herwaldt, MD, professor in Infectious Diseases and Epidemiology, and Priyadarshini Pennathur, PhD, assistant professor in Industrial and Systems Engineering, presented an invited talk on personal protective equipment (PPE) design problems to a standing committee within the National Academies of Sciences, Engineering, and Medicine. Herwaldt and Pennathur detailed 13 different areas where opportunities exist for improving current PPE design. They argue if these opportunities are not addressed, health care workers (HCWs) will continue to be exposed to infectious agents.



Huang delivers Coburn Lecture at ASN

Chou-Long Huang, MD, PhD, Director of the Division of Nephrology and Hypertension, delivered the Jack W. Coburn, MD, Endowed Lectureship during the American Society of Nephrology Kidney Week in San Diego.

Dr. Huang presented a lecture entitled "Cellular and molecular mechanisms of action of klotho," which has been described as an "anti-aging protein." Its function as a co-receptor of fibroblast growth factor 23 indicates its involvement as a key regulator in the development of cardiovascular disease. Klotho is mostly expressed in the kidneys, parathyroid glands, and the choroid plexus in the brain. "Secreted klotho," Dr. Huang says, "functions as a humoral factor that regulates several ion channels and transporters and other processes, including insulin and insulin-like growth factor signaling."



Gurung presentation finalist for SLB Award

Prajwal Gurung, PhD, assistant professor in Infectious Diseases, delivered a presentation in competition for the SLB Presidential Award at the Society for Leukocyte Biology annual meeting in Chandler, Arizona. Dr. Gurung's presentation, "TAK1 restricts spontaneous activation of the NLRP3 inflammasome," was chosen as one of only two finalists for the award in the Junior Faculty/Post-Doc category.

In his 12-minute presentation, Dr. Gurung described how the enzyme TAK1 plays a central role in regulation of immune response and cell death by blocking spontaneous NOD-like receptor-P3 (NLRP3) activation. Because previous studies have shown that TAK1 suppression—either through genetic ablation or chemical inhibition—induced monocyte death in vitro and in vivo in mice, the possibility exists that it may be used as a potential cancer treatment in myeloid tumors.



Chauhan Lab finds success in nurturing of differences

Since joining the University of Iowa in 2010, Anil Chauhan, MTech, PhD, professor in the Division of Hematology, Oncology, and Blood & Marrow Transplantation, has been leading his lab—and his trainees—toward innovative discovery, group success, and individual growth.

The lab's central research focuses on the pathophysiology of vascular disorders and finding new therapies to help people avoid acute cardiovascular events. Over the past several years, Chauhan has demonstrated the mechanistic role of the extracellular matrix protein fibronectin containing alternatively spliced extra domain A (Fn-EDA) in various pathological conditions including arterial thrombosis, stroke, and atherosclerosis.

"It is the hard work, dedication, and commitment of our whole team who have demonstrated how to go the extra mile," Chauhan said.

The team consists of Chauhan, postdoctoral research fellows Nirav Dhanesha, PhD, and Prakash Doddapatar, PhD, postdoctoral research scholars Manasa Nayak, PhD, and Manish Jain, PhD, and two recent postdoctoral recruits Amit Tripathi, PhD, and Madan Kumar Ghatge, PhD.

"I never imagined in all these years that I'd be doing so many techniques. But now I am doing them because of Dr. Chauhan's motivation," Dhanesha said.

Chauhan added that it is important to allow different personalities room to work together to achieve goals.

Chauhan said, "We as a group quickly learn from our past mistakes, rapidly adapt to the newer technologies, motivate each other in achieving the individual career goals, and, most importantly, we work as a team."





Internal Medicine by the numbers



\$63M in research grants



11.65

percent increase in federal funding



\$3M+

in fewer than 20 grants from American Heart Association in FY18-19



22^{nc}

best Graduate Medicine program in the country, according to *U.S. News & World Report*



512+

research rewards received



Lee Ann Allen, PhD, was named to the Kate Daum Professorship in September. Dr. Allen is an accomplished researcher, mentor, and colleague in @lowaMed, helping to guide @uiowa's Inflammation Program and countless trainees. #lowaIntMed2018





Jesse Cochran from Newton, lowa, will receive his degree this spring after majoring in biology, chemistry, and biochemistry. Cochran utitlized his lowa experience to find his true path in life.



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Last night @DaretoDiscover held its annual research awards and an Excellence in Undergraduate Research Award went to @margaretmungai_, a member of @IntMedAbel's lab.



2:36 PM - 2 May 2019



The Josie King Foundation and the 6th Annual Quality and Safety Symposium

"Facts provide us with knowledge. Stories provide us with wisdom." Sorrel King, mother of Josie and founder of the Josie King Foundation, shared her story with the attendees of the 6th Annual Quality and Safety Symposium.

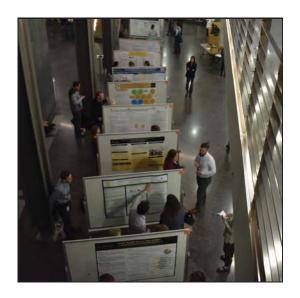
The presentation began with the gripping story of the medical error that resulted in the death of her young child, Josie. But over the course of the hour, Ms. King revealed the work and improvements in patient safety throughout the healthcare system that her family's loss continues to inspire.



Sorrel and Josie KingCourtesy of the Josie King Foundation

Ms. King described a number of initiatives that the Josie King Foundation has supported in partnership with institutions around the country. Patient-initiated rapid response teams to "stop the line," patient care journals in which families can keep track of daily goals and questions they have for their care team, and "hero awards" meant to recognize those individuals who speak up when something does not look right. "Just the existence of these programs," Ms. King explained, even if they don't get used all the time, "can change the culture."

Though certainly Ms. King's story was the most dramatic of the day, the entire symposium—the sixth since Krista Johnson, MD, MME, and Michael Brownlee, PharmD, MS, first began co-chairing the event—was a day filled with stories.



About 35 different speakers packed Medical Alumni Auditorium and small breakout conference rooms around the hospital and the Carver College of Medicine. All of them presented on activities they have initiated or on systems and support available within University of Iowa Health Care designed to improve the quality of care patients receive and to ensure their and their providers' safety.

Ms. King's keynote challenged the audience to make changes that will benefit the system and save patients' lives. But, she cautioned, most calls to action fade in effectiveness within three weeks. "If nothing happens by week three," she said, "nothing will happen."

Undergrads gain exposure to Internal Medicine research

The University of Iowa has several resources that connect undergraduate students to unique experiences, including participation in the groundbreaking, influential research conducted in the Internal Medicine labs. Thanks to programs like Iowa Biosciences Academy, the Minority Association of Pre-Health Students and Women in Science and Engineering, Internal Medicine currently employs more than a hundred undergraduate research assistants in our labs.

Abel Lab

Antentor "AJ" Hinton Jr., PhD, Burroughs Wellcome and Ford Foundation Postdoctoral Research Fellow, works in the lab of E. Dale Abel, MD, PhD, director of the Fraternal Order of Eagles Diabetes Research Center. A primary focus of the Abel Lab is the effects that mitochondrial fusion and fission dysfunction have on diabetes.

"You're raising the next generation!" Hinton said. "If you train them like an undergrad, they're not going to be ready for that next step. However, if you train them like a graduate or a medical student, they will rise to the occasion. Interestingly, if you expect them to do more, they'll expect themselves to do more, and they'll find more success."

Hinton credits some of the later success of undergraduate students in the Abel Lab to the real-life, bench-to-bedside experiences provided in their lab. With access to donor heart samples and active human and murine primary cell lines, undergraduate students gain exposure to material identical to what they will see later in their career, long before many students at other institutions.

London Lab

Investigating molecular and genetic causes of cardiac death, Barry London, MD, PhD, professor and division director of Cardiovascular Medicine, looks for intellectual curiosity, enthusiasm, a positive attitude, and strong organizational skills.

To provide more personalized instruction, most Internal Medicine labs assign graduate students or research managers to directly mentor undergraduate hires. Daniel Matasic, a graduate researcher in the London Lab, started his career in research as an undergraduate himself almost ten years ago and now mentors undergraduate researchers along with fellow graduate student Alex Greiner.

"Working in a research lab as a student is invaluable. The experience enhances the undergraduate education experience by bringing textbook concepts from classes alive and putting them in the context of real-world questions, applications and problems," Matasic said.

Zabner Lab

In the lab of Joseph Zabner, MD, professor and division director of Pulmonary, Critical Care and Occupational Medicine, undergraduates handle many of the day-to-day lab tasks so graduate and professional lab members can concentrate on larger research questions. And by looking over the shoulders of the more senior members, undergraduate students in the Zabner Lab also learn about cell culture, molecular biology, and physiology.

"Undergraduate students often have fresh ideas that help with research problems and can do important research themselves," research manager Peter Taft said.

The Zabner Lab is one of the many Pulmonary research labs that study cystic fibrosis. These labs have been providing advanced research experiences to undergraduates for several years.







Day in the life of an intern

For the last two years, we have asked interns in the Internal Medicine Residency Program to provide an account of what a typical day looks like. We are grateful for their participation. Read the rest of the spotlights at internalmedicineiowa.org



Benjamin Chen, MD, MPH

"I push aside breakfast trays and wake up the occasional sleeping patient to obtain the human half of my data: 'my back is killing me,' 'I'm still having trouble catching my breath,' 'I was sweating all night.' After collecting all the overnight stories, I return to the workroom and prepare my thoughts for the attending's arrival."

"I find it a welcome challenge to juggle discharges, admissions, consultations, teaching, and the occasional family meetings."

"After handing over my pager and filling a plate of lunch I relax into a seat, content to let someone else do the talking at least briefly. Lectures are clinically oriented and offer basic workups and approaches for common problems such as electrolyte abnormalities or shortness of breath. They are a reminder that we are simultaneously physicians and lifelong learners."



Yana Zemkova, MD

"If I'm at all concerned, I race back up to the team room to update my senior so we can come up with an immediate intervention. At first coming up with a plan as an intern was intimidating, there was so much I didn't know! And what if I was wrong! And now...now there is still so much that I don't know! And I am still wrong a lot! But that's what the seniors and staff are for – I come up with my plan and we talk it through together."

"If we're lucky, most of the patients will be located in the same general area of the hospital. Other times, we get 'lucky' if the goal is steps on the FitBit, because then we get to spend the morning wandering across all areas of the hospital."



"If there's more energy (or a need for coffee #3), holding out until 4pm would be the way to go in order to get to the Bread Garden Happy Hour – coffee and free pastry! In the afternoons, we run the list with the seniors and we work – entering more orders, labs, discharging patients, talking to families, following up with nurses. There is built-in time for a teaching session with other teams, and if we're on call, then waiting for that heart-stopping page indicating a code or rapid is on the radar as well."











53K

FY 18

154K

50K

FY 17

143K

50K

FY 16

137K



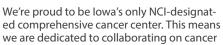
Great presentation by Loreen Herwaldt during @IntMedatlowa ID faculty and fellows conference. RE: How to appropriately don and doff PPE. Bottom line: It's harder than expected.



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11:46 AM - 24 May 2019





we are dedicated to collaborating on cancer research throughout the country and using it to prevent, detect and treat cancer in an innovative way.



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6:12 PM - 16 Nov 2018



This month saw two significant anniversaries in @IntMedatlowa. Our HIV/AIDS Clinic turned 30 and our Dialysis Program turned 50.



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7:01 PM - 26 Apr 2019











Trip to India to investigate dangers of biomass fires

Alejandro Comellas Freymond, MD, clinical associate professor in the Division of Pulmonary, Critical Care and Occupational Medicine, and Emma Stapleton, PhD, a public health postdoctoral research fellow in Comellas' lab, traveled to Tamil Nadu, India, to investigate the effects of indoor biomass fires on women's lungs. These fires, which are typically used to cook meals, are equivalent to burning 400 cigarettes an hour, according to the One World Health Organization.



TelePrEP receives \$2M CDC grant

"Getting preventive medicine of any kind should not be a burden to anyone," Michael Ohl, Associate Professor in Infectious Diseases, said. The TelePrEP program Dr. Ohl directs has steadily worked to reduce the barriers between individuals at risk of HIV infection and a drug that dramatically reduces that risk.

That program has been awarded a four-year, \$2M grant from the Centers for Disease Control and Prevention (CDC) to both expand TelePrEP's services and to conduct a program evaluation in the search for implementation improvements and for potential replication.

In collaboration with the Iowa Department of Public Health (IDPH), the program delivers HIV pre-exposure prophylaxis (PrEP) and comprehensive sexually transmitted infection (STI) prevention services in rural areas. The IDPH assists in identifying candidates for PrEP through a mix of digital advertising, patient referral, and screening in IDPH-administered STI clinics statewide. Once identified, clients connect with providers in the TelePrEP program via a HIPAA-compliant video-messaging platform that clients can access through any smartphone, tablet, or other mobile device.

A typical interaction between pharmacists and clients involves a mix of education, screening, and evaluation. In-home testing kits are mailed directly to the client, as is—once approved—the prophylaxis drug emtricitabine/tenofovir (Truvada). Connecting directly with individuals in their homes—especially those who might be discouraged from seeking HIV prevention services because of social stigma, distance, or ease of access—has caused noticeable differences for providers in their digital interactions. Angie Hoth, PharmD, MPH, one of the two pharmacists on the program, described how comfortable people seem in conversation with her.

"They're in the home, on the couch, sometimes they've got a pet on their lap," Dr. Hoth said. "I think they tend to open up more."



people with HIV live in a rural area



Iowa counties are affected by HIV

rural counties in the US have HIV services

UI Heart and Vascular Center performs catheter based tricuspid valve repair

UI Heart and Vascular Center specialists successfully performed a first-ever heart valve procedure in Iowa: a minimally invasive tricuspid valve repair using a catheter instead of open heart surgery. Jan Wicks, the 77-year-old patient from Coralville, Iowa, was discharged just five days after the procedure.

The tricuspid valve—one of four valves that maintain regular blood flow through the heart's four chambers—allows blood to flow from the heart's right atrium to the right ventricle. When this valve is "leaky," blood can flow back into the atrium, a condition known as tricuspid regurgitation. This can interfere with heart function, causing swelling, liver problems, fatigue, irregular heartbeat, and heart failure.

"In a patient who has failed medications and is too sick for surgery, we can adapt a catheter device designed for a different valve and use it to repair the tricuspid valve," said Phillip A. Horwitz, MD, an interventional cardiologist and director of UI Heart and Vascular Center.

Horwitz was a member of the tricuspid valve repair team, along with imaging cardiologist Ramzi El Accaoui, MD, cardiothoracic surgeons Mohammad Bashir, MBBS, Jay Bhama, MD, and nurse practitioner Lana Goldsmith, FNP.

"The doctors and nurses did a great job explaining everything beforehand, and the procedure went well. I feel good," Ms. Wicks said. "It's great that I'm able to go home after only a few days in the hospital."

"This new approach speaks to our commitment to providing the most current and effective heart care treatments for our patients," Horwitz said. "Our heart valve program, established a decade ago, involves surgical-medical teams and nursing staff with the advanced training to perform minimally invasive heart valve repair and replacement procedures. Working together as a team, we have the experience and expertise to deliver excellent outcomes for our patients."





Singh, Iyer examine RA treament effects on the heart

Namrata Singh, MBBS, MSCI, clinical assistant professor in Immunology, received a two-year, \$200,000 American Heart Association Innovative Grant. Singh and her colleagues will study whether hydroxychloroquine (HCQ) leads to a decrease in major adverse cardiovascular events (MACE).

Second-year rheumatology fellow Priyanka Iyer, MBBS, Mary Vaughan Sarrazin, PhD, and Diana Jalal, MD, aided in the development of the proposal. Singh said Vaughan Sarrazin and Jalal were "tremendously helpful" in developing the methodology for the study.

The idea for the study itself came from Iyer, whom Singh called "very bright." Iyer first drew attention to the idea in a department Grand Rounds presentation she delivered. HCQ's cardiovascular benefits were known to improve lipid and glycemic profiles, but its association

> with MACE had "previously not been explored in large administrative databases," Iyer said.

Using de-identified data in the Medicare population, the research team will conduct a retrospective cohort study to compare instances of HCQ use, commonly used to treat rheumatoid arthritis, and incidences of MACE. In addition to the retrospective analysis, Iyer says they will also conduct a randomized controlled trial with Jalal to study the cardiovascular effects of HCQ in people with RA.

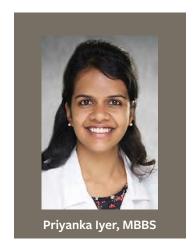


Mary Vaughan Sarrazin, PhD

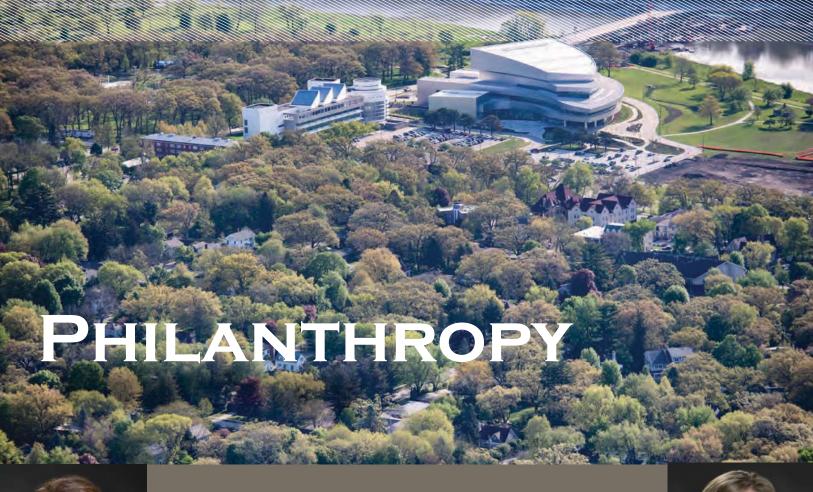




Namrata Singh, MBBS, MSCI



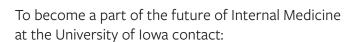






Philanhropy has enhanced much of the activity featured in this publication. Research discoveries, innovative training methods, life-saving care and more emerge in part because of private gifts and donations.

The following pages highlight the stories of a few generous donors and their areas of donation.



Alli Ingman

Assistant Vice President, Health Sciences Development alli.ingman@foriowa.org | (319) 467-3401



Levitt Center for University Advancement P.O. Box 4550 lowa City, lowa 52244-4550 www.foriowa.org

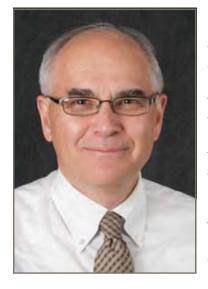
Professor Emeritus generously supports clinical fellowship

Building upon a long legacy of supporting the University of Iowa, professor emeritus John Fieselmann and his wife, Randee, committed \$750,000 to the Pulmonary, Critical Care, and Occupational Medicine Fellowship Program. Through their generosity, the endowed John F. Fieselmann Clinical Fellowship Fund will support the next generation of renowned pulmonary clinicians at University of Iowa Hospitals & Clinics.

John and Randee spent many years contemplating how they could make an impact and be supportive to the university, but also be supportive to the College of Medicine and the pulmonary division. One idea they considered was to support a clinical fellowship, specifically for individuals who are excellent clinicians and have an interest in teaching.

"I was a pulmonologist at the University of Iowa for 27 years. I did most of my undergraduate training and my internal medicine and residencies and fellowships here", Fieselmann said. "My wife, Randee, also received two master's degrees and a PhD in sociology. We had had so many good experiences here at the University of Iowa."

In 2013, John and Randee announced their decision to pledge a gift of \$500,000 to establish the John F.



Fieselmann Clinical Fellowship, an endowed fund supporting a clinical fellow in Pulmonary Medicine. "After we made our first donation, it became obvious to us that the cost of funding a fellow would be much more than \$500,000," Fieselmann explained. "So, Randee and I looked to see whether or not we could come up with an additional

amount of money. We were able to donate an additional \$250,000 for the fellowship, and we're hoping our gift will be matched by others."

Today, the professor emeritus encourages other faculty members and alumni to join him in supporting the fellowship program by giving back, even in small amounts, or through a bequest or other planned gift. The success of the fellowship is important for the future of the program.

John and Randee hope their gift will inspire other faculty

and staff as well as graduates of the University of Iowa Roy J. and Lucille A. Carver College of Medicine to transform the future by making significant contributions to medical education and training.







National fight to end diabetes gets national attention

Coming soon to a public television station near you! Hosted by the television and film actor Laurence Fishburne, the program Information Matrix profiles innovative and exceptional organizations and individuals. A recent episode titled "Reversing Diabetes" brought a film crew to lowa City in order to document the work being done within the Fraternal Order of Eagles Diabetes Research Center (FOEDRC).

The production team spent the day shooting footage of lab work and interviewing two researchers within the FOEDRC about the nature of their work understanding and treating diabetes. Sue Bodine, PhD, endocrinologist, described her research into restoring skeletal muscles weakened by diabetes and cardiologist Isabella Grumbach, MD, PhD, explained her work mitigating the impact of diabetes on blood vessels.

That intersection of cardiovascular complications and diabetes is also a concern of FOEDRC Director E. Dale Abel, MD, PhD, who was the third interview subject for the program, which will air all over the country over the course of the year. Dr. Abel spent the majority of his interview telling the remarkable story of

the founding of the FOEDRC. "Crowdfunding before there was a word for it," he told the interviewer. Hundreds of thousands of dedicated and generous members of the Fraternal Order of Eagles raised more than \$25 million (and growing!) to find a cure for this global epidemic.

Keep an eye on your PBS listings or check out the Internal Medicine at Iowa YouTube channel to see the full video and a 30-second commercial that aired in some select markets.

Thank you to the Eagles for your continued generosity!



Crowdfunding for research

Funding new research is always a challenge. With federal dollars for research dwindling, Dr. Terry Wahls, clinical professor of Internal Medicine, turned to a surprising source of revenue to fund her research projects - crowdfunding. Crowdfunding is defined as the practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the internet.

After being diagnosed with multiple sclerosis in 2000 and experiencing a considerable decline in health, Wahls saw dramatic changes thanks to what is now known as the Wahls Protocol—a lifestyle plan that includes a Paleolithic diet, stress reduction, neuromuscular stimulation, and exercise. During the past decade, Wahls has tirelessly researched how diet impacts multiple sclerosis. Wahls says she would not be as far as she is today without the help of private support.

"My first three studies were conducted with the help of philanthropy," says Wahls. "When the data from those studies was published, the grants I was applying for started to become more and more successful."



Recently, Dr. Wahls participated in a fundraising campaign through GOLDrush, the Ul's crowdfunding platform, and a total of 245 donors gave more than \$35,000 to support her research projects. This campaign became the highest raising campaign on the GOLDrush site. The donations received through GOLDrush will allow Dr. Wahls to further her study of diet and lifestyle and how that can be used to improve quality of life and reduce MS-related symptoms.

"We will use the same diet and lifestyle that I used for my own remarkable recovery to see what impact that has on the quality of life, function, and brain structure in newly diagnosed patients," says Wahls.



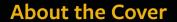


Photo credit: Samuel Stephens

Small clusters of cells within the pancreas, known as islet beta-cells, regulate blood sugar by controlled release of the hormone insulin. Within the islet beta-cell, insulin is packaged and stored in small vesicles until release. The molecular details of how insulin is packaged and stored are not well understood yet elucidating this process may provide critical insight into how beta-cell function is impaired or lost in the development of Type 2 diabetes.

To study this, the Stephens lab has developed state-of-the-art imaging techniques to visualize the packaging of insulin and monitor the movement of insulin vesicles within islet beta-cells. In this image from a cultured beta-cell, each tiny red dot represents a package of insulin. Additional structures include mitochondria (green), Golgi (magenta), and nuclei (blue).



University of Iowa Health Care

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