MAYO CLINIC

2021 • Issue 4

alumni

Letter from the secretary-treasurer

Please take a moment to read in this issue about the six alumni who received the 2021 Distinguished Alumni Award. They join 130 alumni in having received this illustrious honor — the highest award Mayo Clinic gives to those who have completed training programs of its schools or served on its staff. The Mayo Clinic Board of Trustees created this award in 1981 to honor particularly distinguished alumni.

Nominations for the 2022 Distinguished Alumni Awards are due by March 1. Think about worthy alumni in your specialty or subspecialty who should be nominated. Approximately 40 areas of training or practice have been represented to date including 14 alumni in other countries. Please keep diverse representation in mind in your nominations.

In this issue, you'll read about Mayo Clinic's new international strategy, which begins to position Sheikh Shakhbout Medical City (SSMC) in Abu Dhabi as Mayo's fourth destination medical center — the first outside of the U.S. This exciting development has physicians, allied health staff and administrators from the U.S. joining our international colleagues. SSMC is one part of Mayo Clinic's overall 2030 strategy to be a global leader in health care.

I was reminded of another example of how our Mayo culture is shared globally by alumni. The Mayo Clinic Alumni Association Board Meeting was held in Phoenix, Arizona, in October. Listening to the comments of board members about their time at Mayo highlighted the profound effect training or working at Mayo has had on so many, including me.

As we embark on a new year, I want to wish you and your families well. Those of us who are at Mayo Clinic benefited from a day of thanks on Nov. 26 — a gesture of gratitude from the institution's leadership for staff dedication to patients during the pandemic. Mayo closed U.S. outpatient practices and suspended scheduled surgeries. Special recognition was provided to hospital and staff who worked on that day. We appreciate the efforts of our leadership to promote staff wellness and resilience and hope your worksites also have staff wellness as a focus.

Best wishes in the new year,

M. Molly McMahon, M.D.

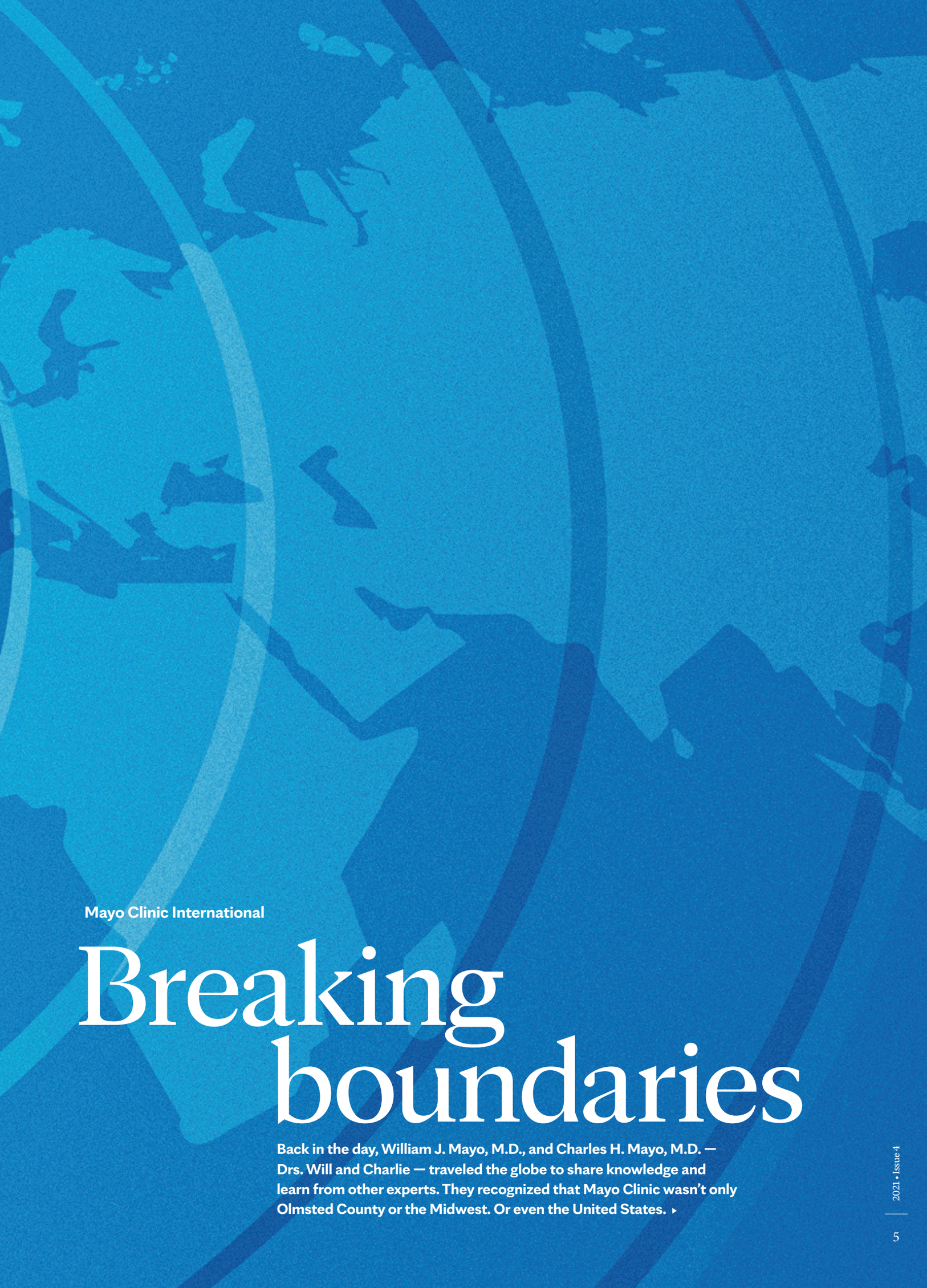
M. Molly McMahon, M.D.
(ENDO '87)
Secretary-Treasurer
Mayo Clinic Alumni Association
Division of Endocrinology, Diabetes, Metabolism, and Nutrition
Mayo Clinic in Rochester

Contents

Cover and page 4 illustrations by Joey Guidone; page 34 illustration by Federico Gastaldi.

Correction: In issue 3, we listed the Mayo Clinic staff members who have been elected to fellow status in the National Academy of Inventors. **Matthew Bernstein, Ph.D.** (RD '98), Department of Radiology at Mayo Clinic in Rochester, became a fellow in 2020. He has developed important technology for magnetic resonance imaging (MRI), including the innovative Mayo high-performance compact MRI system. We regret the error.

COVID-19 photography disclaimer: Some photos were taken before the pandemic. In others, individuals were alone in nonpatient care, nonpublic settings and were, therefore, in compliance with Mayo Clinic's COVID-19 safety guidelines while unmasked.



Mayo Clinic International

Breaking boundaries

Back in the day, William J. Mayo, M.D., and Charles H. Mayo, M.D. — Drs. Will and Charlie — traveled the globe to share knowledge and learn from other experts. They recognized that Mayo Clinic wasn't only Olmsted County or the Midwest. Or even the United States. ▸

Charles H. Mayo, M.D., addressed students at the London Hospital Medical College (University of London) during the Annual Distribution of Prizes in 1925 when he was president of the Inter-State Post-Graduate Assembly of America. That group was touring Europe to "unify the medical professions of Great Britain and America."

In 1935, Dr. Will said, "One of the most encouraging aspects of modern civilization is that science knows no country; what is available to one nation is available to the world."

To ensure that sentiment is reality a century later, Mayo's 2030 vision — to cure, connect and transform — includes a stronger international component than ever before. The goal? Elevate the importance of sharing Mayo's expertise with the world and establish a two-way street, where Mayo also learns from others.

"Our job is to go to places, share the Mayo Model of Care and impact more people in dimensions we haven't thought of before," says **G. Anton Decker, M.B., B.Ch.** (TY '96, I '99, GI '03), president, Mayo Clinic International and a member of the Royal Colleges of Physicians of the United Kingdom. "Many patients don't want to travel to the U.S. for care. They want access to state-of-the-art health care in their home countries. We need to adapt our business model to that."

Traditionally, Mayo's international business model was based on established collaborations and letting people know what was available at a Mayo Clinic destination medical center in the U.S. Mayo's new international strategy focuses on taking Mayo Clinic to the patient by leveraging world-renowned expertise in research, education and patient care delivered through unique and scalable capabilities, platforms and collaborations.

"Many parts of the world have limited or no access to trusted health care providers or information to advance their health," says Dr. Decker. "We want to be the global authority in the care of serious or complex disease and bring the Mayo Model of Care to the world through the first integrated global health care network."

To bring this vision to life, Mayo Clinic's international strategy will establish a leading global health care network and platform, leveraging Mayo's core capabilities; improve quality of care through integrated processes, data and support services; drive efficiencies and lower cost of care through proven care models in international markets; and reach patients in their markets while advocating Mayo Clinic as a preferred provider of care for serious or complex conditions. ▸

"We want to be the global authority in the care of serious or complex disease and bring the Mayo Model of Care to the world through the first integrated global health care network."

– G. Anton Decker, M.B., B.Ch.

William J. Mayo, M.D. (front row, center), visited a surgical clinic at the Imperial Military Medical Academy in St. Petersburg, Russia, in 1914 as part of a trip that included visits to clinics in Finland, Norway, Sweden and Denmark. Accompanying him were Christopher Graham, M.D. (GI '94, front row, second from right), and Donald Balfour, (S '09, not pictured).

William J. Mayo , M.D. (third from left), in an operating room at Christchurch Hospital in Christchurch, New Zealand, in 1924 during a visit to the New Zealand Conference of the British Medical Association.

Stacey Rizza, M.D. (MED '95, I '98, INFD '01), executive medical director for International Clinical Practice who also oversees the Asia-Pacific corridor for Mayo's international activities, says that choices such as these help to expand Mayo Clinic's capacity to meet the needs of international patients, address the realities of individual markets and tie them back to Mayo. "Mayo Clinic has so much to offer in the international space. We're generally a very humble group, but we know how to work alongside other cultures and help them implement world-class health care. We know how to share our expertise and learnings when a provider is opening a new clinic halfway around the world. We ultimately serve as a link, connecting all of the great things that Mayo does and knows to the rest of the world."

BRICKS AND MORTAR

Future international efforts will concentrate on carefully selected markets in key corridors: Europe, Middle East, India and Africa; the Americas; and Asia-Pacific. Mayo Clinic's current international footprint includes two international sites that are among the busiest crossroads cities in the world.

Sheikh Shakhbout Medical City (SSMC)

A joint venture between Abu Dhabi Health Services Company and Mayo Clinic, this hospital opened in 2020 and is one of the United Arab Emirates' (UAE) foremost hospitals for serious and complex care — destined to be the largest tertiary care hospital in the country. The 741-bed SSMC provides the community and region with an advanced health care system that delivers clinical excellence and a high-quality patient experience. SSMC is staffed by more than 340 physicians and 1,200 nursing staff members, including 20 physicians from Mayo Clinic and 36 other Mayo Clinic staff members. The partnership focuses on consolidating specialty service lines to deliver a multispecialty integrated practice supported ▸

Mayo Clinic plans to establish the 741-bed Sheikh Shakhbout Medical City in Abu Dhabi as its fourth destination medical center.

"SSMC is a top priority as we work alongside the local government to establish Mayo's first destination medical center outside of the U.S."

– Mohamad Bydon, M.D.

by strong education, research and innovation. SSMC's strategic plan also centers on developing operational excellence; investing in staff well-being and professional development; continuing campus master planning for expansion of outpatient and inpatient services, operating theaters, laboratory, cardiology and radiology; enhancing medical education and research capabilities; and expanding geographic reach, especially with international and executive patients. Mayo Clinic's **Naser Ammash, M.D.** (CVCH '95), is CEO.

"SSMC is a top priority as we work alongside the local government to establish Mayo's first destination medical center outside of the U.S.," says **Mohamad Bydon, M.D.** (NS '15), executive medical director for International Academic Affairs who oversees the Europe, Middle East, India and Africa corridor. "We're helping to launch world-class health care services, research and education for people in the UAE and beyond. ▸

Mayo Clinic's Naser Ammash, M.D., is CEO of Sheikh Shakhbout Medical City, a joint venture between Abu Dhabi Health Services Company and Mayo Clinic.

1. **Ashish Chintakuntlawar, M.B.B.S., Ph.D.** (HEMO '15), Division of Medical Oncology
2. **Mohammad Hussain, M.D.** (HIM '14), Division of Hospital Internal Medicine
3. **Mustaqeem Siddiqui, M.D.** (I '07, HEMO '11), Division of Hematology
4. **Joseph Maalouf, M.D.** (CV '92), chair, Department of Cardiovascular Medicine
5. **Tahir Mehmood, M.D.** (TMED '15), Division of Hospital Internal Medicine
6. **Shahrukh Hashmi, M.D.** (HEMO '12), chair, Department of Hematology and Oncology

Mayo Clinic physicians serving at Sheikh Shakhbout Medical City

7. **Geoffrey Thompson, M.D.** (S '88), chair, Department of Surgery; interim chair, Department of Emergency Medicine
8. **Naser Ammash, M.D.** (CVCH '95), CEO
9. **Philip Fischer, M.D.** (PD '99), Department of Pediatric and Adolescent Medicine
10. **Abba Zubair, M.D., Ph.D.** (LABM '03), Dean of Education
11. **Matthew Gettman, M.D.** (U '00), Department of Urology and the Erivan K. Haub Family Professor of Urologic Cancer Honoring Horst Zincke, M.D.

NOT PICTURED

John Logan Black, M.D. (I '82, P '85), Division of Clinical Biochemistry and Immunology

Deanne Kashiwagi, M.D. (HIM '09), chair, Division of Hospital Internal Medicine

Talha Malik, M.D. (GI '18), Division of Gastroenterology and Hepatology

Charbel Moussallem, M.D. (SPOR '12), Department of Orthopedics and Spine Surgery

Holland Ravelle, M.D. (RD '07), chair, Department of Radiology

Alain Sabri, M.D. (ENT '01), chair, Division of Head and Neck Surgery

Erik Scharrer, M.D. (EM '15), Department of Emergency Medicine

Michael Wallace, M.D. (GI '03), chair, Division of Gastroenterology and Hepatology, and the Fred C. Andersen Professor

Nathan Woltman, M.D. (MED '11), Department of Emergency Medicine

Mayo Clinic Healthcare in London is located at 15 Portland Place in the Marylebone district of Central London. The clinic is the U.K.'s front door to Mayo Clinic expertise.

When patients visit SSMC, they can expect the same level of experience, innovation and professionalism that's a cornerstone of our practices in the U.S., but we take into account the local culture and heritage. The same can be said about our clinic in London."

Mayo Clinic Healthcare in London

Wholly owned by Mayo Clinic and opened in 2019, the clinic offers second opinions for complex medical problems, tailored specialty exams and virtual visits with Mayo Clinic specialists in the U.S., executive health assessment and imaging, cardiology, GI and pulmonary services. Mayo Clinic Healthcare in London employs physicians in general medicine, cardiology, gastroenterology and pulmonology and is expanding into other service lines. Mayo Clinic signed a contract with Bupa UK, the largest domestic private medical payer in U.K., helping to solidify Mayo's commercial presence in London and U.K. markets. "We are privileged to partner with local providers and institutions, and it affirms our commitment to care for patients in comprehensive and collaborative ways," says Dr. Decker.

MAYO CLINIC CARE NETWORK – INTERNATIONAL

In addition to facilities in the UAE and England, Mayo Clinic has relationships with organizations in a handful of other countries through the Mayo Clinic Care Network – International.

These carefully vetted organizations have contractual agreements with Mayo Clinic and share a goal of improving the delivery of health care. Members, who must align with Mayo Clinic values and international strategy, are granted special access to Mayo Clinic resources including AskMayoExpert medical reference tool, eConsults, eBoard live interactive conferences to discuss management of complex cases, and health care consulting about clinical care, operations and business.

Matthew Bernard, M.D. (FM '93), Department of Family Medicine at Mayo Clinic in Rochester, is medical director of Mayo Clinic Care Network – International.

"Membership in Mayo Clinic Care Network is a starting point for an enduring relationship," says Dr. Bernard. "As the relationship grows, we may identify opportunities to add value to the member and to Mayo Clinic."

International members of Mayo Clinic Care Network include:

- AIG Hospitals, Hyderabad, India
- American Hospital Dubai, United Arab Emirates
- Hospitales Puerta de Hierro, Zapopan, Mexico
- International Medical Center, Saudi Arabia
- Medica Sur, Mexico City, Mexico
- Saudi German Hospital Cairo, Egypt
- Saudi German Hospital Riyadh, Saudi Arabia
- Sir Run Run Shaw Hospital, China
- Xi'an International Medical Group, Shaanxi, China ▸

Mayo Clinic physicians serving in London

1. **Sandeep Kapur, M.B.B.S.** (GIM '20), Division of Internal Medicine
2. **Kevin C. Fleming, M.D.** (I '90, GERI '92), Division of Internal Medicine
3. **John Costello, M.D.** (THD '20), Division of Pulmonology
4. **James East, M.D.** (GIM '20), Division of Gastroenterology

NOT PICTURED

Elijah Behr, M.D. (CV '20), Division of Cardiology

Priyajit (Bobby) Prasad, M.D. (GIM '20), Division of Gastroenterology

Sanjay Prasad, M.D. (CV ’20), Division of Cardiology

Malgorzata (Gosia) Wamil, M.D., Ph.D. (CV ’20), Division of Cardiology

GLOBAL CONSULTING

To bolster its international presence outside of brick-and-mortar initiatives, Mayo Clinic offers Global Consulting — formerly International Advisory Services. This service advises organizations on matters including new health care facilities, digital health services, clinic planning and customized protocols such as COVID-19.

“Many organizations and businesses want to work with Mayo Clinic. We need to make it easier for them to do so.”

– Brian Costello, M.D.

Mayo has advised on hospital development projects in Ecuador, China and Indonesia. During the pandemic, Mayo collaborated with U.S.-based organizations with a global reach, including Hilton and McDonald’s, about COVID-19 response measures. **Brian Costello, M.D.** (ADGM ’99, HEMO ’09), Division of Medical Oncology at Mayo Clinic in Rochester, is medical director for Global Consulting.

“Many organizations and businesses want to work with Mayo Clinic,” says Dr. Costello. “We need to make it easier for them to do so. Every country and its laws are different, and we must respect the local customs, culture and finances because they won’t adapt to the U.S. way. Yet these entities want Mayo quality health care. That means forming true partnerships. That’s what our Global Consulting services and entire international strategy is all about.”

GLOBAL HEALTH PROGRAM

No Mayo Clinic endeavor would be complete without a truly selfless humanitarian component. Since its beginnings, Mayo Clinic has shared its discoveries, knowledge and expertise so people around the world can lead healthier lives. This philosophy endures in the form of the Mayo Clinic Global Health Program — formerly Mayo Clinic Abroad. Today hundreds of physicians and allied health personnel volunteer their ▸

time and use personal funds to meet health care needs around the globe. Many others want to participate in a global health activity but don't know where to begin. Or they act alone, unaware of fellow employees who are doing similar work in similar locations. Mayo Clinic Global Health Program is a point of coordination to support these international volunteer and humanitarian efforts — a community of employees involved in sharing the Mayo Model of Care with global health partners in medically underserved areas of the world. Projects must provide sustainable benefit to the local community via educational tools and instruction.

James Bower, M.D. (N '95, MD '96), chair, Division of Movement Disorders at Mayo Clinic in Rochester, is medical director of the Mayo Clinic Global Health Program. Projects the Global Health Program has helped fund include:

- Establishing a program at Anjuman Hospital in Delhi, India, to educate and train local providers in the optimal use, monitoring and surveillance of antimicrobial agents.
- Developing a pilot project with Tenwek Hospital in Bomet, Kenya, for Mayo Clinic physicians to teach endoscopy remotely. The prevalence of esophageal cancer in East Africa is high. The treatment for advanced disease is often esophageal stent placement. However, most physicians in Africa aren't trained to perform this procedure.
- Developing the infrastructure — internet access, equipment and expansion of solar electricity system — to support education and training at Mada Clinics in Maventibao, Madagascar. This will allow Mayo Clinic infectious disease fellows to introduce telemedicine to the clinics.
- Training local primary care physicians in Colombia in transcranial doppler, prompt referral and preventive education programs for sickle cell disease patients in rural areas.

NEXT STEPS

Building on these accomplishments, in the next several years, Mayo Clinic will:

- Increase the number of international patients seen at Mayo Clinic campuses in the U.S. and enhance the patient experience through improved cultural agility. Today, Mayo Clinic providers on three U.S. campuses see patients from 140 countries.
- Establish Sheikh Shakhbout Medical City as the fourth destination medical center.
- Build out the specialty practice and position Mayo Clinic Healthcare as a partner to local providers and institutions in London; patients in London and beyond won't have to wait or travel to get the Mayo Clinic experience or level of care. When needed, virtual appointments with specialists at Mayo Clinic in the U.S. are seamlessly coordinated.
- Expand the size, scope and global partnerships for Mayo Clinic Laboratories. Currently, services are provided in 61 countries across the Middle East, Canada, Southeast Asia, Latin America and Europe, including a recently signed deal to expand Mayo Clinic Laboratories to American Hospital in Dubai. (See magazine issue 2 2021 for details.)

"To accomplish all this, we need the help and support of our alumni network," says Dr. Decker. "The combined expertise and knowledge of our alumni is not only impressive, but it's also essential. As we move forward, we'll continue to look for ways to leverage this global network."

Dr. Decker says not a day goes by that Mayo doesn't learn something new from the diverse countries and cultures where its staff members work. For example, the work week in the Middle East starts on Sundays, which Mayo Clinic has learned through its relationship with Sheikh Shakhbout Medical City. Being aware of traditions and customs in other countries will help better serve international patients who come to a Mayo Clinic campus for care.

"Learning works both ways," says Dr. Decker. "We don't have all the answers. If we're going to collaborate, we need a framework that addresses legalities, how money will be exchanged, how IT is going to work, how we'll deal with data privacy laws. Mayo Clinic International provides the framework to make those connections so organizations can get the solutions they seek." •

For physician opportunities at Sheikh Shakhbout Medical City, contact: AbdulKarim A.S. Ajam, **aajam@ssmc.ae**

Mayo Clinic International leadership

Stacey Rizza, M.D.
(MED '95, I '98, INFD '01)

Executive medical director, Clinical Practice; Asia-Pacific corridor

Division of Infectious Diseases

Mayo Clinic in Rochester

G. Anton Decker, M.B., B.Ch.
(TY '96, I '99, GI '03)

President, Mayo Clinic International

Division of Gastroenterology and Hepatology

Mayo Clinic in Rochester

Mohamad Bydon, M.D. (NS '15)

Executive medical director, Academic Affairs; Europe, Middle East and Africa corridor

Department of Neurologic Surgery

Mayo Clinic in Rochester

Jorge Pascual, M.D. (I '94)

Executive medical director, Solutions; Americas corridor

Division of Pulmonary, Allergy and Sleep Medicine

Mayo Clinic in Florida

35th anniversary of Mayo Clinic in Florida

Replicating magic

In 1979, J.E. Davis, founder of the Winn-Dixie grocery store chain, approached Mayo Clinic about opening a clinic in his hometown of Jacksonville, Florida. Davis, a loyal Mayo Clinic patient and generous benefactor, believed many people could benefit from Mayo's expertise if it were expanded outside Minnesota. Davis agreed to donate 440 acres of undeveloped land for the endeavor.

Several years would pass and many challenges would be overcome before Mayo Clinic leadership and the Jacksonville community, including a local hospital, fully committed to the expansion. That work culminated in an Oct. 13, 1986, opening day, with physicians and allied health staff from the Rochester, Minnesota, campus opening the doors to Mayo's first geographic expansion. ▸

1,056

physicians
and scientists

Almost

7,000

other staff

52

graduate medical
education programs train

250+

residents and
fellows annually

40

allied health
programs train

350–400

students annually

FIVE YEARS OF CONTEMPLATION

In the beginning, Mayo Clinic leadership was hesitant to expand, worrying that the magic that had been created in Olmsted County, Minnesota, couldn't be replicated. In the early 1980s, a committee discussed possible expansion and made recommendations. The price tag was deemed too high, and expansion was vetoed.

A few years later, leaders embarked on a strategic planning process that produced six scenarios, ranging from take no action to relocate Mayo Clinic from Rochester altogether. The top choice? Become a national integrated health care delivery system with diversified geography and revenue sources.

Geographically, it made sense to go where the population was growing — the South. Another bonus — the Jacksonville area lacked a major academic medical center and integrated group practice in the Mayo model. Davis' offer to donate land was a boon.

FULL SPEED AHEAD

In 1984, Mayo Clinic announced it would expand to Jacksonville, with **D. Thane Cody, M.D.** (ENT '62), as CEO of the Florida campus. Dr. Cody and his administrative partner, Carleton Rider, recruited staff and designed the facility — the latter with significant input from department chairs on the Rochester campus to ensure continuity.

Mayo broke ground on its southern location in 1985 and put a rush order on construction. The clinic would be completed in only 18 months. Mayo's own hospital on the Florida campus would come later, in 2008. In the meantime, Mayo Clinic formed a relationship with St. Luke's Hospital, the oldest private hospital in the area. Although the location wasn't ideal — the hospital was 10 miles from the new campus — Mayo Clinic assumed St. Luke's debt and operations.

To ensure the Mayo Clinic culture and values were consistent on the Jacksonville campus, 35 physicians and 145 other staff members from the Land of 10,000 Lakes made the move to the Sunshine State. ▸

In the beginning, Mayo Clinic leadership was hesitant to expand, worrying that the magic that had been created in Olmsted County, Minnesota, couldn't be replicated.

Mayo Clinic announced its expansion to Jacksonville, Florida, in 1984 and broke ground in 1985. The original clinic was completed in 18 months, with the grand opening in October 1986.

$115m

annual research expenditures

700k+

patients from all 50 states and 140+ countries since 1986

$2b

economic impact

A SIGN OF SUCCESS

By opening day, more than 2,700 patients from 30 states and six countries had made appointments. They weren't disappointed. Despite initial concerns about moving Mayo Clinic outside Minnesota, a survey in the first quarter of the following year showed no difference in satisfaction between Rochester and Florida patients.

Rider says, "This wasn't anecdotal feedback — it was data. I realized that the caring Mayo physician could see a patient in a tent. And they'd make the same connection, and they'd have the same response. So it's not the facility, it's not the administration. It's that physician–patient encounter that is what's priceless for Mayo."

Despite its somewhat slow creation, Mayo Clinic in Florida has evolved to become not only an extension of the Rochester campus but also a recognized leader in health care in the South — and beyond. In the past 35 years, the number of encounters has grown, and the praise has continued. Approximately 8,000 clinicians, researchers, students and allied health staff support caring for tens of thousands of patients from around the world. In 2016, U.S. News & World Report ranked Mayo Clinic No. 1 in Florida for the first time — a distinction it has held for five of the last six years, including 2021.

Mayo's expansion to Florida wasn't an isolated endeavor. Rather, it was part of a broader strategic plan to ensure Mayo Clinic's long-term future. The strategy included creating the Arizona campus, merging with the hospitals in Rochester — Methodist and Saint Marys — and developing a regional strategy within a 250-mile radius of Mayo Clinic in Rochester.

Kent Thielen, M.D. (RD '94, RNEU '97), CEO of Mayo Clinic in Florida, says: "Because of the tremendous foresight, vision and commitment of our Mayo Clinic leaders more than 35 years ago, working hand-in-hand with generous benefactors and the initial staff that laid the foundation for what is a truly premiere three-shield destination medical center, Mayo Clinic in Florida is transforming the future of health care for generations of patients to come." •

CEOs of Mayo Clinic in Florida

1984–1987
D. Thane Cody, M.D. (ENT '62), deceased

1987–1989
Richard Weeks, M.D. (I '57), deceased

1990–1999
Leo Black, M.D. (I '65), deceased

1999–2002
Denis Cortese, M.D. (I1 '71, I '72, THD '76), Mayo Clinic Emeriti Staff

2002–2008
George Bartley, M.D. (OPH '85), Department of Ophthalmology, Mayo Clinic in Rochester, the Louis J. and Evelyn Krueger Professor of Ophthalmology in Honor of Dr. William M. Bourne

2008–2014
William Rupp, M.D. (ONCL '03), Mayo Clinic Emeriti Staff

2015–2018
Gianrico Farrugia, M.D. (I '91, GI '94), president and CEO, Mayo Clinic

2019–current
Kent Thielen, M.D. (RD '94, RNEU '97) (pictured, at left)

Mayo Clinic Professional Achievement Award

Vascular medicine trailblazer

gets academic medicine fix via Mayo Clinic

As a second-year internal medicine resident at Mayo Clinic in Rochester in the early 1990s, **J. Michael Bacharach, M.D.** (I '89, CV '92), was fascinated by a visiting professor from Switzerland who performed endovascular procedures. At the time, Mayo Clinic had a well-established vascular practice but didn't do many endovascular types of procedures.

"That's what I was interested in — clot extraction, thrombolytic therapy, salvaging limbs without open operations, doing things less invasively," says Dr. Bacharach. "I became part of the first generation of formally trained non-radiology vascular specialists. I was fortunate to be in the right place at a time when these new technologies and training became available. I developed skill and expertise, in part, through the huge volume of cases in the early days when few cardiology-trained physicians did vascular interventional medicine." ▸

J. Michael Bacharach, M.D., in and around the cath lab at North Central Heart Institute in Sioux Falls, South Dakota.

After a cardiology fellowship at Mayo Clinic, Dr. Bacharach completed a fellowship in interventional vascular medicine at Cleveland Clinic, focusing on peripheral vascular interventions. He remained there on staff for several years.

A cardiologist Dr. Bacharach had trained with at Mayo Clinic, **Richard Backes, M.D.** (MED '85, I '88, CV '91), invited him to give a talk to colleagues in his practice in Sioux Falls, South Dakota. Fast forward a few years, and Dr. Bacharach joined that practice, North Central Heart Institute, to help build a vascular medicine and vascular intervention practice to complement the cardiology and surgical capabilities.

"I went to Sioux Falls in 1995 with the intent to stay for four or five years and then become a program director at an academic medical center," says Dr. Bacharach. "Twenty-six years later, I'm still here."

Dr. Bacharach is considered one of the most active and influential vascular medicine physicians in the U.S. and a highly regarded advocate for the merits of peripheral intervention. His illustrious career has included:

- Participating in and leading large, important clinical trials in the last two decades, including investigational devices that were introduced to clinical practice
- Sponsoring and running national meetings, including his own in Sioux Falls — the largest continuous multidisciplinary vascular meeting in the Midwest
- Serving as president of the Society for Vascular Medicine and being named a master of the society
- Receiving a lifetime achievement award for leadership in endovascular education at the VIVA Vascular Conference
- Being a board member of the Intersocietal Accreditation Commission, the accrediting body for vascular laboratories
- Helping to write the guidelines for management of patients with extracranial carotid and vertebral artery disease
- Being a fellow of the American College of Cardiology, American Heart Association, Society for Vascular Medicine, and Society for Cardiovascular Angiography and Interventions

"While it may seem a small point, he has achieved respect from his peers nationally while remaining a small-town physician at heart."

– Paul Wennberg, M.D. (I '94, CV '99), chair, Division of Vascular Cardiology, Mayo Clinic in Rochester

Despite the accolades and accomplishments, Dr. Bacharach says he realized years ago that something was missing from his career. Having trained at leading academic medical centers, he missed educating up-and-coming physicians. In a serendipitous moment some 15 years ago,

"Mike continues to be one of the most active and influential vascular medicine practitioners in the country and someone to whom people turn to for guidance and leadership."

– Thom Rooke, M.D. (PHYS '83, I '86, CV '89), the John and Posy Krehbiel Professor of Vascular Medicine, Mayo Clinic in Rochester

he learned that Mayo needed rotation opportunities for vascular surgery fellows. Since then, 53 Mayo vascular surgery trainees have spent three-month rotations in Dr. Bacharach's high-volume practice.

"It's largely unheard of for a private practice to be part of a formal clinical rotation, but I enjoy staying connected to academic medicine," says Dr. Bacharach. "I get great joy seeing trainees evolve and surpass me in their abilities. I am a little cog in helping to launch these outstanding physicians all over the country."

Dr. Bacharach assists Mayo trainees in advancing their papers, projects and national conference participation. He says he gets a kick out of attending national meetings and running into physicians who trained with him.

"Some of them consult with me about cases, and I send them notes when I see their publications," says Dr. Bacharach. "One of my daughter's professors was one of my fellows."

Speaking of daughters, both of Dr. Bacharach's daughters are physicians. One recently completed a vascular surgery fellowship and is now at the University of Texas San Antonio. The other is a fourth-year urology resident at West Virginia University. Dr. Bacharach's son is pursuing a Ph.D. in mathematics at the University of Wisconsin–Madison.

Dr. Bacharach says he's grateful for the relationship with Mayo Clinic that has enhanced his professional satisfaction by linking him with academic medicine — teaching the next generation — while he remains a self-described small-town physician.

"When my daughters became interns, I told them to never let anyone have a reason to call them lazy. After all these years, I still get up in the middle of the night to see patients. My daughters grew up seeing my joy and passion for medicine, and it seems to have rubbed off on them. Similarly, the Mayo Clinic values of doing the right thing for the patient rubbed off on me, and I've tried to carry that forward to those I have the privilege to train." •

The Mayo Clinic Professional Achievement Award was presented to Dr. Bacharach at the 72nd Mayo Clinic Alumni Association Biennial Meeting in October 2021.

Doctors Mayo Society Lifetime Achievement Award

Dines redux

David Dines, M.D. (I '57), began to consider a medical career after serving in the Marine Corps. He enlisted at 17 and fought in the Battle of Iwo Jima in World War II. His two best friends died during their service and, because he made it through without a scratch, Dr. Dines felt compelled to give back. His father-in-law to-be — a physician — convinced him that medicine was the way to accomplish that goal.

"My father-in-law was one of the greatest men I've ever known," says Dr. Dines.

It takes one to know one. ▸

Virginia Dines, M.D., with her grandfather, David Dines, M.D. "Having the Dines name means people are excited to meet me and send along greetings to my grandfather, which is one of the greatest things about being at Mayo. But it also gives me a lot to live up to."

Virginia Dines, M.D. (I '18, NEPH '22), Dr. Dines' granddaughter and a fellow in the Division of Nephrology and Hypertension at Mayo Clinic in Rochester, wanted to be a physician from an early age — primarily because of her grandfather. "From the stories he told throughout my childhood, I knew medicine was a career where I could make a big difference, which became increasingly important to me."

"It has been very special to be educated by people my grandfather taught. It brings things full circle. I feel really proud and grateful that I got to grow up with such a special person."

— Virginia Dines, M.D.

Training at Mayo Clinic was a natural decision for Dr. Virginia Dines. "Of course, I grew up hearing what a special place it was and, as a visiting medical student, I saw for myself all the things I'd heard about. Everyone at Mayo cares deeply about making the experience better for the patient. You hear it from every person in every job."

That's not all Dr. Virginia Dines heard about at Mayo Clinic.

"On my first day as an intern at the hospital in the medical ICU, the pulmonologists all knew my grandfather very well — what a nice welcome," she says. "Six years later, people still stop me to say how much they love and appreciate him and what a difference he made in their lives. From every subspecialty, I hear what an amazing teacher and educator he was. It has been very special to be educated by people my grandfather taught. It brings things full circle. I feel really proud and grateful that I got to grow up with such a special person.

"He taught me the importance of hard work and having purpose. He loves his family very much and has taken amazing care of us. I learned the importance of family from him, which is critical to me and my husband (**Mark Norton, M.D.**, I '18, THDC '21, Division of Pulmonary and Critical Care Medicine, Mayo Clinic Health System in La Crosse, Wisconsin) and for our two daughters. We're so proud of the life my grandfather built and the legacy he established."

That legacy includes the 2021 Doctors Mayo Society Lifetime Achievement Award, which recognizes Dr. David Dines' philanthropy to Mayo Clinic, professional accomplishments and personal attributes that reflect Mayo Clinic ideals.

Since he retired in 1990, Dr. David Dines and his wife of 74 years, Bette, have funded the Dr. David E. and Bette H. Dines Professorship of Pulmonary and Critical Care Medicine currently held by **Jay H. Ryu, M.D.** (I '82, THD '85), Mayo Clinic Division of Pulmonary and Critical Care Medicine; Dr. David E. and Bette H. Dines Fund in Pulmonary and Critical Care Medicine Research Honoring Steve G. Peters, M.D.; Dr. David E. and Bette H. Dines Named Visiting Professorship in Pulmonary and Critical Care Medicine; David and Bette Dines Faculty Education Fund; David and Bette Dines Simulation-Based Education Fund; and Dines Family Mayo Charter House Medical Lectureship Fund.

Dr. David Dines isn't resting on his laurels in retirement. Every Tuesday he participates in conferences with the pulmonary care physicians, and he listens to their lectures on Wednesdays and Fridays.

As proud as he is of his many accomplishments — which include fellow status in the American College of Physicians, American College of Chest Physicians, American College of Cardiology and membership in the Mayo Clinic Teacher of the Year Hall of Fame — Dr. David Dines is even more proud of his granddaughter. She's one of four grandchildren but the only one who pursued medicine. (The Dines' daughter Sarah was a registered nurse who died from breast cancer.)

"I'm so proud that Ginny is at Mayo Clinic," he says. "At age 8, she said she wanted to be a doctor. She's an outstanding person, a big part of our lives and a big part of my philanthropy. I couldn't be any prouder of her and what she has done with her life."

Dr. Virginia Dines recognizes the size of the shoes she has to fill.

"Every day, I see how many lives he's touched through the many physicians he has taught," she says. "He retired 35 years ago but still knows all the current pulmonary fellows, is involved in their training and is helping to advance training for future generations through his philanthropy."

In a touching tribute to her grandfather, Dr. Virginia Dines didn't change her name when she got married. "Keeping my last name was an honor to my grandfather," she says. "Having the Dines name means people are excited to meet me and send along greetings to my grandfather, which is one of the greatest things about being at Mayo. But it also gives me a lot to live up to. His legacy is phenomenal." •

The Doctors Mayo Society Lifetime Achievement Award was presented to Dr. Dines virtually as part of the 72nd Mayo Clinic Alumni Association Biennial Meeting in October 2021. To watch his remarks, visit alumniassociation.mayo.edu/dinesinterview.

Raymond Pruitt Lecturer

GME gem

This lectureship honors Raymond Pruitt, M.D. (I '43), the first dean of Mayo Clinic Alix School of Medicine. The lecturer demonstrates qualities admired in Dr. Pruitt — integrity, scholarship, humility and the empathy of the truly concerned.

Steven Rose, M.D.

Accreditation Council for Graduate Medical Education, Designated Institutional Official

Mayo Clinic School of Graduate Medical Education

Department of Anesthesiology and Perioperative Medicine

Mayo Clinic in Rochester

INFLUENTIAL PRESENCE IN GRADUATE MEDICAL EDUCATION

Steven Rose, M.D. (MED '81, I '82, ANES '84), chair of the Accreditation Council for Graduate Medical Education (ACGME) Institutional Review Committee and Mayo Clinic's ACGME Designated Institutional Official, is one of the most visible Mayo Clinic educators and influential figures in graduate medical education in the U.S. He served as associate dean, vice dean and then dean of Mayo Clinic School of Graduate Medical Education from 2003 to 2021, leading the programs of one of the nation's largest schools of graduate medical education. Under Dr. Rose's leadership, the school had outstanding ACGME reviews and accreditation outcomes.

Dr. Rose comes by his focus on education naturally. He grew up in Valley City, North Dakota, where his father was president of Valley City State College and, later, dean of the University of Wisconsin–La Crosse. Dr. Rose joined the Mayo Clinic staff in 1985. He calls his involvement in education serendipitous. "In 1987, I was asked to participate on the Clinical Competence Committee, a group whose decisions affected residents and fellows. I became further embedded in education when I became a program director in 1994. When I was selected to be associate dean for Surgery and Surgical Specialties in the Mayo Clinic School of Graduate Medical Education in 2003, I wondered what I'd gotten myself into.

"However, inheriting the school's strong foundation — built by many people who I admire — gave me a leg up as dean. I'm proud of maintaining our high-quality accreditation, which impacts our national image, enhances our reputation and allows us to focus on advancing education. Throughout my career in education, I have been surrounded by a great team that operates with integrity and fairness. Serving graduate medical education at Mayo Clinic has been an honor and privilege. No one has a role forever. Any sense of loss I have about stepping down from this role in 2021 has been greatly eased by my confidence in my successors. I look forward to the future with optimism because of the people who have been entrusted with this responsibility."

Dr. Rose was program director of the Anesthesiology Fellowship Program for 11 years and program director of the Anesthesiology Residency Program for 12 years, making him, at the time, the longest serving program director in the Department of Anesthesiology and Perioperative Medicine's more than 100-year history.

He also chaired the department's Division of Education for 15 years.

As dean, Dr. Rose advanced strategic initiatives, stewarded enormous program growth and strengthened the alignment between Mayo Clinic Practice and Education.

Dr. Rose's extensive graduate medical education experience and leadership resulted in successful implementation of the Next Accreditation System and Clinical Environment Review pathways — major national ACGME initiatives. Under his leadership, Mayo Clinic graduate medical education grew by:

- 14 new residency programs
- 57 new fellowship programs
- 71 total new programs
- 160 new trainee spots in Rochester alone

In recognition of his service, Dr. Rose has received awards and honors including multiple Mayo Clinic Distinguished Educator and Distinguished Clinician awards. He received the 2016 Parker J. Palmer Courage to Lead Award from the Accreditation Council for Graduate Medical Education (ACGME) for designated institutional officials who demonstrate excellence in overseeing residency/fellowship programs at their sponsoring institutions. The ACGME also recognized Dr. Rose's leadership by appointing him chair of its Institutional Review Committee, which assesses institutions in the U.S. that have graduate medical education programs.

According to **Mark Warner, M.D.** (ANES '82), former dean of Mayo Clinic School of Graduate Medical Education (2005–2012), former executive dean of Mayo Clinic College of Medicine and Science (2012–2016), and the Walter and Leonore Annenberg Professor of Anesthesiology in Honor of Daniel R. Brown, M.D., Ph.D., Dr. Rose is a phenomenal and visionary leader. "He leads by example, with hard work and integrity, is absolutely fair and consistent in decision-making, and is remarkably gracious in his interactions with trainees and colleagues. He has always been willing to pursue innovative approaches, making him one of the finest in a long line of outstanding educators in graduate medical education at Mayo Clinic. He also has written extensively on anesthesiology education issues and is an excellent clinician. I couldn't be happier for the honors bestowed on Dr. Rose for his service to the institution, the school, and literally thousands of students and trainees who have been positively impacted by his efforts." •

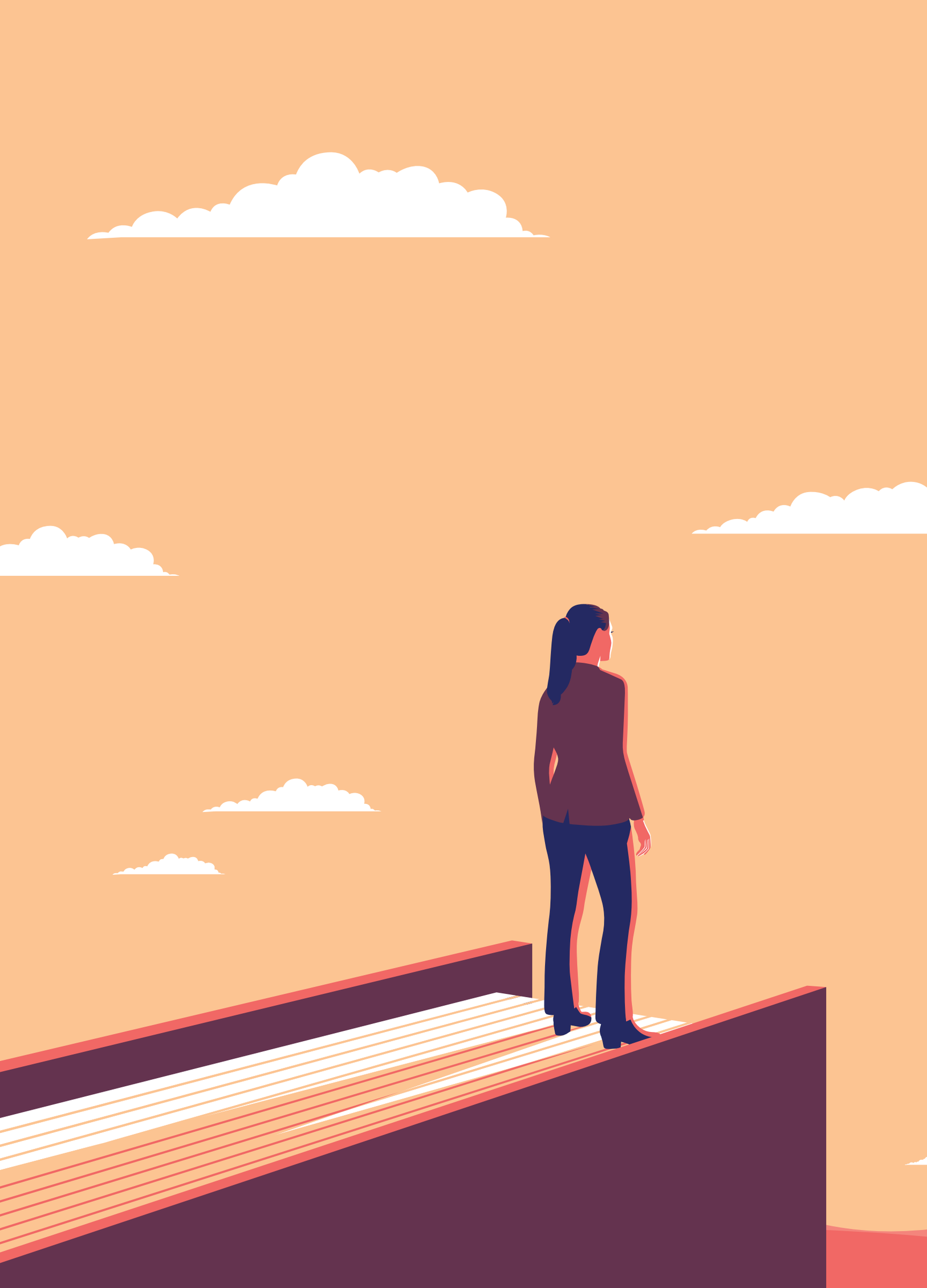
14
new residency programs

57
new fellowship programs

71
total new programs

160
new trainee spots in Rochester alone

The Raymond Pruitt Lecturer award was presented to Dr. Rose in October 2021 at the 72nd Mayo Clinic Alumni Association Biennial Meeting, where he gave his lecture.



Mayo Clinic Graduate School of Biomedical Sciences

Investigating the world beyond academia

Mayo Clinic Graduate School of Biomedical Sciences offers funding for Career Development Internships (CDIs) for upper-level Ph.D. students. The internships allow them to spend 100 or more hours of paid study leave in a career environment. In these hands-on experiences, students explore their interests, network with professionals, contribute to partner organizations and gain informed appreciation for career options. ▸

Mayo Clinic Graduate School of Biomedical Sciences collaborates with organizations in these industries to offer internships:

- Biotechnology/pharmaceutical research
- Entrepreneurship
- Intellectual property management
- Science education
- Science policy
- Science/research communication

Career Development Internships were the brainchild of **Louis "Jim" Maher III, Ph. D.** (BIOC '95), Department of Biochemistry and Molecular Biology at Mayo Clinic in Rochester, the Bernard Pollack Professor and former dean of the graduate school; and **Diane Jelinek, Ph.D.** (IMM '91), dean of Research at Mayo Clinic in Arizona, the Gene and Mary Lou Kurtz Professor of Multiple Myeloma Research and former dean of the graduate school.

Stephen Ekker, Ph.D., dean, Mayo Clinic Graduate School of Biomedical Sciences; and Louis "Jim" Maher III, Ph.D., former dean.

"In the past, if a Ph.D. graduate worked outside of academia, it was considered an alternative career. That's an outdated assumption."

– Louis "Jim" Maher III, Ph. D.

"Only 12% of Ph.D. graduates nationwide secure positions in academia," says Dr. Maher. "In the past, if a Ph.D. graduate worked outside of academia, it was considered an alternative career. That's an outdated assumption. Today, we encourage students to embed at other organizations to explore alternatives, broaden their horizons and seed Ph.D.s in other industries to meet the demand for biomedical advances. Career Development Internships are an important way we support our graduate school students."

Have internship/ mentoring opportunities for Ph.D. students? Contact **mayoalumni @mayo.edu**, and indicate Career Development Internship in subject line.

Since the Career Development Internship program was established in 2012, 53 students have participated.

Mayo Clinic Graduate School of Biomedical Sciences Dean **Stephen Ekker, Ph.D.** (BIOC '07), says he hopes to build a rich alumni network for graduate students and to tap into that network for CDI opportunities for current students. "The impact of our non-research Ph.D. alumni is extraordinary. They lead research programs at companies large and small — from major pharmaceutical to start-up companies — and work at regulatory and policy organizations. They're involved in new products such as mRNA vaccines and gene and cell therapies. It's critical to expose our future leaders to new professional opportunities — especially those outside of traditional research labs."

Luz Cumba Garcia, Ph.D., is using her scientific background to specialize in public policy and advocacy at a government relations firm in Washington, D.C.

SCIENTIST INFORMS POLICY MAKERS

Luz Cumba Garcia, Ph.D. (IMM '21), participated in a science education Career Development Internship in 2017, attending the StratCan Interactive Summer School on Cancer Genomics at Karolinska Institutet in Stockholm, Sweden — the country's largest center of medical academic research — and High Throughput Biology meeting at the Nobel Forum in Stockholm. The program provided a comprehensive overview of cancer genomics and opportunities to present original work and interact with world-leading professors in research. The experience was directly related to Dr. Cumba Garcia's thesis, "Plasma-derived Extracellular Vesicles as Biomarkers for Diagnosis and Monitoring of Gliomas."

"I appreciated learning from other researchers' investigations and techniques," she says.

Dr. Cumba Garcia is now employed with Lewis-Burke Associates, a Washington, D.C.-based government relations firm, where she specializes in public policy and advocacy for the National Institutes of Health and other Department of Health and Human Services agencies.

"I never considered a career in academia," says Dr. Cumba Garcia. "I'm very much a people person and knew I wouldn't be fulfilled staying in a lab doing research. While pursuing my Ph.D., I participated in external courses and conferences in science policy. I noticed an opportunity to be a scientist who informs policy makers. In my new position, I'll work with academic and research institution clients and serve as the link between them and the NIH — advising which legislation can be supported and where money can be allocated."

While at Mayo Clinic during the pandemic, Dr. Cumba Garcia did a project on vaccine hesitancy in minority communities and wrote two articles about vaccine immunology for a newspaper in Puerto Rico, where she's from. That led to numerous interviews with Spanish-language newspapers and radio and TV stations.

"People were receptive to my message, in part, because I speak their language," she says. "It's important, especially during a crisis such as the pandemic, for scientists to speak to the public in a way they can understand." ▸

LAWYER-TO-BE USES SCIENCE BACKGROUND TO PROTECT TECHNOLOGY

As a child, **Erin Higgins, Ph.D.** (MPET '19), told everyone she wanted to be a lawyer. However, during high school, she realized a love of science and chose to pursue a bachelor's degree in neuroscience at the University of Minnesota in Minneapolis.

"I didn't exactly have my career path planned out," she says. "But my interest in science and desire to continue exploring led me to Mayo Clinic Graduate School of Biomedical Sciences in the Molecular Pharmacology and Experimental Therapeutics track."

Dr. Higgins says she always knew she didn't want to be a bench scientist for life. She thought she might pursue a career in industry — perhaps a pharmaceutical company. When the principal investigator she worked with in the graduate school mentioned Mayo Clinic Ventures, Dr. Higgins did a little research to learn about its capabilities — propelling invention ideas via technology development, intellectual property protection and commercialization. Mayo Clinic Graduate School of Biomedical Sciences offers Career Development Internship opportunities with Mayo Clinic Ventures, which appealed to Dr. Higgins' interests. During summer 2018, she got a crash course in technology transfer and how Mayo Clinic Ventures advances discoveries to benefit patients.

"Prior to the internship, I didn't know about technology transfer or patent law. I was thrilled to learn I could be a scientist and still go into law — my childhood dream. It didn't have to be two separate career paths."

– Erin Higgins, Ph.D.

After completing her Ph.D., Dr. Higgins continued her work with Mayo Clinic Ventures through a two-year postdoctoral fellowship.

"The CDI introduced me to technology transfer and Mayo Clinic Ventures and put me on my career path," she says. Dr. Higgins started at the University of

Erin Higgins, Ph.D., enrolled in law school to specialize in patent and intellectual property law in the life sciences, using her training to protect technology.

Pennsylvania Carey Law School in Philadelphia in the fall. She plans to specialize in patent and intellectual property law in the life sciences, using her background in science to protect technology.

"Prior to the internship, I didn't know about technology transfer or patent law. I was thrilled to learn I could be a scientist and still go into law. It didn't have to be two separate career paths. This is exactly what I want to do."

TECHNOLOGY TRANSFER DIRECTOR LEADS U OF A INTELLECTUAL PROPERTY PIPELINE

While student teaching, **David Hinton, Ph.D.** (NBD '16), realized that instructing high school students in Spanish language wasn't for him. The Rochester native got a job as a laboratory support assistant at Mayo Clinic and worked his way up to be a lab technician. During five years in that role, he completed the prerequisite courses to apply for the Ph.D. program.

As a Mayo Clinic Graduate School of Biomedical Sciences student, Dr. Hinton worked with **Doo-Sup Choi, Ph.D.** (MPET '05), Department of Molecular Pharmacology and Experimental Therapeutics; and **Mark Frye, M.D.** (P '06), Department of Psychiatry and Psychology and the Stephen and Shelley Jackson Family Professor of Individualized Medicine, to develop a biomarker assay to predict treatment efficacy of alcoholism and addiction treatment.

A conversation with the graduate school's associate dean of Academic Affairs, **Bruce Horazdovsky, Ph.D.** (MBIO '02), about the business side of science led to the suggestion that Dr. Hinton explore internship possibilities with the Mayo Clinic Business Accelerator. Located in downtown Rochester, the Business Accelerator brings together entrepreneurs, investors and advisers to support new ventures. Dr. Hinton cold-called the Business Accelerator and scored its first internship for a Mayo Clinic Ph.D. student.

During that Career Development Internship, Dr. Hinton conducted market analysis and business model development for entrepreneurs in the Business Accelerator. A subsequent CDI with Mayo Clinic Ventures involved facilitating technology transfer interactions between Mayo Clinic physician-scientists and a business incubator in Israel.

David Hinton, Ph.D., parlayed his training into the business side of science. He's now acting executive director of the University of Arkansas Technology Ventures and interim director of the Arkansas Research and Technology Park.

Dr. Hinton's CDIs paid off. He was hired by the University of South Alabama in Mobile as a licensing and marketing associate. "They told me the differentiator that got me the job was my Ph.D. internship experiences," he says. After that, Dr. Hinton was off to the races, completing an M.B.A. and being recruited to the University of Arkansas Technology Ventures in Fayetteville. Hired as an associate director, he is now acting executive director and interim director of the Arkansas Research and Technology Park. He's been charged with accelerating the process of transferring innovative solutions outside the walls of the university and into the marketplace. Dr. Hinton also is an adjunct professor of new venture development, teaching graduate students.

"The Career Development Internships at Mayo Clinic Graduate School of Biomedical Sciences were a fantastic experience," says Dr. Hinton. "They helped me grow personally and professionally. They should almost be a required part of the Ph.D. program. I wouldn't be where I am without them." •

"The Career Development Internships at Mayo Clinic Graduate School of Biomedical Sciences were a fantastic experience. They helped me grow personally and professionally. They should almost be a required part of the Ph.D. program. I wouldn't be where I am without them."

–David Hinton, Ph.D.

Mayo Clinic Distinguished Alumni Award

HONORING EXCELLENCE IN PATIENT CARE, RESEARCH & EDUCATION

The Mayo Clinic Board of Trustees established the Mayo Clinic Distinguished Alumni Award in 1981 to acknowledge and show appreciation for the exceptional contributions of Mayo alumni to medicine, including practice, research, education and administration. Individuals who have received the award have been recognized nationally and often internationally in their fields.

John Burnett Jr., M.D.

Department of Cardiovascular Medicine

Marriott Family Professor of Cardiovascular Research

Mayo Clinic

Rochester, Minnesota

Mayo Clinic in Rochester: Joined staff, 1982; consultant, Department of Cardiovascular Medicine, 1982–present; director, Cardiorenal Research Laboratory, 1987–present; consultant, Department of Physiology and Biomedical Engineering, 1982–present; chair for Research, Division of Cardiovascular Diseases, 1988–1997; professor of medicine and physiology, 1993–present; director for Research, 1999–2004; Mayo Clinic Distinguished Investigator, 2007–present; Marriott Family Professor of Cardiovascular Research, 2007–present

Fellowship: Cardiology and nephrology research, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota

Residency: Internal medicine, Mayo Clinic School of Graduate Medical Education

Internship: Internal medicine, Mayo Clinic School of Graduate Medical Education

Medical school: Loyola University Chicago Stritch School of Medicine, Chicago, Illinois

Undergraduate: University of Illinois at Urbana-Champaign

Native of: Kankakee, Illinois

TRANSLATIONAL RESEARCH LEADER

John Burnett Jr., M.D. (I '78, CV '82), has led translational research efforts in cardiovascular diseases at Mayo Clinic, from unmet needs of the patient back to the translation and basic science understanding of the mechanism and back to the patient with clinical trials. Dr. Burnett took translation to a higher level by adding entrepreneurship. Together with Mayo Clinic Ventures, he created several companies based on his inventions and discoveries — all built around engineering of novel peptides from the heart. Dr. Burnett is a consultant in the Division of Circulatory Failure, Department of Cardiovascular Medicine at Mayo Clinic in Rochester, with a joint appointment in the Department of Physiology and Biomedical Engineering. He is director of the Mayo Clinic Cardiorenal Research Laboratory and chair of the Cardiovascular Research Center Scientific Advisory Board. He also served at Mayo Clinic as chair of Research for the Division of Cardiovascular Medicine, director of the NIH Cardiovascular Research Training Program and director for Research. Dr. Burnett studies the endocrine role of the heart in cardiorenal homeostasis with a focus on the cardiac natriuretic peptides in heart failure, hypertension and metabolic disease. The long-term goal of his work is the engineering and clinical development of novel designer natriuretic peptides to treat human cardiovascular disease, including the development of innovative natriuretic peptide-based diagnostics. With continuous funding from the NIH since 1986, Dr. Burnett and his team have developed three novel designer peptides now in clinical trials targeting heart failure and resistant hypertension. This work has resulted in 29 U.S. patents and five new biotechnology companies. His awards include election to the American Society for Clinical Investigation and Association of American Physicians, and the 2020 Lifetime Achievement Award from the Heart Failure Society of America.

MAYO CLINIC

Distinguished Alumni Award

Christopher Chute, M.D., Dr.P.H.

Bloomberg Distinguished Professor of Health Informatics

Johns Hopkins University

Emeritus professor of biomedical informatics

Mayo Clinic College of Medicine and Science

Baltimore, Maryland

Mayo Clinic in Rochester: Joined staff, 1988; director, Mayo Clinic Cancer Registry, 1988–2001; chair, Division of Biomedical Informatics, Department of Health Sciences Research, 1989–2008; consultant, Department of Health Sciences Research, 1991–2014; professor of medical informatics, 1998–2014; section head, Clinical Informatics, Division of Biomedical Statistics and Information, 2008–2014; professor emeritus, biomedical informatics, 2014–present

Postgraduate: Doctorate in public health, Harvard University, Boston, Massachusetts

Residency: Internal medicine, Dartmouth College, Hitchcock Medical Center, Hanover, New Hampshire

Postgraduate: Master's in public health, Harvard University

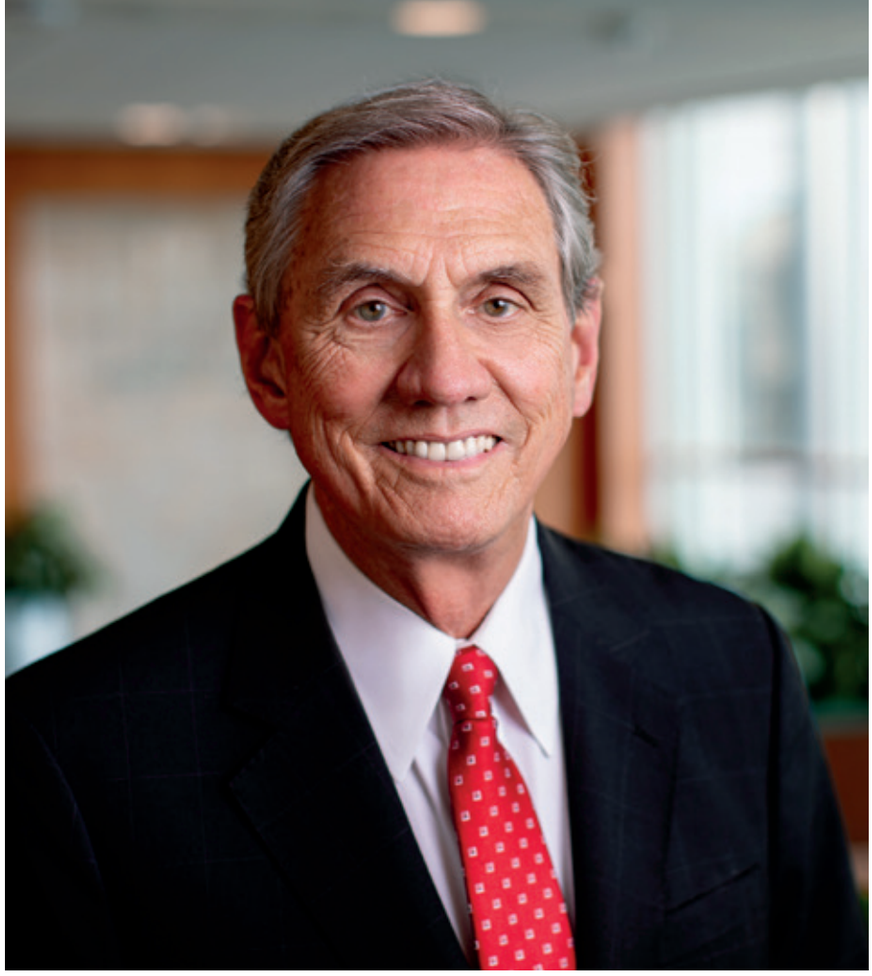
Medical school: Warren Alpert Medical School of Brown University, Providence, Rhode Island

Undergraduate: Brown University

Native of: Hartford, Connecticut

VISIONARY IN BIOMEDICAL INFORMATICS

Christopher Chute, M.D., Dr.P.H. (EPID '88), is a pioneer and recognized leader in biomedical informatics who has had an enormous impact in health care digital transformation. His visionary contributions have made biomedical data science and health care artificial intelligence (AI) possible. Dr. Chute has been persistent in his efforts to ensure consistency and comparability around clinical data to ensure interpretable analyses, or interoperability. Throughout his career, he has promoted practical information standards and practices and freely available health information technology standards. His most impactful achievement was transforming the International Classification of Diseases at the World Health Organization (WHO) from an archaic tabular artifact into a modern data science resource for disease classification and naming. Dr. Chute is a founder of the International Academy of Health Sciences Informatics, led the WHO Revision Steering Group to create ICD-11 and served as president of the American College of Medical Informatics. A member of the Mayo Clinic Emeriti Staff, Dr. Chute also is a professor of medicine, health informatics, and health policy and management at Johns Hopkins, as well as chief research information officer, and deputy director of the Institute for Clinical and Translational Research. While at Mayo Clinic, Dr. Chute founded the Mayo Clinic Division of Biomedical Informatics and built it into an international powerhouse of informatics research and application. Dr. Chute has been an outstanding mentor for the next generation of scientists in a discipline that didn't exist when he entered medical school, and he has trained many students and fellows who are now in leadership positions around the world.



Richard Hurt, M.D.

Emeritus professor of medicine

Mayo Clinic College of Medicine and Science

Rochester, Minnesota

Mayo Clinic in Rochester: Joined staff, 1976; consultant, Division of Community Internal Medicine, Department of Medicine, 1976–2014; chair, Division of Community Internal Medicine, 1987–1997; director, Nicotine Dependence Center, 1987–2014; professor of medicine, 1995–2014; emeritus professor of medicine, 2014–present

Residency: Internal medicine, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota

Internship: Medicine, Baptist Memorial Hospital, Memphis, Tennessee

Medical school: University of Louisville, Kentucky

Undergraduate: Murray State University, Murray, Kentucky

Native of: Murray, Kentucky

PREMIER CLINICAL RESEARCHER ON SMOKING AND TOBACCO

Richard Hurt, M.D. (I '76), is an international leader in tobacco-related illness and treatment who has helped to reduce the tobacco addiction epidemic and its impact on patient lives. Dr. Hurt was among those who helped convince Mayo Clinic leaders to eliminate smoking in Mayo facilities in recognition of the effects of secondhand smoke and as a demonstration to patients of the medical consequences of smoking. During Dr. Hurt's time as chair of the Division of Community Internal Medicine, the division's residency program became the first in the U.S. to incorporate counseling and education for smokers in its curriculum. Dr. Hurt contributed seminal works to the literature in the field, including the first clinical trial of bupropion to help smokers quit. His research has included investigating pharmacotherapy for treating smokers with substance use disorders. Dr. Hurt was the first expert witness for the state in the historic 1998 Minnesota Tobacco Trial that resulted in a $6.1 billion settlement. The settlement established the Minnesota Partnership for Action Against Tobacco (MPAAT, now Clearway MN), whose mission was to reduce the toll of tobacco on Minnesotans. Dr. Hurt was the inaugural chair of the MPAAT board. In 1988, Dr. Hurt helped found the Mayo Clinic Nicotine Dependence Center and developed one of the first inpatient treatment programs for severe tobacco dependence. From the opening of the Nicotine Dependence Center through Dr. Hurt's retirement in 2014, the center treated more than 55,000 patients with services ranging from individual counseling to intensive residential treatment. Systematic data collection on treatment outcomes has been a hallmark of this treatment program.

MAYO CLINIC
Distinguished Alumni Award

Atul Malhotra, M.D.

Professor of medicine

University of California San Diego

San Diego, California

Fellowship: Clinical and research, pulmonary/critical care medicine, Harvard Medical School Combined Program: Massachusetts General Hospital, Brigham and Women's Hospital, Beth Israel Deaconess Medical Center and West Roxbury VA Medical Center, Boston, Massachusetts; research, medicine, Harvard Medical School

Residency: Internal medicine, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota

Internship: Transitional, St. Thomas Medical Center, Akron, Ohio

Medical school: University of Alberta, Edmonton, Alberta, Canada

Undergraduate: University of Alberta

Native of: Edmonton, Alberta, Canada

TRAILBLAZER IN PERSONALIZED MEDICINE FOR RESPIRATORY DISEASES

Atul Malhotra, M.D. (I '96), has served as chief of pulmonary and critical care and research chief of pulmonary, critical care, sleep medicine and physiology at the University of California San Diego. He also was clinical chief of sleep medicine at Brigham and Women's Hospital and Harvard Medical School. Dr. Malhotra's career has focused on sleep apnea and the pathogenesis and mechanisms underlying lung injury. His work has led to important insights and blazed a trail to personalized medicine for respiratory diseases including sleep apnea and adult respiratory distress syndrome (ARDS). He pioneered the concept of heterogeneity in obstructive sleep apnea, and his laboratory has defined multiple underlying endotypes and varying phenotypes. His work has changed practice internationally, and he is widely regarded as an authority in his field. Dr. Malhotra has been ranked among the top five physicians globally in areas including obstructive sleep apnea, central sleep apnea, CPAP therapy and respiratory insufficiency. Dr. Malhotra served as president of the American Thoracic Society and, in that capacity, was prominent on the global stage. In this and other leadership positions, he developed young talent that has risen to the top in pulmonary, critical care and sleep medicine and achieved independent NIH funding. Much of the next generation in sleep apnea pathogenesis trained in a Malhotra laboratory. For his education efforts, Dr. Malhotra has won teacher of the year awards from Mayo Clinic, Harvard and the University of California San Diego. He has thrice received the Distinguished Chest Educator award from the American College of Chest Physicians. Dr. Malhotra also received the William C. Dement Lifetime Achievement Award for his research accomplishments from the American Academy of Sleep Medicine.

Francisco Puga, M.D.

Emeritus professor of surgery

Mayo Clinic College of Medicine and Science

San Antonio, Texas

Mayo Clinic in Rochester: Joined staff, 1977; consultant, Division of Thoracic and Cardiovascular Surgery, Department of Surgery, 1977–1999; head, Division of Cardiovascular Surgery, 1987–1992; co–chair/chair, Division of Thoracic and Cardiovascular Surgery, 1992–1999; professor of surgery, 1988–2008; chair, Division of Cardiovascular Surgery, 1999–2001; consultant, Department of Cardiovascular Surgery, 1999–2007; emeritus professor of surgery, 2008–present; retired, 2007

Residency: General surgery, and thoracic and cardiovascular surgery, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota

Internship: American British Cowdray Hospital, Mexico City, Mexico; Stamford Hospital, Stamford, Connecticut

Medical school: Universidad Nacional Autonoma de Mexico, Mexico City

Native of: Mexico City

GO-TO CONGENITAL CARDIOVASCULAR SURGEON FOR INFANTS & CHILDREN

Francisco Puga, M.D. (S '73, TS '75), is on the short list of surgeons who were responsible for the evolution of congenital heart surgery in the U.S. He was an initial member of the Congenital Heart Surgeons' Society and is highly respected by his peers around the world for his technical mastery, dedication to best practices and commitment to patient care. He was the first surgeon to perform a number of procedures in the early era of the specialty — many that are still preferred today. Dr. Puga trained at Mayo Clinic in the early years of congenital cardiac surgery with **Dwight McGoon, M.D.** (TS '56, deceased), **Gordon Danielson, M.D.** (TS '67, deceased), and **Robert Wallace, M.D.** (CS '64, deceased), and then returned to Mexico to work at Instituto Nacional de Cardiologia in Mexico City. Dr. Puga was the top choice of physicians in the Division of Cardiovascular Surgery at Mayo Clinic to recruit when Dr. McGoon's retirement was imminent. Dr. Puga returned to Mayo Clinic and quickly became the go-to congenital cardiovascular surgeon for infants and children. He later chaired the Division of Cardiovascular Surgery and Division of Thoracic and Cardiovascular Surgery. Dr. Puga is credited with establishing the method of surgical management of Fontan patients involving the total caval pulmonary artery shunt. Countless infants at Mayo Clinic benefited from his surgical expertise in the management of patients with transposition of the great arteries, with the arterial switch procedure. He also was recognized worldwide for his management of patients with pulmonary atresia requiring peripheral pulmonary artery unifocalization procedures. Dr. Puga trained numerous residents and fellows, telling them his goal was to make them better than he was.

MAYO CLINIC
Distinguished Alumni Award

Carole Warnes, M.D.

Department of Cardiovascular Medicine

The Penske Foundation Professor of Clinical Medicine in Honor of Ian D. Hay, M.D., Ph.D., and J. Eileen Hay, M.B., Ch.B.

Mayo Clinic

Rochester, Minnesota

Mayo Clinic in Rochester: Joined staff, 1988; director, Adult Congenital Heart Disease Clinic, 1990–2015; consultant, Department of Cardiovascular Medicine, 1990–present; consultant, Division of Pediatric Cardiology, Department of Pediatric and Adolescent Medicine, 1990–present; dean, Mayo Clinic School of Continuous Professional Development, 1997–2007; professor of medicine, 1998–present; consultant, Division of Structural Heart Disease, 2016–present; The Penske Foundation Professor of Clinical Medicine in Honor of Ian D. Hay, M.D., Ph.D., and J. Eileen Hay, M.B., Ch.B., 2018–present

Fellowship: Cardiovascular diseases, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota

Postgraduate: M.D., Newcastle Upon Tyne University, Newcastle Upon Tyne, United Kingdom

Medical school: Newcastle Upon Tyne Medical School

Native of: United Kingdom

PIONEER AT MAYO CLINIC & IN ADULT CONGENITAL CARDIOLOGY

Carole Warnes, M.D. (CV '88), is regarded as the world's most senior spokesperson in adult congenital heart disease, making Mayo Clinic the destination medical and surgical practice for those patients in North America. Dr. Warnes was the first woman consultant in cardiology at Mayo Clinic and first adult congenital subspecialist in the Department of Cardiovascular Medicine. Due in large part to her persistence, vision and mentorship, adult congenital cardiology is now an integral part of Mayo's cardiovascular practice, with specialty clinics on all three campuses. Her leadership in adult congenital heart disease was instrumental in advancing the field to become an ACGME-accredited subspecialty. Dr. Warnes was the first at Mayo to coordinate multidisciplinary care for pregnant patients with cardiovascular disease, and she co-chaired the writing committee for the first-ever guidelines on the care of adults with congenital heart disease. Dr. Warnes has been a leader in cardiovascular medicine at Mayo Clinic and in professional societies nationally and internationally for more than three decades. She has dedicated her entire professional career to her patients and has immeasurably improved their lives. Dr. Warnes has served as program co-director of the Mayo Clinic Cardiovascular Fellowship and Specialty Program and dean of Mayo Clinic School of Continuous Professional Development, and she has been recognized for her educational achievements, including mentoring more than 40 trainees who are today's leaders in adult congenital heart disease. Dr. Warnes' involvement in the American College of Cardiology includes chairing the Women in Cardiology Section, Education Standards and Outcomes Committee, and Accreditation Committee, and serving on the Board of Trustees. Dr. Warnes also served as president of the International Society for Adult Congenital Cardiac Disease.

Mayo Clinic Update

Mayo Clinic & MIT develop paste that stops bleeding in seconds

Mayo Clinic researchers and colleagues at the Massachusetts Institute of Technology (MIT) have developed a rapid-sealing paste that can stop bleeding organs, independent of clotting.

The inspiration for the paste was barnacles — sea animals that adhere to rocks, the bottom of ships and large fish with the aim of staying in place despite wet conditions and variable surfaces. They're successful because they exude a type of oil matrix that cleans the surface and repels moisture. Then they follow up with a protein that cross-links them with the molecules of the surface. That two-step process is what happens when the new sealing paste is applied to organs or tissues.

Traditionally, to stop bleeding, surgeons use a material that speeds coagulation and forms a clot. In the fastest cases, that takes several minutes. In preclinical studies, the Mayo–MIT research team has shown the paste to stop bleeding in as little as 15 seconds, even before clotting has begun.

"Our data shows how the paste achieves rapid hemostasis in a coagulation-independent fashion. The resulting tissue seal can withstand even high arterial pressures," says **Christoph Nabzdyk, M.D.** (ANES '18), Department of Anesthesiology and Perioperative Medicine at Mayo Clinic in Rochester and co-senior lead author of the study. "We think the paste may be useful in stemming severe bleeding, including in internal organs, and in patients with clotting disorders or on blood thinners. The paste also might be useful in caring for military and civilian trauma victims."

The paste is comprised of an injectable material that consists of a water-repelling oil matrix and bioadhesive microparticles. The microparticles link to each other and the surface of the tissue after the oil provides a clean place to connect. The biomaterial slowly resorbs over weeks.

Mayo Clinic to expand proton beam therapy services

Mayo Clinic announced a 110,000-square-foot, $200 million expansion to the Mayo Clinic Proton Beam Therapy Program in Rochester, Minnesota. The expanded facility will open in 2025 with two more treatment rooms to complement the existing four.

"Proton radiotherapy has provided a major technological advancement in the treatment of cancer, allowing for powerful radiation therapy to precisely target cancer in a manner superior to traditional radiation therapy," says **Nadia Laack, M.D.** (RADO '06), chair, Department of Radiation Oncology at Mayo Clinic in Rochester.

Mayo Clinic's Proton Beam Therapy Program uses pencil beam scanning to deliver precise radiotherapy to cancerous tissue and lower doses of radiation to healthy tissue, reducing toxicity and negative side effects. Dr. Laack says this highly targeted therapy is ideal for people with tumors located near or in vital organs.

"Mayo Clinic Cancer Center is thrilled by the institutional support for this essential expansion of our Proton Beam Therapy Program. As the world leader in proton beam radiation therapy and new particle radiation therapies under development, we are committed to providing the most advanced cancer care to the patients we serve," says **Cheryl Willman, M.D.** (MED '81, PATH '81), executive director, Mayo Clinic Cancer Programs and director of the Mayo Clinic Comprehensive Cancer Center.

Nadia Laack, M.D., with a pediatric patient in the Proton Beam Therapy Program at Mayo Clinic in Rochester.

Mayo Clinic Cancer Center is the only three-site Comprehensive Cancer Center designated by the National Cancer Institute. The proton beam facilities at Mayo Clinic in Rochester and Arizona each house their own particle accelerator that drives protons to almost the speed of light before delivering therapeutic radiation to a patient's tumor. Plans are underway for Mayo Clinic in Florida to add a facility for proton beam therapy and carbon ion therapy. Proton beam therapy will be available on the Florida campus in early 2026. Mayo Clinic in Florida will be the first carbon ion treatment facility in North America, and it will open in 2027.

Mayo Clinic awards named professorships

Mayo Clinic awarded named professorships — the highest academic distinction at Mayo Clinic.

Matthew M. Clark, Ph.D. (PSI '98)

David H. Murdock–Dole Food Company Professor of Nutrition

Department of Psychiatry and Psychology

Mayo Clinic in Rochester

Leslie Cooper, M.D. (CVVM '97)

Elizabeth C. Lane, Ph.D., and M. Nadine Zimmerman, Ph.D., Professor of Internal Medicine

Chair, Department of Cardiovascular Medicine

Mayo Clinic in Florida

R. Jeffrey Karnes, M.D. (U '03)

Dr. Anson L. Clark Professor of Urology

Chair, Division of Community Urology

Department of Urology

Mayo Clinic in Rochester

Mayo Clinic physicians recognized by Association of American Medical Colleges

Mayo Clinic physicians **Judith Kaur, M.D.** (ONCL '94), Division of Hematology and Medical Oncology, Mayo Clinic in Florida; and **Thomas Viggiano, M.D.** (GI '80), Division of Gastroenterology and Hepatology, Mayo Clinic in Rochester and a Barbara Woodward Lips Professor, were recognized by the Association of American Medical Colleges with 2021 awards. The awards honor individuals and institutions making significant contributions to medical education, research, clinical care and community engagement.

Dr. Kaur received the Herbert W. Nickens Award for outstanding contributions to promoting justice in medical education and health care equity. As one of the only practicing Native American medical oncologists in the U.S., Dr. Kaur leads a national conversation to recognize cancer as a major unaddressed health disparity in Indigenous communities in the U.S. and internationally.

As medical director for the Native American Programs at the Mayo Clinic Cancer Center, Dr. Kaur is involved in national research and outreach programs to American Indians and Alaska Natives. Dr. Kaur also is a Mayo Clinic Distinguished Alumni Award recipient (2018).

Dr. Viggiano received the inaugural GFA Carole J. Bland Phronesis Award. In roles including emeritus dean of Faculty Affairs in the Mayo Clinic College of Medicine and Science, he has made a significant impact in academic medicine.

For decades, Dr. Viggiano has taught in interprofessional education programs at Mayo Clinic and in international leadership programs. He has served on expert panels and as the physician representative to the Interprofessional Education Collaborative that formulated interprofessional education competencies. He also designed medical school curriculum that improved clinical reasoning skills and understanding of public health and care delivery issues.

Mayo researchers propose gene therapy path for children with fatal genetic disease

A gene therapy strategy developed by Mayo Clinic researchers could offer a treatment for propionic acidemia, a rare and fatal genetic disease that often sickens babies in their first days of life. The disease, which has no cure, occurs in 1 in 100,000 live births in the U.S.

Propionic acidemia is caused by an inherited mutation in the PCCA or PCCB genes, which provide instructions for making the enzyme propionyl-CoA carboxylase. This critical enzyme plays a role in breaking down amino acids, certain lipids and cholesterol. A deficiency in this enzyme leads to a buildup of toxic chemicals.

"As soon as the babies start eating, they quickly get sick," says **Michael Barry, Ph.D.** (INFD '06), Division of Infectious Diseases at Mayo Clinic in Rochester. "They can start vomiting, become lethargic and have seizures. They have metabolic acidosis and hyperammonemia. If they aren't treated, they can die."

In most cases, patients are given a special protein-restricted diet that can limit life-threatening episodes, but this is difficult and doesn't cure the disease. Treatment options are limited and don't provide the quality of life or long-lasting benefits that patients and their families seek. In some cases, a liver transplant is a potential treatment but also has risks.

Dr. Barry and his team have developed a technique to replace the defective genes that cause the disease. "Our approach is to give these patients a good copy of the gene to counteract the disease as best we can," says Dr. Barry, who has devoted 15 years to studying propionic acidemia. "This restores the ability of cells in the body to process these food components and reduce the production of toxic chemicals."

Mayo Clinic School of Graduate Medical Education names first assistant dean for Diversity, Equity and Inclusion

Ivan Porter II, M.D. (I '11, CMR '12, NEPH '14), Division of Nephrology and Hypertension at Mayo Clinic in Florida, is the inaugural Mayo Clinic School of Graduate Medical Education assistant dean for Diversity, Equity and Inclusion.

Dr. Porter is program director of the Preliminary Internal Medicine Residency Program and associate program director of the Internal Medicine Residency Program on the Florida campus, and vice chair of the Division of Nephrology and Hypertension in Florida. He has been recognized for outstanding teaching abilities with Top Teacher Awards in Nephrology and the Mayo Clinic School of Continuous Professional Development Outstanding Faculty Award. Dr. Porter has demonstrated a deep commitment to diversity, equity and inclusion through his work with underserved populations, engagement in pipeline programs, resident and fellow recruitment, and service to his local community. In 2020, he received the 2020 Mayo Clinic Jacksonville Community Service Award.

Mayo Clinic to lead national biorepository for long-term COVID effects research

The National Institutes of Health awarded $40 million to Mayo Clinic to develop a comprehensive biorepository as the source of clinical samples for long COVID research studies. This is part of the NIH's new research initiative, Researching COVID to Enhance Recovery (RECOVER), to understand why some people who were infected with COVID-19 don't fully recover or develop new or returning symptoms after recovery.

The initiative is a national effort to bring together scientists, clinicians, patients and caregivers to take on the long-term effects of COVID-19. Mayo Clinic and its biorepository core joins New York University and its clinical science core, and Massachusetts General Hospital and its data resource core, as the three initiative cores that will provide the study's infrastructure and organizational framework. These cores will build and support the initiative, its participant pool and a team of investigators and ensure that data are standardized and shared among researchers and the public.

"Mayo Clinic is in a unique position to support this very important initiative with its state-of-the-art infrastructure and expertise in biobanking for researchers to tackle the long-term effects of COVID," says **Mine Cicek, Ph.D.** (LABM '05), Division of Experimental Pathology and Laboratory Medicine, director of the Mayo Clinic Biospecimens Accessioning and Processing Core Laboratory at Mayo Clinic in Rochester, and the principal investigator of the award.

Co-principal investigators are **Thomas Flotte, M.D.** (PATH '07), Division of Anatomic Pathology; and **Stephen Thibodeau, Ph.D.** (CLCH '81), Division of Laboratory Genetics and Genomics, the William H. Donner Professor, and the David F. and Margaret T. Grohne Director of the Biorepositories Program in the Mayo Clinic Center for Individualized Medicine.

Mine Cicek, Ph.D.

Thomas Flotte, M.D.

Stephen Thibodeau, Ph.D.

R. Ross Reichard, M.D.

Mayo Clinic also received an award for the Post-Acute Sequelae of SARS-CoV-2 Clinic Studies Recovery Network: Clinical Studies Component for Autopsy-Based Studies, known as PASCnet. This initiative will be led by **R. Ross Reichard, M.D.** (APTH '11), Division of Anatomic Pathology at Mayo Clinic in Rochester, and Mayo Clinic's COVID-19 Task Force.

Mayo researcher finds correlation between uterine microbiome & endometrial cancer

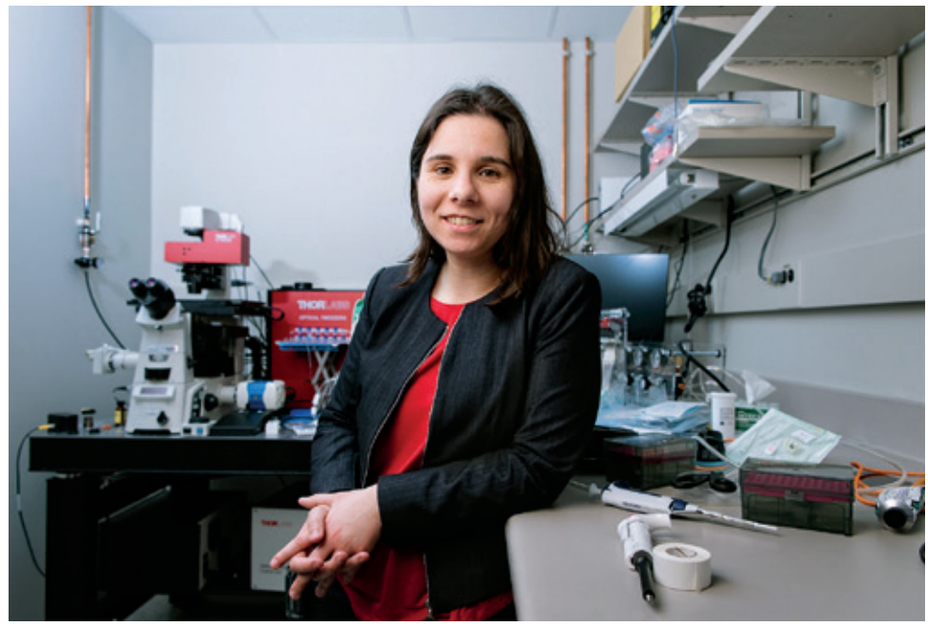
A tiny microbe thriving in the uterine microbiome — a population of bacteria, viruses, yeasts and fungi in and around the uterus — could be a contributing driver of endometrial cancer, according to a Mayo Clinic study.

"We have found that a microbe that's particularly associated with endometrial cancer is capable of pathogenic behavior and is stimulated by one of the main risk factors for the disease — estrogen exposure," says **Marina Walther-Antonio, Ph.D.**, Departments of Surgery and Obstetrics and Gynecology at Mayo Clinic in Rochester and a researcher in the Mayo Clinic Center for Individualized Medicine. She focuses on the human microbiome's role in women's health, particularly gynecologic cancers. "Our discovery advances understanding of this microbe and moves us closer to identifying new therapeutic targets."

The study is the third recent investigation by Dr. Walther-Antonio and her team that links the microbiome to endometrial cancer. Incidence rates of this cancer are expected to rise significantly over the next decade, driven by environmental factors, obesity and diabetes.

For the study, the multidisciplinary team exposed endometrial cancer cells to the microbe *Porphyromonas somerae,* a rod-shaped bacterium almost 1,000 times smaller than a pin. The microbe was initially discovered in chronic bone and tissue wounds of patients with diabetes.

Given the known associations of the microbe's closest relative to oral cancer, the team hypothesized that *P somerae* could invade and play a similar pathogenic role in endometrial cancer via intracellular activity.



"Through lines of investigation including invasion assays, microscopy, genomic and transcriptomic analysis, we verified that the microbe was capable of disease-causing behavior and would indeed invade the cells," says Dr. Walther-Antonio.

She and her team further determined that exposure to estrogen, a risk factor for endometrial cancer, stimulated the growth of the microbe. "This is an interesting observation because high levels of exposure to estrogen, from hormonal therapy or obesity, are associated with the development of endometrial cancer."

In another key discovery, the team determined that the microbe can produce significant amounts of a chemical compound called succinate. When in excess in host cells, succinate can interfere with normal cellular functioning and accelerate cancer-causing pathways.

What surprised the team was that any level of estrogen exposure could act as a stimulant.

"We thought that exposure to increasing levels of estrogen would accentuate invasive behavior and production of succinate," says Dr. Walther-Antonio. "What we found instead was that any level of estrogen exposure acts as a stimulant for the bacterial growth and production of succinate. This finding suggests that even low estrogen levels stimulate pathogenic behavior."

Dr. Walther-Antonio says her overall goal is to use microbiome signatures to predict the development of malignancy and intervene before it materializes. "We have moved beyond simple association and correlation and into proof of pathogenic behavior. This is a significant leap toward understanding the role of the microbe in the disease and places us one step closer to being able to help our patients."

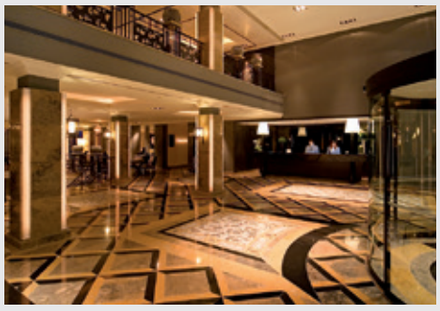
SAVE THE DATE

SEPT. 15–17

2022 Mayo Clinic Alumni Association International Meeting

Following the Mayo brothers' tradition, this meeting combines focused learning on current topics in medicine and science with leisure time among colleagues in settings that foster innovative thinking.

Lisbon, Portugal, a city that has seamlessly blended heritage, modernism and progressive thinking, is considered one of the most vibrant and exciting destinations in Europe. Join us and connect with alumni from all over the world while enjoying a wide-ranging program that leaves plenty of free time to explore all that Lisbon offers.



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Obituaries

Walter Benedict, M.D. (OPH '52), died Oct. 20, 2012.

Patrick Forrest, M.D. (PHYS '53), died Aug. 7, 2021.

Edward Funk, M.D., D.M.D. (OMS '55), died June 29, 2021.

Guy Haywood, M.D. (I '42, S '44), died Oct. 2, 2004.

Conrad Larson, M.D. (I '74), died March 31, 2017.

William McCann, M.D. (I '70, CV '72), died June 7, 2021.

Thomas (T.J.) Miller, M.D. (OR '60, OPH '63), died Aug. 26, 2018.

Milan Packovich, M.D. (I '64, A '65), died April 19, 2019.

Patrick Ragen, M.D. (I '59), died Jan. 22, 2021.

William Reynolds, M.D. (I '62), died Aug. 5, 2021.

James Siepmann, M.D. (MED '86, FM '89), died Dec. 22, 2019.

Mehmet Tirnaksiz, M.D. (S '97, TSG '01), died Sept. 19, 2021.

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If you don't yet have an online profile, email **mayoalumni@mayo.edu** or call 507-284-2317 to update your contact information.

About the magazine

Mayo Clinic Alumni magazine is published quarterly and mailed free of charge to physicians, scientists and medical educators who studied and/or trained at Mayo Clinic, and to Mayo consulting staff. The magazine reports on Mayo Clinic alumni, staff and students, and informs readers about newsworthy activities at Mayo Clinic.

Please send correspondence and address changes to:
Mayo Clinic Alumni Center
Siebens 5-33, Mayo Clinic
200 First Street SW
Rochester, MN 55905
mayoalumni@mayo.edu
507-284-2317
Fax 507-538-7442

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200 First Street SW
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"Constellation Earth" on Mayo Clinic's Rochester, Minnesota, campus is one of a number of castings of a bronze sculpture by Paul Granlund (1925–2003). The original is in Nagasaki, Japan. The sculpture features seven human figures meant to represent Earth's continents.

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Get Mayo Clinic Proceedings online

Karl Nath, M.D. (NEPH '96), editor-in-chief of Mayo Clinic Proceedings and the Robert Joseph Patnode Professor of Nephrology, provides an Editor's Choice video summary of key articles in each issue.

Mayo Clinic Proceedings, a monthly peer-reviewed medical journal, has moved to an online-only format. Mayo Clinic alumni have free access to the publication, courtesy of the Alumni Association.

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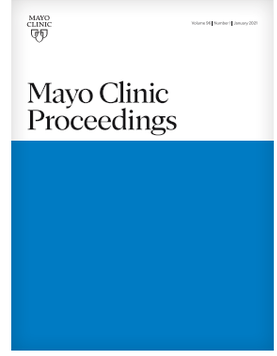
- Under Resources, select Mayo Clinic Proceedings.



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