

ALUMNI

MAYO CLINIC ISSUE 1 2020



WHOLE-PERSON
CARE

CARDIO-ONCOLOGY
EMERGES

STETHOSCOPE
GIFTS

LETTER FROM THE SECRETARY-TREASURER

I'm delighted to address you for the first time as secretary-treasurer of the Alumni Association. In succeeding Peter Amadio, M.D. (OR '83), I have big shoes to fill and benefited from his mentorship in the past few months. I look forward to being formally involved in the Alumni Association. I have been fortunate to spend my entire career at Mayo Clinic, where I gained my professional footing and chose to dedicate myself to patient care, education and research.

This issue of Mayo Clinic Alumni illustrates diagnostic expertise for patients with medical mysteries. As a specialist who sees patients receiving parenteral or enteral nutrition, I'm often impressed by how we collaborate to find the answers that have eluded patients for so long. And, importantly, Mayo Clinic does this in such a timely, efficient way that patients and their referring physicians often are astounded. Putting the needs of patients first involves not only accurate diagnosis but also respect for their time and resources. Please take the time to read the profiles of the four outstanding practice areas featured in this issue.

Also included in this issue is a Women's History Month story featuring six of Mayo Clinic's early women physicians and scientists. I'm humbled and inspired by the determination and fortitude of these women who paved the way for the more than 10,000 living women alumni around the world.



M. MOLLY MCMAHON, M.D. (ENDO '87)

- Secretary-Treasurer, Mayo Clinic Alumni Association
- Division of Endocrinology, Diabetes, Metabolism, and Nutrition
- Mayo Clinic in Rochester

I encourage you to register for the September Alumni Association International Meeting in Lisbon, Portugal. It's an opportunity to renew your Mayo Clinic connections and learn and relax in a beautiful setting. I hope to see you there.

Sincerely,

MOLLY MCMAHON

TABLE OF CONTENTS



FEATURES

2 **Whole-person care — A Mayo Clinic distinction**

From its earliest days, Mayo Clinic has been known for whole-person care that involves physicians in various disciplines putting their heads together to solve difficult cases and address all of a patient's needs.

4 **Consultative Medicine Clinic — The front door for adult patients with complex & serious illnesses**

10 **Pediatric Diagnostic and Referral Clinic — A harbor for pediatric patients with complex illnesses**

16 **Multidisciplinary Breast Clinic — This is not your mother's Breast Clinic**

21 **Preparing fellows for frozen section practice**

22 **Cardio-oncology — A marriage of cardiology & oncology**

27 **On the shoulders of giants**

Brenda Banwell, M.D., on training with Andrew Engel, M.D.

28 **Women's History Month**

A look at some of Mayo Clinic's early women physicians & scientists

30 **Stethoscope gifts endear alumni to medical students**

32 **Graduate school symposium celebrates student research**

34 **Know your Board**

Amado Baez, M.D., and Sean Dinneen, M.D.

38 **2020 Mayo Clinic Alumni Association International Meeting**

40 **Mayo Clinic Update**

Mayo Clinic news, obituaries

About the cover: Due to the diligence of the disease detectives in the Mayo Clinic Pediatric Diagnostic and Referral Clinic and medical genetics staff, Keiko Hirano was found to have a pathogenic genetic variant that hasn't been associated with a specific disease until now. An international consortium is studying the genetic disease. And Keiko's parents are glad to have some clues to her medical mystery.

Correction: In the last issue, we misspelled German journalist Paul Hornung's name. We regret the error.



From its earliest days, Mayo Clinic has been known for whole-person care that involves physicians in various disciplines putting their heads together to solve difficult cases and address all of a patient's needs.

"A patient isn't just a symptom," says Charles (Michel) Harper Jr., M.D. (I '83, N '86), Department of Neurology and former executive dean for Mayo Clinic Practice. "The typical Mayo Clinic patient has complex medical concerns, requiring a team of experts who tailor their collective medical knowledge for the benefit of the patient. Because we put the needs of the patient first, we do more and we allow the time to do it — from addressing mental health needs that result from serious illness to providing support for cancer survivors and parents of sick children. That is truly integrated, whole-person care."

Divisions and departments across Mayo Clinic practice whole-person care. This issue of Mayo Clinic Alumni magazine focuses on four:

- Division of General Internal Medicine's Consultative Medicine Clinic — the front door for adult patients from around the country who have complex and serious illnesses
- Division of General Pediatric and Adolescent Medicine's Pediatric Diagnostic and Referral Clinic — a harbor for pediatric patients with complex illnesses



Charles (Michel) Harper Jr., M.D.

- Division of General Internal Medicine's Breast Clinic — an internist-led multidisciplinary practice for increasingly complicated breast cancer care
- Department of Cardiovascular Medicine's cardio-oncology practice — formal collaboration between cardiology and hematology/oncology to prevent, monitor and manage cardiovascular toxicity from cancer treatment

“ One must remember always that when people are sick, they and their families will probably be more controlled by emotion than by intellect, and the art of the practice of medicine is to understand these emotions as well as to do the necessary material things for their welfare.”

– William J. Mayo, M.D., 1930

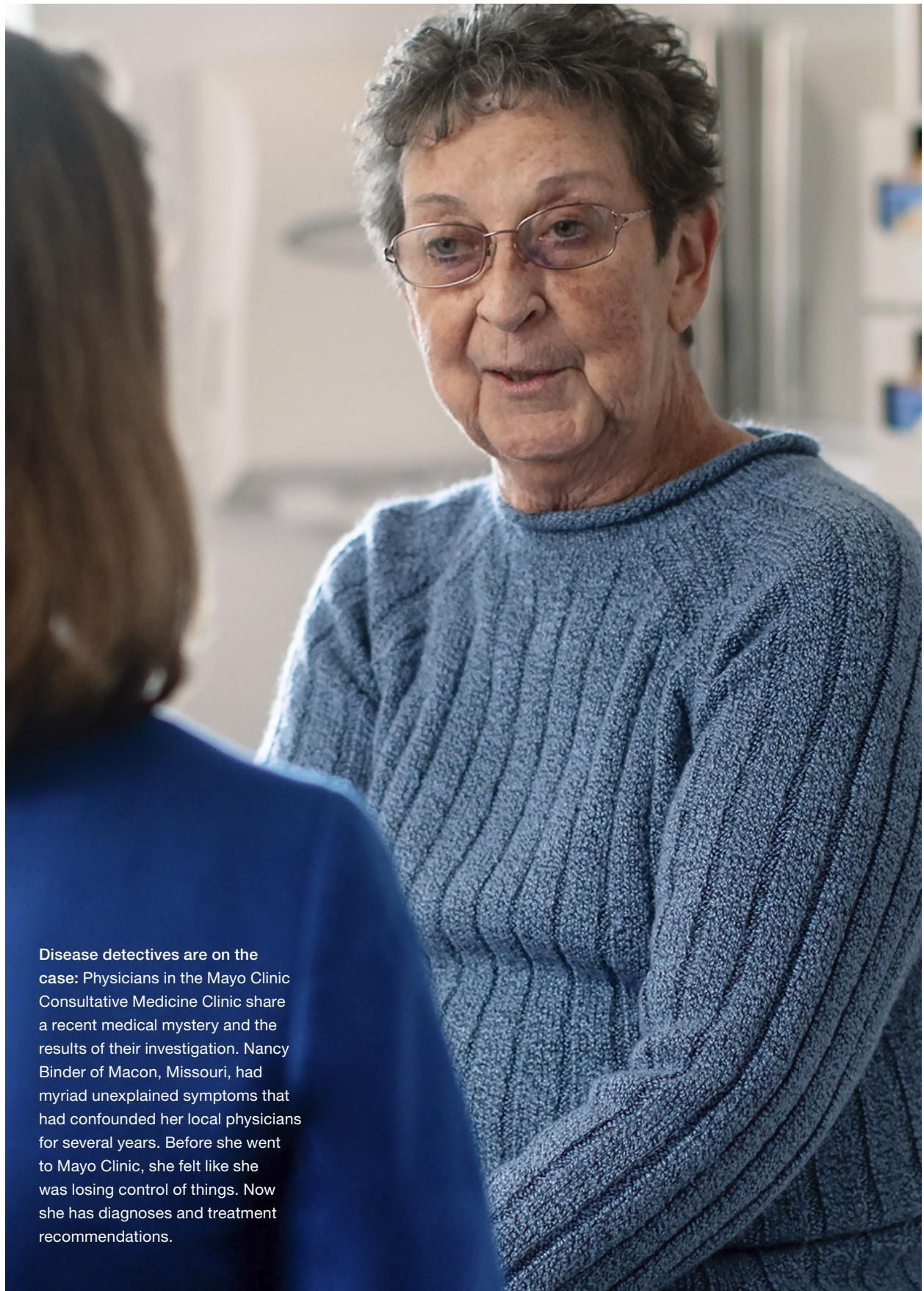


THE FRONT DOOR FOR ADULT PATIENTS WITH COMPLEX & SERIOUS ILLNESSES



Every day the door to the Division of General Internal Medicine's Consultative Medicine Clinic at Mayo Clinic in Rochester opens, and patients from around the country with complex and serious illnesses enter. More than 8,000 of them per year are seen for unexplained masses and weight loss, undiagnosed rheumatologic and neurologic disorders, and medical mysteries that have been unsatisfactorily explored at other medical centers.

Comparable clinics at Mayo Clinic in Arizona and Florida see 1,780 and 3,100 patients annually, respectively.



Disease detectives are on the case: Physicians in the Mayo Clinic Consultative Medicine Clinic share a recent medical mystery and the results of their investigation. Nancy Binder of Macon, Missouri, had myriad unexplained symptoms that had confounded her local physicians for several years. Before she went to Mayo Clinic, she felt like she was losing control of things. Now she has diagnoses and treatment recommendations.

Considerable work is done in advance of these visits by a team of internists — disease detectives. Nerissa Collins, M.D. (I '10), Division of General Internal Medicine and director of the Consultative Medicine Clinic at Mayo Clinic in Rochester, is one of these detectives.

“Most internists at academic medical institutions have strong investigative skills,” says Dr. Collins. “Our patients typically have more than three medical issues and have had numerous tests and consultations elsewhere. We review the information they provide before their visit and determine the tests they need and specialists they should see, with a goal of providing patients with the most efficient use of their time at the clinic.”

Upon arrival, patients see an internist in the clinic for a medical history, review of records and physical examination. They’re provided with an itinerary of specialist consultations, laboratory tests, imaging and procedures. On average, patients are at Mayo Clinic for five to seven days. Their time at Mayo Clinic concludes with another meeting with the internist and discussion of the conclusions about their condition — a diagnosis and treatment recommendation. When appropriate, patients are referred back to their local physicians for treatment and ongoing management of their care.

How does the Consultative Medicine Clinic succeed in this effort when other institutions have not? Dr. Collins says time is a big factor. “At Mayo Clinic we’re given adequate time to spend with each patient to acquire their history of illness, perform a thorough examination and determine the elements we think are essential to arrive at a conclusive diagnosis. It helps to have specialists under the same roof and trained in the

Mayo culture of picking up the phone and talking to each other about cases. Patients spend their valuable time and money to come to Mayo Clinic for our expertise. We want to provide them with answers as efficiently and thoroughly as we can so they can return home and to their families with answers to their medical mysteries.

“Patients tell us they’ve never had physicians spend so much time with them or experienced this degree of collegiality across an institution. They say they feel truly cared for, which affirms to us that we’re doing the right things.” ▲



Nerissa Collins, M.D. (I '10), Division of General Internal Medicine, is director of the Consultative Medicine Clinic at Mayo Clinic in Rochester.

“Above all things, let me urge upon you the absolute necessity of careful examinations for the purpose of diagnosis. ... Say to yourselves that you will not jump to a conclusion, but in each instance will make a thorough and painstaking physical examination, free from prejudice, and your success is assured. Do this in every case. The mental effect on the patient is good, the practical knowledge to yourself is better, and if you avail yourselves of all the means of physical diagnosis and repeated examinations, the number of unsolved cases will be surprisingly small.”

— William J. Mayo, M.D., 1895



Elizabeth Windgassen, M.D. (I '95, ADGM '96), Division of General Internal Medicine, oversees the Consultative Medicine Section on the Arizona campus.



Nancy Dawson, M.D. (I '03, ADGM '04), Division of Hospital Internal Medicine, oversees Consultative and Diagnostic Medicine on the Florida campus.

Show-me state patient gets long-sought diagnosis

For several years Nancy Binder of Macon, Missouri, had a plethora of unexplained symptoms: swelling and tingling of her feet and lower legs, skin blistering, facial puffiness, hair loss, weight gain of 40 pounds, an increase in abdominal girth, belly hardening, sensitivity to touch, and purpura. Her local physicians detected a mass on an adrenal gland but determined it wasn't cancerous and didn't pursue further testing.

Binder had been active in country line dancing but had to give it up when the swelling in her lower extremities proved too painful and affected her balance. "It was upsetting not to do what I enjoyed so much," says Binder. "I had to sit on the sidelines and watch my friends dance. By not being active anymore, I became weaker. I fell a couple of times and couldn't get up. I felt like I was losing control of things."

Various people in her community mentioned to Binder that she needed to go to Mayo Clinic. When those voices got louder and included local physicians, Binder and her daughter, Loree Jefferson, made the six-hour trip to Rochester, Minnesota.

Binder saw Susan Romanski, M.D. (MED '92, I '95, ENDO '99), in Mayo's Consultative Medicine Clinic. In reviewing the information Binder provided

before her visit, Dr. Romanski suspected Cushing's syndrome, which occurs when an adrenal gland tumor produces excess cortisol. The in-person medical history and physical exam were consistent with the suspected diagnosis. Dr. Romanski had scheduled Binder for a consultation with an endocrinologist and biochemical testing to check her cortisol level, in addition to a handful of other specialists.

Binder had other concerns, including her memory. She didn't think it was as sharp as it had been. Dr. Romanski scheduled more tests, including a head MRI and neuropsychometric testing.

By the time Binder circled back with the Consultative Medicine Clinic three days later, Dr. Romanski had reviewed test results and specialist notes and confirmed the Cushing's syndrome diagnosis. Endocrinologist Caroline Davidge-Pitts, M.B., B.Ch. (I '11, ENDO '14), and Dr. Romanski recommended Binder have a laparoscopic adrenalectomy to remove the affected gland.

The recommended course of action for Binder was complicated because the MRI revealed an indeterminate mass in her brain that required

“ I like that all the doctors talk to each other and have access to my medical records. They were very interested in my problem and cared about helping me.” — Nancy Binder



Nancy Binder is eager to get her illness under control so she can return to doing the things she loves.

further consultation. Binder met with neurologist Ivan Carabenciov, M.D. (I '15, N '18, NONC '20), and neurosurgeon Giuseppe Lanzino, M.D. (NS '08), to discuss options for diagnosis and treatment. Together, the physicians, Jefferson and Binder decided to treat the Cushing's syndrome first, allow Binder time to recover and then re-evaluate the brain lesion.

"The collaboration between teams in Nancy's case is an excellent example of what Dr. William J. Mayo described in 1910 as necessary cooperation in practice: 'The best interest of the patient is the only interest to be considered, and in order that the sick may have the benefit of advancing knowledge, union of forces is necessary,'" says Dr. Romanski.

Binder had the adrenal surgery at Mayo Clinic two weeks later. "I could have had the surgery locally, but I felt comfortable at Mayo Clinic and wanted to get my care there," she says. "I like that all the doctors talk to each other and have access to my medical records. They were very interested in my problem and cared about helping me."

Dr. Romanski told Binder it will take about a year for her to feel normal as her body adjusts to steroid withdrawal and begins to produce hormones naturally. Binder says she feels better already — just months after surgery. She's eager to get back to dancing.

Binder decided to have all of her treatment at Mayo Clinic, including treatment for the brain lesion. "I know they'll take good care of me," she says. ▲



A HARBOR FOR PEDIATRIC PATIENTS WITH COMPLEX ILLNESSES



Parents who bring their children to the Pediatric Diagnostic and Referral Clinic in the Department of Pediatric and Adolescent Medicine at Mayo Clinic in Rochester often have exhausted their options. Their children have significant medical issues. They've had disjointed medical care. They seek diagnostic expertise and whole-child care coordination. They've come from all 50 states and 61 other countries. The majority of them self-refer.



Puzzle masters put the pieces together: Physicians in the Mayo Clinic Pediatric Diagnostic and Referral Clinic share a recent medical mystery and the results of their sleuthing. Michele and Barry Hirano of Savage, Minnesota, have fought for answers about their daughter, Keiko, since she was born. Keiko has hypotonia, global developmental delay, and feeding and breathing difficulties. Her parents say the many physicians who saw her only looked at Keiko as a collection of symptoms — not holistically. Their experience at Mayo Clinic has been markedly different. They've learned Keiko has a pathogenic gene mutation that is being researched by an international consortium.

More than 1,200 of these families visit Mayo Clinic for the first time each year to be seen in the Pediatric Diagnostic and Referral Clinic. On average, over the course of two to five days, the families see two to seven specialists and have laboratory tests and imaging. Their visits are bookended by appointments with a pediatric diagnostic expert. This small but mighty team includes Amie Jones, M.D. (PD '03), Philip Fischer, M.D. (PD '99), Kelsey Klaas, M.D. (PD '15), Michael H. Farrell, M.D. (PD '19), and nurse practitioner Shelley Ahrens.

"Our team is passionate about our patient families," says Dr. Jones. "They're resilient, incredible advocates for their children but have been vulnerable to inefficiencies in health care. There are few pediatric specialists across the country and even fewer medical centers that have all the pediatric specialties in one place. The Mayo Clinic Children's Center is fortunate to have incredible breadth and depth of pediatric expertise, and we take our responsibility to help these families and alleviate their burden very seriously."

Before patients arrive at the Pediatric Diagnostic and Referral Clinic, Dr. Jones and her colleagues

analyze medical records and appointment request forms with a goal of determining which specialists, tests and imaging are part of the equation to arrive at a diagnosis and treatment plan.

"We have curious minds and experience in complex cases, and Mayo Clinic allows us the time we need to investigate, examine, listen and probe," says Dr. Jones. "Our top-notch nursing staff helps with collecting previsit information and acting as a constant contact for families once they're on site."

Pediatricians in the clinic develop itineraries for patient families before their arrival and adjust them as needed after meeting the patient. Itineraries are arranged for efficiency — coordinating testing procedures and lab tests to reduce anesthesia exposure and needle pokes. Minimizing painful and stressful events is a high priority.

"Our patients typically have multiple complex health care needs that cross body systems," says Dr. Jones. "This includes breathing, feeding and seizure disorders; developmental delays; fatigue; and genetic abnormalities. Every week we see children whose diseases are one in a million."

“Our team is passionate about our patient families. They’re resilient, incredible advocates for their children but have been vulnerable to inefficiencies in health care. There are few pediatric specialists across the country and even fewer medical centers that have all the pediatric specialties in one place. The Mayo Clinic Children’s Center is fortunate to have incredible breadth and depth of pediatric expertise, and we take our responsibility to help these families and alleviate their burden very seriously.” – Amie Jones, M.D.



The Mayo Clinic Pediatric Diagnostic and Referral Clinic's Amie Jones, M.D., Michael H. Farrell, M.D., Kelsey Klaas, M.D., Shelley Ahrens and Philip Fischer, M.D.

When the providers in the Pediatric Diagnostic and Referral Clinic review a patient's records, test results and the family's goals, the wheels start turning to solve the puzzle for these medically complex children.

"These special children and their families put their faith in us by giving our group the opportunity to take a fresh look," says Dr. Jones. "We take the time to listen to their concerns, learn from the evaluation that has already been done, and strive to pull together the pieces to best understand the diagnoses and develop treatment plans with the whole child and family in mind. We're incredibly fortunate to have the expertise of world-renowned pediatric medical and surgical experts to help guide our 'diagnostic odysseys.'"

Physicians in the Pediatric Diagnostic and Referral Clinic partner closely with the consulted specialists

throughout a child's visit to facilitate a cohesive evaluation. Dr. Jones and her colleagues then wrap up the visit with the child and family to summarize the team's findings and recommendations.

"We want to ensure that our plans align with the family's goals and that we have a good way to carry the plans forward," says Dr. Jones. "This often means sharing information and partnering closely with referring or other local providers. Many of these children will need significant ongoing medical management, so whether they live around the corner or on the other side of the country, we are committed to being part of their team for as long as they need us. We're grateful to meet so many inspiring children and appreciate our chance to help them grow, thrive and bring joy to their families and the world around them." ▲

Mayo keeps eyes on the big picture & little details

For the first four years of their daughter's life, Michele and Barry Hirano of Savage, Minnesota, a Minneapolis suburb, frantically sought expertise from physicians to address her condition. Keiko had hypotonia, feeding and breathing difficulties, and global developmental delay.

"Each doctor told us her condition was something different," says Michele. "Everyone treated symptoms but not the whole child."

Keiko, 5, is the youngest of the Hiranos' five children. Her parents describe her as a reminder of all the good in the world. "We're constantly reminded of how much she's fighting every day, which is inspiring," says Barry.

The Hiranos have fought to get answers about Keiko since she was born, saying they knew immediately that something was wrong. They say their lives took a different path after they visited Mayo Clinic in 2018.

The first appointment in their four-day visit was with Amie Jones, M.D., in the Pediatric Diagnostic and Referral Clinic.

"Dr. Jones had thoroughly reviewed our case and didn't ask us to retell our entire story," says Michele. "She explained about each specialist we would see and asked who else we felt would be useful. She asked how we and our other children were coping. No one had ever asked that before. We could tell she understands what it's like to have a child with complex medical issues and special needs. We finally felt like someone was looking at Keiko holistically — not just a collection of symptoms.

"Right off the bat, she suggested something no other physician in four years had mentioned — removing Keiko's tonsils."

Dr. Jones says large tonsils are not necessarily unusual in children but can sometimes cause health

issues in children with persistently large tonsils.

"As I listened to Michele and Barry talk about Keiko's poor sleep, swallowing and eating issues, moodiness, noisy breathing and drooling, I suspected enlarged tonsils might be a contributing factor. In the Pediatric Diagnostic and Referral Clinic, we're allowed the time to really listen to patients, discuss all of their concerns and review every system of the body. By approaching Keiko holistically, we identified this seemingly small thing in the big picture; but addressing it had a big impact on her day-to-day life."

A consultation with a Mayo Clinic ear, nose and throat specialist and a sleep study showed that Keiko's tonsils were so obstructive that they caused severe sleep apnea. If Keiko didn't sleep well, she wouldn't feel her best during the day and was less likely to get the most out of her daily therapies.

The Hiranos say the benefits of Keiko's tonsillectomy were almost instantaneous. "Our whole family's quality of life improved when she started sleeping through the night and her snoring stopped," says Barry. "She's in a better mood in the morning because she sleeps better. Before surgery, Keiko threw up once or twice a day. Now she throws up about once a week. Our other kids are more comfortable having friends over because there's less vomiting. Keiko also drooled constantly before having her tonsils removed. It was so severe that some people didn't want to get near her. The drooling stopped.

"The tonsillectomy wasn't a solution to Keiko's overall medical issues, but it greatly affected her and our quality of life. We so appreciate Dr. Jones recognizing the problem and suggesting a solution."

Among the many specialists Keiko saw at Mayo Clinic was a medical geneticist, who determined Keiko has a likely pathogenic variant in the gene SPEN. This is a gene of uncertain significance that



Barry and Michele Hirano with their daughter, Keiko.

hasn't been associated with a specific disease until now. After Keiko's initial visit, genetics staff and the Mayo Clinic Center for Individualized Medicine found an international consortium that has identified about 20 people who have a variant in the same gene as Keiko. Mayo Clinic is now part of that consortium, which is preparing to publish a paper about this rare disease.

"Having a diagnosis might inform how we manage Keiko's condition long term so she can meet her best potential," says Dr. Jones.

The Hiranos hope the paper and future research might shed light on Keiko's condition and help others. "If we'd known Keiko had a genetic disease much earlier, our path would've been very different and included earlier therapy," says Michele. "We hope this information will give us a better idea about Keiko's future and how we can help her have the best possible quality of life."

In the meantime, they continue to see specialists for their daughter's care, and Dr. Jones checks in with them, suggests new ideas and keeps an eye on the big picture ... and the little details.

"Mayo Clinic takes care of us even when we aren't there in front of them," says Michele. "They searched for what Keiko's genetic mutations mean and found the international study. The different specialists talk to each other and continue to try to figure out all of the pieces to the puzzle. It feels like they truly care about our daughter.

"Our focus is on the day-to-day aspects of caring for Keiko and celebrating her achievements. We're happy to have Mayo Clinic looking at the big picture and empowering us to help Keiko be the healthiest, happiest, most functioning kid she can be." ▲



THIS IS NOT YOUR MOTHER'S BREAST CLINIC



Breast cancer is a spectrum of disease, ranging from ductal carcinoma in situ to high-grade invasive tumors. Some tumors have strong estrogen receptors on the outside of their cells; others have HER2 receptors. Treatment depends on tumor type, size, stage, location and grade, and can be targeted to specific tumor types.

As a result, breast cancer care is more complicated than it used to be. Patients no longer see only their primary care provider for a diagnosis and referral to a surgeon for treatment. Instead, treatment today involves a multidisciplinary approach that can include medical oncology, radiation oncology, radiology, pathology, genetic counseling, breast surgery, plastic and reconstructive surgery, and survivorship. Greater complexity requires fine-tuned integration of multiple specialties to provide patients with the expert care, seamless coordination and patient experience for which Mayo Clinic is known.

Patients with a breast cancer diagnosis start in the multidisciplinary Breast Clinic. Before the initial appointment, a Breast Clinic navigator sends a series of two- to three-minute videos via the online patient portal. The videos feature Mayo Clinic physicians

and patients and provide education about the breast cancer treatment journey. Patients report loving the videos and feeling more informed about the decisions they need to make.

All patients first see an internist in the Breast Clinic for a comprehensive evaluation. The internist provides a warm hand-off to colleagues in related disciplines, and collaborates with Breast Clinic navigators and nurses to ensure appointments are well coordinated and that patients understand next steps. After seeing all of the specialists, internists provide patients with a treatment plan.

Sandhya Pruthi, M.D. (FM '94), Division of General Internal Medicine, led the Breast Clinic from 2002 to 2008. She also is president of the National Consortium of Breast Centers, which develops, maintains, advances and improves high-quality,



Coordinated team restores patients to wholeness:

Jaclyn Ihrke was treated in the Breast Clinic at Mayo Clinic in Rochester. She says her anxiety and sadness were relieved by Sandhya Pruthi, M.D., in their first meeting. "It was powerful and uplifting," says Ihrke. "I went into fight mode." Ihrke, who has three children, says she's forever indebted to Dr. Pruthi and her team. "Thanks to them, I have a lot of life ahead of me."

patient-focused breast centers via education, certification and interdisciplinary communication. “Because Mayo Clinic offers the entire range of specialists in one location, we increasingly see patients with more complex breast cancer diagnoses,” says Dr. Pruthi. “We understand that a breast cancer diagnosis causes high anxiety, and we strive to be proactive in alleviating patients’ concerns and the burden of navigating their care. We’re here to make a positive difference in the lives of our patients during the time when they feel most vulnerable. Our goal is to help restore patients to wholeness.”

The Breast Clinic also manages high-risk patients, such as those with familial breast cancer. “We’re at the cutting-edge of integrated high-risk care — offering genetic testing, preventing breast cancer and reducing risk, surveilling with the latest technology, and offering preventive medication and surgical options,” says Dr. Pruthi.

Minh-Doan Nguyen, M.D., Ph.D. (PLS ’14), Division of Plastic and Reconstructive Surgery, says patients experience true collegiality from initial appointment through surgery and survivorship care. “I repeatedly hear from breast cancer patients who are amazed at how things work at Mayo Clinic to make it so seamless and easy for them. I’ve been at a handful of other institutions and haven’t seen a model like our Breast Clinic — internists who are the touchpoint to coordinate patients’ care.”

Dr. Nguyen was recruited to Mayo Clinic from the University of Cincinnati to perform autologous breast reconstruction. “I enjoy the creativity involved in breast reconstruction,” she says. “Every woman’s breasts look different — it’s not cookie-cutter surgery. We try to give patients the results they want, whether that’s restoring them to how they were or to something aesthetically better.”

Mayo Clinic’s Tina Hieken, M.D. (S ’11), Division of Breast, Endocrine, Metabolic, and Gastrointestinal Surgery at Mayo Clinic in Rochester, is an expert in less invasive nipple-sparing mastectomy that leaves the surface of the breast intact. This procedure has become a safe option for more patients, including those whose cancer has spread to nearby lymph nodes. Surgeons remove breast tissue, leaving the skin, nipple and areola, and immediately rebuild the breast. Mayo Clinic researchers evaluated nipple-sparing mastectomy outcomes in women who had the procedure between 2009 and 2017. Complications within 30 days after surgery declined from 14.8% to 6.3%.

An underpinning of Mayo’s breast surgical practice in Rochester is the frozen section practice (page 21). Dr. Nguyen says many institutions have frozen section practices for mastectomy and lumpectomy, but none are on the scale or skill level as Mayo’s. For lumpectomy alone, this method of pathologic evaluation is so effective that only 3% of patients require a second surgery to track down missed cancer cells. That compares with a national rate ranging from 15% to 40%.

The frozen section practice facilitates same-operation reconstructive surgery for many patients. Options include nipple-sparing mastectomy with immediate reconstruction with either implant-based or autologous tissue reconstruction.

“Offering enhanced aesthetics as a result of these surgeries to women who have had a devastating diagnosis is extremely rewarding,” says Dr. Hieken, senior author of the study. “Patients who are not offered nipple-sparing procedures should ask their surgeons why. Our study shows these surgeries are proving safe for many patients.” ▲

Highlights of breast cancer care at Mayo Clinic

- Proton beam therapy to protect the heart and lungs in left-sided breast cancer
- Nipple-sparing reconstruction
- Autologous reconstruction
- Frozen section laboratory
- Multidisciplinary consultation for complex patients
- Precision medicine tailored to a patient’s genetic makeup or to the genes in the tumor
- High-risk patient care
- Clinical trials
- Survivorship program to help shift from illness orientation to wellness-focused care



Mayo Clinic in Rochester: (clockwise from left) Amy Degnim, M.D. (S '03), Division of Breast, Endocrine, Metabolic, and Gastrointestinal Surgery and the Joe M. and Ruth Roberts Professor of Surgery; Tufia Haddad, M.D. (I '04, CTSA '14), Division of Medical Oncology; Robert Fazio, M.D., Ph.D. (MED '06, RD '11, RBR '12), chair, Division of Breast Imaging and Intervention; Minh-Doan Nguyen, M.D., Division of Plastic and Reconstructive Surgery; Sandhya Pruthi, M.D., Breast Clinic. Not pictured: Christina Dilaveri, M.D. (I '07), Breast Clinic; Sarah Kroc, genetic counselor; Robert Mutter, M.D. (RADO '12), Department of Radiation Oncology.



Mayo Clinic in Florida: (clockwise from left) Saranya Chumsri, M.D. (HEMO '16), Division of Hematology and Medical Oncology; Brian Rinker, M.D. (PLS '19), chair, Division of Plastic Surgery; Robert Maxwell, M.D. (RD '06), Division of Breast Imaging; Lauren Cornell, M.D. (I '17), Division of General Internal Medicine; Sarah McLaughlin, M.D. (S '06), chair, Division of General Surgery; Dawn Mussallem, D.O. (FM '11), Division of General Internal Medicine. Not pictured: Laura Vallow, M.D. (RADO '01), Department of Radiation Oncology.



Mayo Clinic in Arizona: (clockwise from left) Carlos Vargas, M.D. (RADO '17), Department of Radiation Oncology; Heidi Apsey, nurse practitioner, Breast Clinic; Juliana Kling, M.D. (I '13, CMR '14), Women's Health Center; Michele Halyard, M.D. (RADO '89), Department of Radiation Oncology and the Suzanne Hanson Poole Vice Dean, Mayo Clinic Alix School of Medicine; Brenda Ernst, M.D. (HEMO '16), Division of Hematology and Medical Oncology; Donald Northfelt, M.D. (HEMO '02), Division of Hematology and Medical Oncology; Barbara Pockaj, M.D. (S '95), Division of Surgical Oncology and Endocrine Surgery and the Michael M. Eisenberg Professor. Not pictured: Alanna Rebecca, M.D. (PLSR '05), chair, Division of Plastic and Reconstructive Surgery.

‘I’ve got you Jaclyn. I’ve got this.’

Jaclyn Ihrke broke down when she entered the lobby of the Gonda Building on Mayo Clinic’s Rochester campus. She told her husband, Jamie, “I can’t be here. This is not my life.” He reassured her that she needed to be at Mayo: “You have three kids at home — you have to be here.”

Ihrke, who lives in Eyota, Minnesota, was panicked because she’d learned days earlier that she had two types of breast cancer. That’s enough to panic anyone, but Ihrke has a significant family history of breast cancer — her mother, three maternal aunts and a cousin have all survived breast cancer. She’d spent the days since her diagnosis feeling numb, unable to eat or sleep.



Ihrke’s mindset changed the moment she sat down with Sandhya Pruthi, M.D. (FM ’94), in the Breast Clinic. Dr. Pruthi also was treating Ihrke’s cousin, who’d recently been diagnosed with breast cancer.

“Dr. Pruthi sat across from me, took my hands in hers and said, with tears in her eyes, ‘I’ve got you Jaclyn. I’ve got this,’” says Ihrke. “Because she said she would make me OK, I went from feeling anxious and sad to relieved. It was very powerful and uplifting. She explained everything in terms I could understand. I didn’t have to go home and research anything. After meeting Dr. Pruthi, I went into fight mode.”

Ihrke, who faithfully had annual mammograms, had two tumors on her left side — a ductal carcinoma in situ (DCIS) and an invasive ductal carcinoma. “As Dr. Pruthi presented my treatment options, I told her I wanted both breasts removed,” says Ihrke. “I didn’t want to have to ever deal with breast cancer again.”

Ihrke saw specialists in genetics, surgery, plastic surgery and medical oncology. She had a bilateral mastectomy and simultaneous reconstruction surgery in December 2019 — 17 days after her diagnosis. Because her cancer was hormone positive, Ihrke will take anti-estrogen therapy for up to 10 years to reduce the risk of recurrence.

“When you walk through the parking ramps at Mayo Clinic, you see license plates from many states,” says Ihrke. “I know I’m blessed to have Mayo Clinic in my backyard — just 20 minutes away.

“I’m forever indebted to Dr. Pruthi and her entire team. She checked on me throughout this journey and continues to send me messages through the patient portal. Thanks to Mayo, I have a lot of life ahead of me.” ▲

Preparing fellows for frozen section practice

Mayo Clinic's renowned frozen section practice is 115 years old. This unique practice involves two Frozen Section Laboratories that handle approximately 100 cases per day, or 20,000 cases per year. As many as 15 people are in a lab at the same time, including pathologists, fellows, pathology assistants, residents and histology technicians.

This lab environment can easily overwhelm new trainees in the Surgical Pathology Fellowship. To alleviate that stress, the fellowship program designed a frozen section workshop in Mayo Clinic's Multidisciplinary Simulation Center for the nine new fellows each year. Simulation training allows fellows to understand the labs' workflow with minimal real-world stressors. Specifically, they practice for breast cancer cases.

While breast cancer cases comprise about 10% of all cases in the labs, breast and sentinel lymph node specimens are the most complex cases. Processing

a piece of frozen tissue takes five to 10 minutes. However, processing breast tissue in a mastectomy or lumpectomy takes 25 to 30 minutes due to the need to check and recheck surgical margins.

"A lumpectomy might have six margins, which can all be positive, which results in checking six more margins," says Karen Fritchie, M.D. (APATH '11), Division of Anatomic Pathology and director of the Surgical Pathology Fellowship. "Throughout this dynamic process, the surgeons in the OR and pathologist in the lab communicate via intercom. Because the patient is on the operating table, efficiency is paramount. Simulation training has helped our fellows prepare for the lab in a safe learning environment — how to approach and prioritize specimens, and the constant communication with the surgeons and laboratory staff necessary to effectively and efficiently move specimens forward for optimal patient care." ▲



(Left) Jennifer Boland Froemming, M.D. (PATH '10, SGPA '11, PPATH '12), Division of Anatomic Pathology; (right) Ryan Kendziora, M.D. (PATH '23), resident, Department of Laboratory Medicine and Pathology; and Malvika Solanki, M.B.B.S., Ph.D. (BPTH '19), Division of Anatomic Pathology, in the Frozen Section Laboratory.



CARDIO-ONCOLOGY — A MARRIAGE OF CARDIOLOGY & ONCOLOGY



In the last 15 years, the number of cancer drugs has expanded dramatically — a huge boon to cancer patients, who are surviving in record numbers.

There are more than 16 million cancer survivors in the U.S. alone — a number predicted to be 19 million by 2024 and 30 million worldwide. The success in treating cancer, however, is tinged by the negative effects some of the drug and radiation therapies have on heart and vascular function.

The medical community became aware of cardiac toxicity from oncology drugs in the 1970s, when many patients who were treated with high doses of doxorubicin (Adriamycin) developed heart failure. The awareness heightened in the early 2000s when anti-HER2 breast cancer therapy with trastuzumab (Herceptin), anti-angiogenic anticancer therapy with bortezomib (Avastin) and other new cancer treatments with cardiovascular toxicity potential entered clinical practice.

“We’ve seen a 70% increase in new cancer therapies in recent years, and many of them are tested only in phase I and II clinical trials,” says Joerg Herrmann, M.D. (CV ’03, I ’06, CI ’08, CV ’10, CVIC ’11), Division of Ischemic Heart Disease & Critical Care, Department of Cardiovascular Medicine at Mayo Clinic in Rochester. “With less vigorous testing, it’s no surprise that we see unanticipated side effects. The cancer treatment field is moving so fast that many physicians have trouble keeping up with the changes, including side effects. We don’t want the cancer survivors of today to become the heart disease patients of tomorrow.”

Mayo Clinic established cardio-oncology clinics on all three campuses to provide expertise for patients who will have cancer treatment, including preventing, monitoring and managing cardiovascular toxicity. This formal collaboration between cardiology and hematology/oncology is recognized as the optimal practice model to provide integrated care to cancer patients.

Mayo Clinic is a pioneer and leader in cardio-oncology. Donald Northfelt, M.D. (HEMO ’02), Division of Hematology and Medical Oncology at Mayo Clinic in Arizona, helped to establish Mayo’s first cardio-oncology clinic on the Arizona campus in 2011. Dr. Herrmann helped to establish cardio-oncology on the Rochester campus and published a textbook on the topic in 2016, putting Mayo Clinic on the national map in this field. And each February, Mayo Clinic offers a well-regarded continuing medical education course, “Cardio-Oncology: Putting Principles into Action in Your Practice,” in Arizona.

“In the past, medical institutions lacked a clear and firm connection between oncologists and cardiologists to manage cardiovascular complications of cancer and cancer therapies,” says Dr. Northfelt. “At Mayo Clinic, that’s no longer the case. The emergence of cardio-oncology as a distinct practice ensures we look at patients broadly, from the perspective of their cardiovascular health including disease- and treatment-associated risks, not simply as cancer patients.”

Oncologists refer adult and pediatric patients to cardiologists in the Mayo Clinic Cardio-Oncology Clinic with the aim of:

- Identifying at-risk patients at diagnosis, including those with existing cardiovascular disease, those at particular risk for cardiovascular disease and those whose recommended cancer therapy may pose risks
- Discussing cancer treatment options from the cardiovascular and oncologic perspectives
- Recommending preventive strategies such as diet, exercise and cardioprotective agents to minimize risk for patients at risk for heart disease
- Monitoring and treating potential cardiovascular complications before, during and after the patient’s treatment
- Successfully treating the cancer while minimizing cardiotoxicity and other collateral damage
- Encouraging at-risk patients to be monitored and to manage cardiovascular risks throughout their lives

Mayo Clinic in Rochester:
(clockwise from left) Grace Lin, M.D. (I '03, CV '07), Division of Circulatory Failure; Hector Villarraga, M.D. (CV '97), Division of Cardiovascular Ultrasound; Naveen Pereira, M.D. (CV '06), Division of Circulatory Failure; Martin Rodriguez-Porcel, M.D. (PHYS '97, I '99, CV '03), Division of Ischemic Heart Disease & Critical Care; S. Allen Luis, M.B.B.S. (CVEC '14, CVAD '15), Division of Cardiovascular Ultrasound; Paul McKie, M.D. (I '09, CI '10, CV '13, TXCV '14), Division of Comprehensive Cardiology; Joerg Herrmann, M.D., Division of Ischemic Heart Disease & Critical Care.



“The emergence of cardio-oncology as a distinct practice ensures we look at patients broadly, from the perspective of their cardiovascular health including disease- and treatment-associated risks, not simply as cancer patients.” – Donald Northfelt, M.D.

Mayo Clinic in Arizona:
Carolyn Larsen, M.D. (I '13, CV '17), Department of Cardiovascular Diseases; Brian Hardaway, M.D. (CV '16), Department of Cardiovascular Diseases; and Donald Northfelt, M.D., Division of Hematology and Medical Oncology. Not pictured: Reza Arsanjani, M.D. (CV '16), Department of Cardiovascular Diseases.



Dr. Northfelt says preventive strategies aren't as advanced as he'd like, but that presents opportunities for research. "We can check heart function testing before and during treatment, and mitigate cardiovascular side effects with drug choice and dose, drug combinations and timing of therapy. We may want a patient to take 'the best drug' as a first choice, but if it's contraindicated by their heart condition or another factor, we can recommend another drug. We must weigh the benefit to the patient with the risk of harm from the treatment, and involve the patient in that conversation. In the meantime, we're investigating ways to protect the heart while allowing protective cancer care to occur."

Dr. Herrmann is leading the TACTIC study (TrAstuzumab Cardiomyopathy Therapeutic Intervention with Carvedilol), a five-year National Cancer Institute clinical trial with breast cancer patients receiving trastuzumab-based HER2-directed therapy. These patients are at risk of heart function decline or heart failure symptoms. The study aims to determine if a cardiovascular protective strategy, such as a beta-blocker, could help when patients show significant heart function decline or subtle early signs of heart injury, or preventively before beginning therapy with trastuzumab.



"The very topic and field of cardio-oncology will remain an important aspect in the care of cancer patients in the future — this is in view of the aging of the population, considering that aging is an important risk factor for heart diseases and cancer," says Dr. Herrmann. "The toxicity spectrum of cancer drugs continues to evolve, often with unexpected side effects, as those seen with the recently emerging class of immune therapies (mainly immune checkpoint inhibitors, which are used and tested in an exponential manner in a number of cancer subtypes). For this reason, there is and remains a need for cardio-oncology collaboration and expertise now and then." ▲

Highest risk for CV side effects

Conditions and treatments that may be associated with cardiovascular side effects ranging from hypertension to heart failure include:

- Breast cancer — left breast radiation and drug therapies
- Hodgkin's disease — radiation and drug therapies
- Non-Hodgkin's lymphoma in the chest — radiation and drug therapies
- Lung cancer — radiation and drug therapy
- Acute leukemia in children — drug therapy
- Multiple myeloma and kidney cancer — drug therapy
- Lymphoma — drug therapy
- Pancreatic cancer — the disease itself

Mayo Clinic in Florida:
Jordan (Chris) Ray, M.D. (I '16, CV '19),
and Carolyn Landolfo, M.D. (CV '08) — both in
the Department of Cardiovascular Medicine.





ON THE SHOULDERS OF GIANTS

Chief of neurology reflects on training with giant in neuromuscular medicine



When she was a resident at The Hospital for Sick Children in Toronto, Canada, Brenda Banwell, M.D. (NMD '99), sought the best neuromuscular research fellowship that included pathology. She found it at Mayo Clinic in Rochester. "For two years, I had the good fortune to train with Andrew Engel, M.D. (I '61, N '62, Department of Neurology and the William L. McKnight 3M Professor of Neuroscience), who is one of the most pivotal scientists in neuromuscular medicine," she says.

"Dr. Engel described an entire area of neuromuscular disease, the congenital myasthenic syndromes. I spent time in his lab learning about muscle pathology and seeing him interact with patients from around the world who sought his expertise for rare neuromuscular diagnoses. From Dr. Engel, I learned how to think through complex neurologic problems, make difficult diagnoses and support them with meticulous pathological confirmation. I saw Mayo physicians call him to consult with their patients, and he was always available. Mayo Clinic has a legacy of making sure the best

expert is available to help every patient. Being exposed to that practice helped situate me for the rest of my career."

Indeed. Dr. Banwell is chief of the Division of Neurology and the Grace R. Loeb Endowed Chair in Neurosciences at Children's Hospital of Philadelphia — one of the top five pediatric hospitals in the world. Dr. Banwell has grown the division from 28 pediatric neurologists to 58. She's also co-director of the Neuro-Immune and Multiple Sclerosis Program at Children's Hospital of Philadelphia and principal investigator of a 23-site, 15-year study of acute demyelination in children that includes every pediatric health care facility in Canada. Dr. Banwell achieved full professorship early in her career and is on the board of directors of the American Academy of Neurology.

Proving that strong mentor-mentee relationships last forever, Dr. Banwell, alongside Frances Jensen, M.D., hosted Dr. Engel as the 2019 Donald Schotland Lecturer in Neuromuscular Medicine, Department of Neurology at the University of Pennsylvania. ▲

“From Dr. Engel, I learned how to think through complex neurologic problems, make difficult diagnoses and support them with meticulous pathological confirmation.” — Brenda Banwell, M.D.



March is Women's History Month — time to look at the contributions of some of the early women physicians and scientists at Mayo Clinic.

Today Mayo Clinic has 10,054 living female alumni (physicians and scientists) around the world.

Join us in celebrating these women who blazed trails for other women at Mayo Clinic.

WOMEN'S HISTORY MONTH



Julia Herrick, Ph.D.
(BPHY '32)

- Led physics department of Rockford (Illinois) College prior to receiving Ph.D. at Mayo Clinic
- Interested in blood flow in mammalian vessels
- Modified Rein thermostromuhr, extending use of the instrument to measurement of blood flow under more normal conditions
- Joined staff of Signal Corps Engineering Laboratories at request of War Department in 1942 to work on radio direction finding
- Returned to Mayo Clinic in 1946 to research biologic effects of microwaves and ultrasound, physiologic thermometry and circulation of blood
- Microangiography introduced into the research lab as a result of her study of effects of ultrasound on bone
- Was national chair of Institute of Radio Engineers Professional Group on Medical Electronics



Grace Roth, Ph.D.
(HEM '33, PHYS '37)

- Widely known for research in functional aspects of heart and blood vessels and clinical investigative physiology, including intensive work on vasomotor reactions of hands and feet, clinical significance of sweating, tissue extracts as applied to disease of circulation, and cellular structures in diseases of the blood
- Made important observations on hypersensitivity in cold
- Worked on diagnostic tests for detection of pheochromocytoma
- Supervised investigative work of fellows of Mayo Foundation who had minor sequence in physiology
- President of Minnesota Heart Association in 1953
- Chaired International Symposium on Heart Disease at University of Minnesota in 1953
- Chaired American Heart Association Section on Circulation



Jane Hodgson, M.D.
(OBG '44)

- Devoted 50-year career to women's reproductive health care
- Co-founded Duluth Women's Health Center
- Early research included pregnancy-testing methods
- Founding fellow of American College of Obstetrics and Gynecology
- Traveled the world with Project Hope to provide medical care in underserved countries
- Received Margaret Sanger Award from Planned Parenthood Federation of American in 1995, and National Reproductive Health Award from American Medical Women's Association in 1994
- One of first physicians inducted into International Women in Medicine Hall of Fame in 2001



Eva Gilbertson, M.D.
(RD '46)

- First woman to complete radiology residency program at Mayo Clinic — a pioneer in a male-dominated field
- First woman to open a radiology practice in Seattle, Washington, where she remained for more than 30 years
- Founding member of Pacific Northwest Radiological Society
- Provided volunteer medical care to native peoples in isolated hospitals in Alaska
- Established Eva L. Gilbertson Endowed Research Fund in Biomedical Imaging, which continues to sustain the excellence of biomedical imaging at Mayo Clinic
- Told Mayo Magazine in 2007 that she hoped her early efforts helped pave the way for younger generations of women in medicine



Sarah Luse, M.D.
(PATH '54)

- Made significant contributions to neuropathology, clinical neurology and neurosurgery
- Participated in electroshock therapy and studies in electroencephalographic aspects of barometric pressures in aviation medicine
- Widely known for studies in electron microscopy of nervous system, tumors of adrenal cortex and brain, demyelinating diseases and nature of myelin formation, and neuropathologic aspects of diabetic states
- Made breakthrough discovery that a particular kind of brain cell was damaged by multiple sclerosis
- Left Mayo Clinic in 1954 for American Cancer Society fellowship at Washington University School of Medicine in St. Louis; a decade later became first woman to be named to an administrative post there
- From 1967 to her death, was professor of anatomy at Columbia University College of Physicians and Scientists, New York City



Virginia Hartridge, M.D.
(ANES '56)

- Education director of Mayo Clinic School of Nurse Anesthesia from 1956 to 1964, and director from 1964 to 1976
- For more than 20 years, advanced training of nurse anesthetists at Mayo Clinic; under her direction the school was accredited by American Association of Nurse Anesthetists' Council on Accreditation and graduated approximately 1,000 nurse anesthetists
- Developed and popularized technique of balanced anesthesia for cesarean section that received widespread national acceptance and for years remained the preferred anesthetic technique for that operation



STETHOSCOPES

Stethoscope gifts endear alumni to medical students



Mayo Clinic alumni can purchase stethoscopes to be presented to first-year Mayo Clinic Alix School of Medicine students on the Rochester and Arizona campuses. This program, which started in 2015, helps to create a sense of belonging to the rich history of Mayo-trained physicians.

The Mayo Clinic Alumni Association Board of Directors is grateful to the 170 alumni who have purchased more than 206 stethoscopes to gift to medical students. Alumni can provide messages they'd like included with stethoscopes. Purchased stethoscopes in excess of the 100 needed annually are held for the following year.

"The messages have been touching, and alumni have been incredibly generous to the medical students," says Carl Backer, M.D. (MED '80), president, Mayo Clinic Alumni Association. "The students appreciate the gift, which helps to immediately connect them to the Alumni Association and alumni around the world."

To gift stethoscopes or to see the Stethoscope Honor Roll of alumni who have purchased stethoscopes, visit: alumniassociation.mayo.edu/product/fund-a-stethoscope



One must listen to use this stethoscope. Remember to listen equally when it rests in your coat pocket.”

Leif Jensen, M.D. (MED '06, PRES '07)
Salt Lake City, Utah



“My most cherished memory is the first time I heard an infant’s heart through his mom. This I shared with my physician father as he taught me so much about OB.”

Louise Turkula, M.D. (S '86, PLS '88)
Orono, Minnesota, who purchased 10 stethoscopes

“Dear friend: What you hear are the sounds of life, and you are going to be in the most noble profession — saving lives! Wishing you all the best.”

Jothydev Kesavadev, M.D. (ENDO '03)
Trivandrum, India



“As a 1989 graduate of the general surgery residency, I count it as a privilege to contribute to your medical education through a gift of this stethoscope. You are embarking on a medical career at a unique institution — both in its founding and current operations. Godspeed.”

Chad Davis, M.D. (S '89)
Indianapolis, Indiana

“May you have life and have it more abundantly. Listen to the sounds and voices but also to the silence in between.”

Tarek Khalife, M.D. (OBG '16)
North Mankato, Minnesota



“Patients first. Everyone matters. Unconditional kindness.”

Robert Waller, M.D. (I '67, OPH '70)
Memphis, Tennessee

“Treat every patient like the most beloved person in your life, and you will have a phenomenal career!”

Lucinda Harris, M.D. (GI '04)
Scottsdale, Arizona



GRADUATE SCHOOL SYMPOSIUM CELEBRATES STUDENT RESEARCH



Mayo Clinic Graduate School of Biomedical Sciences held its annual Student Research Symposium in September, with poster sessions, oral presentations, a keynote speaker, a Three-Minute Thesis (3MT) competition and Teacher of the Year awards.

“The Alumni Association and Mayo Clinic Graduate School of Biomedical Sciences co-sponsored symposium and Teacher of the Year awards are the highlight of our diverse scientific community,” says Stephen Ekker, Ph.D. (BIOC '07), dean of the graduate school. “Representing almost 200 Ph.D. and M.D./Ph.D. students, faculty, staff and alumni, this event celebrates dedication and achievement in the lab and in our communities around each of the three Mayo Clinic sites.”

Posters and oral presentations

Posters at the symposium numbered 152 — a record number. One student from each track in the school was selected to present their research.

- Biochemistry and Molecular Biology, Kristina Drizyte-Miller (BMB '20)
- Virology and Gene Therapy, Christopher Driscoll (VGT '20)
- Neuroscience, Jonathon Sens (NSC '21)
- Molecular Pharmacology and Experimental Therapeutics, Christopher Paradise (MPET '21)
- Immunology, David Friedman (IMM '21)
- Clinical and Translational Science, Damian Di Florio (CTSA '23)
- Biomedical Engineering and Physiology, Dakota Jones (BME '20)

Keynote speaker

David Masopust, Ph.D., University of Minnesota Department of Microbiology and Center for Immunology, was the Findling Lecturer, presenting “Immune System Reconnaissance for Infection and Cancer.”

3MT

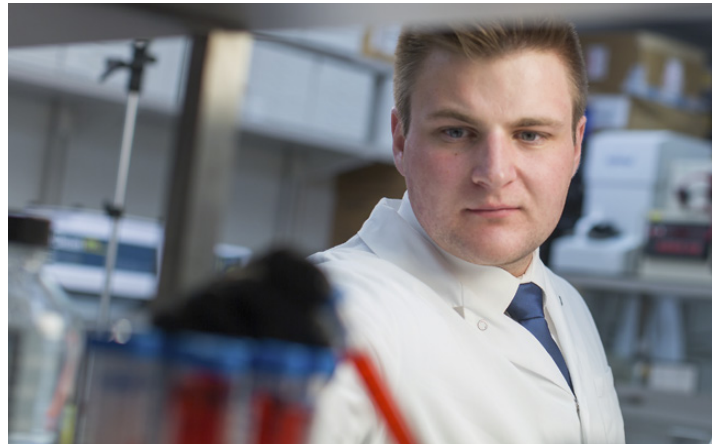
The Three-Minute Thesis, or 3MT, competition challenges Ph.D. students to describe their research within three minutes to a general audience.

- Overall winner and People’s Choice: Tyler Bussian (BMB '20), “Zombie Cells — a New Target for Alzheimer’s Disease”
- Runner-up: Emma Goddery (IMM '21), “Keeping Brain Inflammation in Check”

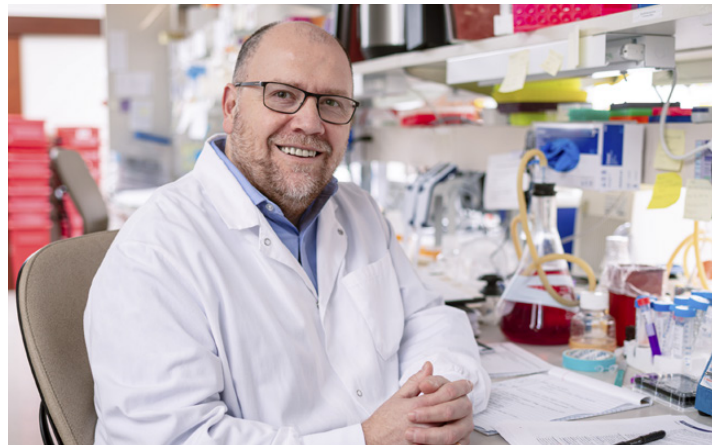
Teacher of the Year awards

Teacher of the Year awards for Mayo Clinic Graduate School of Biomedical Sciences were presented to:

- Martin Fernandez-Zapico, M.D. (GI '02), Division of Oncology Research, Department of Oncology, professor of pharmacology
- Lewis Roberts, M.B., Ch.B., Ph.D. (I '95, GI '98), Division of Gastroenterology, Department of Internal Medicine, the Peter and Frances Georgeson Professor of Gastroenterology Research



Tyler Bussian



Martin Fernandez-Zapico, M.D.



Lewis Roberts, M.B., Ch.B., Ph.D.



**Mayo Clinic Alumni Association
Board of Directors**

KNOW YOUR BOARD

**Provides leadership • Makes policy decisions
Decides strategic direction and vision**

Amado Baez, M.D. (EM '05)

Board member

- Vice chair and director, Center for Operational Medicine
- Department of Emergency Medicine
- Professor of emergency medicine
- Medical College of Georgia
- Augusta University
- Augusta, Georgia
- Fellowships: Critical care, Harvard Medical School/Brigham and Women's Hospital, Boston, Massachusetts; emergency medicine clinical research, Einstein Medical Center, Philadelphia, Pennsylvania
- Residency: Emergency medicine, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota
- Master of Public Health: New York Medical College, Valhalla, New York
- Master of Science in Health Care Management: New York Medical College
- Medical school: Universidad Nacional Pedro Henriquez Urena (UNPHU), Santo Domingo, Dominican Republic
- Native of: Santo Domingo, Dominican Republic

Why medicine

I'm a third-generation physician — you can say it's in my genes. My grandfather was in laboratory medicine, directing the Dominican national lab. My father was an obstetrician/gynecologist, mostly focused in primary care/urgent care. He retired as a professor at Universidad Nacional Pedro Henriquez Urena (UNPHU), my alma mater.

When I was 6, my father took me with him to a microbiology lecture he was giving at UNPHU. I was so impressed and paid profound attention. I went home and immediately told my mother all the things my father had taught at the lecture. She seemed to believe that my ability to understand the lecture was a sign that I should pursue medicine, and she encouraged me. From that moment on, I developed an interest in medicine, health care and academia.

My passion for emergency care started after graduating high school, right after I took a course and volunteered with the Red Cross ambulance service. I joke that I jumped on an ambulance at 18 and have never gotten off. Later, at age 25 and straight out of medical school, I became the national chief of emergency and disaster operations for the Dominican Red Cross during Hurricane Georges.

During medical school I graduated from the first paramedic class in the Dominican Republic. The more I was exposed to, the more I fell in love with emergency medicine and knew it was my calling. I enjoy the multidisciplinary nature of emergency medicine and feel gratified to make a difference and help others in critical moments, where returns can be immediate.

Why Mayo Clinic

Coming from a Caribbean island, I was initially intimidated by Mayo Clinic and didn't think I could apply there for residency. One day, I decided to do it. I emailed the residency coordinator, Darcy Skoda, who to my surprise replied. I called her, and she motivated me to formally apply. She put me in touch with Wyatt Decker, M.D. (MED '90, I '93), who was the chair and residency director. I got an interview, which was on my birthday, and it went incredibly well. I matched at Mayo Clinic, becoming the first international physician to be admitted into the emergency medicine residency program.

Mayo Clinic influence

My residency program director was Annie Sadosty, M.D. (EM '99, Department of Emergency Medicine and regional vice president, Southeast Minnesota Region, Mayo Clinic Health System), who is an amazing, caring mentor and leader. During residency, she was like family to me. Annie supported us greatly, always saying she was training us to become leaders in any area we wanted to pursue — research, education, community medicine, etc.

Looking back, I learned great medicine from Mayo Clinic, but half of what I learned and what really makes the difference was nonclinical — it was about the human side of medicine and patient-centered care. The Mayo brothers instituted those



Amado Baez, M.D.

principles that are still alive today. They're very much alive in me, too. Every day I am reassured that very same patient-centered, physician-led model presented by the Mayo brothers more than a century ago is the model to support and emulate for current health care system challenges and paradigms in the U.S. and around the world.

Mayo Clinic opened my eyes about what a true patient-centered culture of care is. I feel I am a better physician because of it. This understanding feeds remarkably into my own well-being, happiness, purpose and gratification. Those rewards make me more willing to keep working hard — an important point in today's environment where physicians struggle with burnout and wellness.

Your work

I'm vice chair and director of the Center for Operational Medicine at the Medical College of Georgia — the only center of its kind with a true holistic approach to operational medicine, focusing on health care provided in unconventional settings and resource-restricted settings. I oversee a robust

program with offices that focus on a prehospital/EM program; international, disaster, military and police medicine efforts; and fellowship programs in EMS, wilderness, international/global health and disaster/operational medicine.

I also work in health care competitiveness and development projects in Latin America and the Caribbean, with a focus on international medicine and medical tourism via the Centers for Global Health and International Medicine, Santo Domingo Health Cluster, and Health Innovation LATAC Summit.

Alumni Association

I am humbled and excited about my work on the Board of Directors. I want to give back to Mayo for the amazing training and experience I had. I owe Mayo Clinic for my being a physician leader today. I look forward to working on international programs and engagement opportunities, specifically for Latin America and the Caribbean.

Off duty

I spend time with my wife and three kids, ages 19, 15 and 13. I enjoy traveling, history, art and museums, and am a bit of a foodie.

I also work on volunteer efforts, including serving as a regional medical director for Team Rubicon, a military veteran-run disaster relief nonprofit.

Fun facts

I utterly relish cooking for loved ones, especially Latin American and Spanish stews — something I learned from my dad. Recently I've enjoyed playing in escape rooms and outdoor mystery games with my family.

Sean Dinneen, M.D.

(I '91, ENDO '94)

Board member

- Endocrinologist, Galway University Hospitals
- Personal Professorship in Diabetic Medicine, National University of Ireland, Galway
- National lead, Diabetes Clinical Programme, Irish Health Service Executive
- Postgraduate: Mayo Foundation Scholarship, Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario
- Fellowship: Endocrinology clinician investigator, Mayo Clinic School of Graduate Medical Education, Rochester, Minnesota
- Residency: Internal medicine, Mayo Clinic School of Graduate Medical Education
- Medical school: University College Cork Medical School, Cork, Ireland
- Native of: Cork City, Ireland

Why medicine

As a child, I spent time in the hospital. I had early childhood exposure to steroids for severe eczema. The drugs cured my skin condition but caused Cushingoid symptoms. Between the ages of 7 and 13, I dealt with a lot of medical issues.

Why Mayo Clinic

My uncle, a Dominican priest, spent a year at Yale as a priest on campus and made connections with medics there. When he returned to Ireland, he encouraged me to go abroad for a medical student elective. After completing medical school and residency in Ireland, I looked for opportunities to return to an academic medical center in the U.S.

Someone encouraged me to apply to Mayo Clinic. I eventually got a green card through the lottery and spent 10 years in North America — nine in Rochester and one in Canada.



Sean Dinneen, M.D.

Mayo Clinic influence

I strongly believe in the Mayo value that the needs of the patient come first. Irish medical graduates set out to go overseas, get experience in areas that aren't strong at home and bring the experience back to Ireland. Many of us have done that through our time at Mayo Clinic.

Your work

I'm an endocrinologist in Galway, with clinical duties at the hospital. I have a joint appointment with the university and am involved with teaching and research in our medical school. My research looks at improving how we organize care for young adults with type 1 diabetes. In recent years a health

psychologist colleague and I have built a research program around reimagining how we deliver care to this group of patients. We are piloting the program in five hospitals across Ireland.

For the past three years I've also been national lead for diabetes in Ireland. I travel 2.5 hours each way to Dublin two to three times a week in that role. We want better integration between primary and secondary care and are pushing for a national diabetes registry. Both Scotland and Scandinavia have registries. If you want to tackle any chronic condition, you first need to know who has it.

Alumni Association

Mayo Clinic and Ireland have a very strong connection, and I look forward to making it even stronger through my involvement with the Alumni Association Board of Directors. Residents from Ireland go to Mayo Clinic's internal medicine program every six months. And Mayo researchers come to us for 12 months at a time.

Off duty

My wife and I have four grown children from age 21 to 28.

I like to run. It's a great way to clear the head. I'm involved with Parkrun, which are 5K noncompetitive runs with like-minded people in community parks. I run a couple of times a week and bike on weekends. I've done more than 100 Parkruns!

Fun facts

I played soccer with Gianrico Farrugia, M.D. (I '91, GI '94), Mayo Clinic president and CEO. We had a well-organized international soccer team in Rochester and won the league one year. It was a fantastic time, and our soccer buddies were like our extended family.



ALUMNI ASSOCIATION INTERNATIONAL MEETING

Mayo Clinic international review of select topics in medicine and surgery
Sept. 10–12, 2020 • Lisbon, Portugal • Grande Real Villa Italia Hotel & Spa



The meeting kicks off with a welcome reception on the evening of Thursday, Sept. 10. The program includes scientific talks on Friday and Saturday mornings. Afternoons are free for exploring Lisbon. The program concludes with a gala dinner on Saturday, Sept. 12.

- Five-star hotel in Cascais facing beaches of Lisbon (hotel deadline: May 7)
- Welcome reception & CME program
- President's Dinner at Casa dos Penedos historic villa in the hills of Sintra
- Optional six-night post-conference tour including Lisbon and Porto

Speakers:

"Inherited GI Cancer Syndromes"

Niloy Jewel Samadder, M.D. (GIAE '11)
Division of Gastroenterology and Hepatology
Mayo Clinic in Arizona

"Genomics for Primary Care"

R. John Presutti, D.O. (FM '97)
Chair, Department of Family Medicine
Mayo Clinic in Florida

"Car-T Cell Therapy"

Saad Kenderian, M.B., Ch.B. (HEMO '13)
Division of Hematology
Mayo Clinic in Rochester

"Psychiatric Issues in the Patient with Cancer"

Robert Bright, M.D. (P '07)
Department of Psychiatry & Psychology
Mayo Clinic in Arizona

"E-cigs: The Good, Bad and Ugly"

Barbara Ruddy, M.D. (I '86, EMS '87)
Division of Community Internal Medicine
Mayo Clinic in Arizona

"Global Health Disparities"

Augustine Chavez, M.D. (FM '18)
Department of Family Medicine
Mayo Clinic in Arizona

"Perioperative Medicine Pearls"

Karen Mauck, M.D. (ADGM '01, CLRSH '03)
Division of General Internal Medicine
Mayo Clinic in Rochester

**"Cardiovascular Risk Factors in Women:
Same as Men?"**

Susan Wilansky, M.D. (CV '03)
Department of Cardiovascular Diseases
Mayo Clinic in Arizona

"History of Pediatric Heart Transplantation"

Carl Backer, M.D. (MED '80)
President, Mayo Clinic Alumni Association
Division of Cardiothoracic Surgery
Ann & Robert H. Lurie Children's Hospital
Chicago, Illinois

"Artificial Intelligence in Health Care Delivery"

Rajeev Chaudhry, M.B.B.S. (CIM '00)
Division of Community Internal Medicine
Mayo Clinic in Rochester

"Early Puberty and the Obesity Epidemic"

Donald Zimmerman, M.D. (ENDO '78, PDE '79,
PHYS '80, PD '81)
Head, Endocrinology
Ann & Robert H. Lurie Children's Hospital
Chicago, Illinois

"Pulmonary Medicine Update 2020"

Richard Helmers, M.D. (THD '90)
Division of Pulmonary and Critical Care Medicine
Mayo Clinic Health System, Eau Claire, Wisconsin

**"When to Think of Zebras When Evaluating
Abdominal Pain: Lessons From the Division
of Consultative Medicine at Mayo Clinic"**

Steven Ressler, M.D. (CMED '02)
Chair, Division of General Internal Medicine
Mayo Clinic in Arizona

**"Treating Irritable Bowel Syndrome –
Beyond Antispasmodics!"**

Lucinda Harris, M.D. (GI '04)
Division of Gastroenterology and Hepatology
Mayo Clinic in Arizona

**"Well-being for Physicians and Scientists:
Ancient Challenges, New Perspective and
Thoughtful Evidence-based Approaches"**

Abd Moain Abu Dabrh, M.B., B.Ch. (PREV '14)
Department of Family Medicine
Adam Perlman, M.D. (GIM '19)
Division of General Internal Medicine
Mayo Clinic in Florida

**"Lifestyles of the Kicked and Famous: Olympian
and Elite Taekwondo Athletes' Diets and Habits"**

George Pujalte, M.D. (FM '15)
Department of Family Medicine
Mayo Clinic in Florida



Registration information:
alumniassociation.mayo.edu/events

MAYO CLINIC UPDATE

Mayo Clinic awards named professorships

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

Judy Boughey, M.D. (S '06)

W.H. Odell Professor of Individualized Medicine
Division of Breast, Endocrine, Metabolic,
and Gastrointestinal Surgery
Department of Surgery
Mayo Clinic in Rochester

Richard Caselli, M.D. (N '87)

Mildred A. and Henry Uihlein, II,
Professor of Medical Research
Department of Neurology
Mayo Clinic in Arizona

Christopher Evans, Ph.D. (PMR '13)

John and Posy Krehbiel Professor of Orthopedics
Department of Physical Medicine and Rehabilitation
Department of Orthopedic Surgery
Mayo Clinic in Rochester

Lilach Lerman, M.D., Ph.D. (PHYS '95)

Arthur M. and Gladys D. Gray Professor in
Honor of Dr. Howard A. Andersen
Division of Nephrology and Hypertension
Department of Medicine
Department of Cardiovascular Medicine
Department of Physiology and Biomedical Engineering
Mayo Clinic in Rochester

Hongfang Liu, Ph.D. (HSR '11)

Dr. Richard F. Emslander Professor II
Chair, Division of Digital Health Sciences
Department of Health Sciences Research
Mayo Clinic in Rochester

Cynthia McCollough, Ph.D. (RD '91)

Brooks – Hollern Professor
Division of Medical Physics
Department of Radiology
Mayo Clinic in Rochester

Vijay Shah, M.D. (GI '98)

Carol M. Gattton Professor of Digestive Diseases
Research Honoring Peter Carryer, M.D.
Chair, Division of Gastroenterology and Hepatology
Department of Medicine
Department of Physiology and Biomedical Engineering
Mayo Clinic in Rochester

Michael Wallace, M.D. (GI '03)

Fred C. Andersen Professor
Division of Gastroenterology and Hepatology
Department of Internal Medicine
Mayo Clinic in Florida

Anthony Windebank, M.D. (N '81)

Judith and Jean Pape Adams Charitable Foundation
Professor of Neuroscience
Department of Neurology
Mayo Clinic in Rochester

Zbigniew Wszolek, M.D. (EEMG '91)

Haworth Family Professor of
Neurodegenerative Diseases
Department of Neurology
Mayo Clinic in Florida

Arizona & Florida Investigators of the Year

Mayo Clinic named Investigators of the Year at Mayo Clinic in Arizona and Florida. This award recognizes researchers who have made significant advances that have strongly influenced their fields of research.

David Dodick, M.D. (I1 '91, N '94), Department of Neurology at Mayo Clinic in Arizona, is director of Mayo's headache and concussion programs and a professor of neurology. For more than 25 years his research efforts have been devoted to understanding migraine and related disorders and translating those findings into enhanced care for patients.

He has been the principal investigator of more than 100 clinical trials in headache and the overall national/international principal investigator of more than 15 multicenter trials. Dr. Dodick is co-investigator of a National Institutes of Health grant investigating detection, diagnosis and risk factors for chronic traumatic encephalopathy. He also is director

of the American Registry for Migraine Research and International Registry for Migraine Research.

Michael Wallace, M.D. (GI '03), Division of Gastroenterology and Hepatology, Department of Internal Medicine and the Fred C. Andersen Professor, is director of the Digestive Diseases Research Program at Mayo Clinic in Florida. His research focuses on advanced imaging systems for the detection and treatment of early cancers and precancerous lesions of the gastrointestinal tract. He researches and treats Barrett's esophagus, colorectal polyps, pancreatic cancer and colon cancer. He is working on ways to detect cancer and precancerous growths earlier, in less invasive ways.

Dr. Wallace was named Mentor of the Year for the American Society for Gastrointestinal Endoscopy and American Gastroenterological Association. He has published in almost 350 peer-reviewed research journals.



David Dodick, M.D.



Michael Wallace, M.D.

Mayo Clinic enters joint venture with SEHA to operate Sheikh Shakhbout Medical City

Mayo Clinic and Abu Dhabi Health Services Company (SEHA), the largest health care network in the United Arab Emirates (UAE), announced a joint venture to operate Sheikh Shakhbout Medical City, one of the UAE's largest hospitals for patients with serious or complex medical conditions. As part of the agreement, Mayo Clinic will become a shareholder in the new operating company, marking a new type of partnership by an international health care provider in the UAE.

SEHA's and Mayo Clinic's clinical and management teams worked to open Sheikh Shakhbout Medical City, a 741-licensed bed hospital designed to provide specialty care across a range of clinical practices, setting new benchmarks for medical care and experience in the UAE. The collaborators have a common goal to be the preferred destination for patients who need serious or complex care in Abu Dhabi, with a plan to transition Sheikh Shakhbout Medical Center into a premier destination for medical care in the Middle East over the next decade.

"This is a collaboration and unique partnership in the region, with Mayo Clinic physicians, nurses, administrators and others working side by side with colleagues from SEHA," says Gianrico Farrugia, M.D. (I '91, GI '94), president and CEO, Mayo Clinic.

"Mayo Clinic's humanitarian mission and values are the foundation of our international strategy, which includes sharing and extending our culture, clinical knowledge and health care delivery expertise to help meet the needs of patients wherever they are."

Mayo Clinic cardiologist Naser Ammash, M.D. (CVCH '95), Department of Cardiovascular Medicine, was named CEO of Sheikh Shakhbout Medical City. Matthew Gettman, M.D. (U '00), Mayo Clinic Department of Urology and the Erivan K. Haub Family Professor of Urologic Cancer Honoring Horst Zincke, M.D., was named chief medical officer.

Sheikh Shakhbout Medical City began accepting patients in November.



Naser Ammash, M.D.



Matthew Gettman, M.D.

Mayo Clinic, Hitachi to build next-generation carbon ion therapy treatment facility

Mayo Clinic and Hitachi, Ltd. reached an agreement in principle to build a carbon ion treatment facility as part of Mayo Clinic's recently announced integrated oncology facility to be constructed at Mayo's campus in Jacksonville, Florida.

There are no carbon ion therapy treatment centers in North America. The technology is available at only a handful of centers in Asia and Europe.

"As a leading National Cancer Institute-Designated Comprehensive Cancer Center with locations in Florida, Minnesota and Arizona, Mayo Clinic is uniquely qualified to bring carbon ion

therapy to the U.S.," says Gianrico Farrugia, M.D. (I '91, GI '94), president and CEO, Mayo Clinic. "Carbon ion therapy has tremendous potential as a tool for treating patients with challenging cancers that do not respond well to currently available therapies."

Mayo Clinic radiation oncologists and physicists have studied carbon ion treatment in Asia and Europe for almost a decade and have developed a high level of expertise in treatment planning and delivery.

Mayo Clinic physicians & scientists named Distinguished Educators

Seven Mayo Clinic staff members received 2019 Distinguished Educator Awards from Mayo Clinic College of Medicine and Science. The award recognizes excellence in education, demonstrated leadership and professionalism in education research or administration, recognition by students or faculty, commitment to diversity, creation of new ways to teach or application of innovative techniques that foster the educational process, contributions to the body of knowledge and methodology in medical education, and active mentorship of junior faculty in education.

Arizona

Holenarasipur Vikram, M.D. (INFD '05)

Division of Infectious Diseases
Department of Internal Medicine
Professor of medicine

Florida

Charles Burger, M.D. (THD '91)

Division of Pulmonary, Allergy and Sleep Medicine
Department of Internal Medicine
Professor of medicine

Rochester

Liselotte Dyrbye, M.D. (CIM '01)

Division of Community Internal Medicine
Department of Medicine
Professor of medical education and medicine

Amy Oxentenko, M.D. (I '01, CMR '02, GI '05)

Division of Gastroenterology and Hepatology
Department of Medicine
Professor of medicine

Larry Pease, Ph.D. (IMM '84)

Department of Immunology
Department of Biochemistry and Molecular Biology
Gordon H. and Violet Bartels Professor
of Cellular Biology

Zelalem Temesgen, M.D. (INFD '95)

Division of Infectious Diseases
Department of Medicine
Professor of medicine

Mayo Clinic Health System

Donn Dexter, M.D. (MED '86, N '90, SLEEP '91)

Department of Neurology
Eau Claire, Wisconsin
Assistant professor of neurology

Amy Williams, M.D., named executive dean, Mayo Clinic Practice

Amy Williams, M.D. (I '87, NEPH '90), was named executive dean for Mayo Clinic Practice, succeeding Charles (Michel) Harper Jr., M.D. (I '83, N '86). Dr. Williams joined Mayo Clinic in 1990 and is a member of the Mayo Clinic Board of Governors and Mayo Clinic Board of Trustees, professor of medicine, chair of the Department of Medicine, faculty member in the Division of Nephrology and Hypertension, and medical director of the Eisenberg Dialysis Unit.

Dr. Williams serves on the board of directors of the American Board of Internal Medicine and participates in an Association of Professors of Medicine initiative to address sexual harassment in health care.



Amy Williams, M.D.

David Ahlquist, M.D., elected to National Academy of Inventors Fellows Program

David Ahlquist, M.D. (MED '77, I '80, GI '83), Mayo Clinic Emeriti Staff, was elected to fellow status in the National Academy of Inventors (NAI). The academy's Fellows Program highlights academic inventors who have demonstrated a spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society.

Dr. Ahlquist's primary invention focus has been on the minimally invasive early detection and prevention of colorectal neoplasms. He is the principal investigator and inventor of the technology on which Cologuard is based. Cologuard is a minimally invasive stool-based assay approved for screening and early diagnosis of colorectal neoplasms.

Mayo Clinic's Richard Ehman, M.D. (RD '85), the Blanche R. and Richard J. Erlanger Professor of Medical Research; and Michael Yaszemski, M.D., Ph.D. (OR '96), the John and Posy Krehbiel Professor of Orthopedics Honoring Bernard F. Morrey, M.D., were elected to the NAI Fellows Program in 2016 and 2014, respectively.



David Ahlquist, M.D.

NIH-funded research consortium to target FTL

Mayo Clinic and the University of California, San Francisco, received a five-year, multi-investigator research grant expected to total more than \$63 million from the National Institutes of Health to advance treatments of frontotemporal lobar degeneration (FTLD).

Frontotemporal lobar degeneration disorders are expected to account for 10% to 20% of dementia cases in the U.S. FTLD frequently affects people in their 40s, 50s and 60s, and often leads to rapid cognitive and physical decline and death in fewer than 10 years. There are no effective treatments.

The new grant merges two ongoing studies — Advancing Research and Treatment in Frontotemporal Lobar Degeneration (ARTFL) and Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS) — to form an integrated North American research consortium, ARTFL-LEFFTDS Longitudinal Frontotemporal Lobar Degeneration (ALLFTD). The ALLFTD program will allow researchers to directly compare familial and sporadic forms of the disease and build the scientific foundation for potential therapies across disease subtypes.



Bradley Boeve, M.D.

Mayo Clinic's Bradley Boeve, M.D. (I1 '92, N '95, NACF '96), chair, Division of Behavioral Neurology at Mayo Clinic in Rochester and The Little Family Foundation Professor of Lewy Body Dementia, is co-principal investigator of the consortium.

Mayo Clinic receives \$15 million gift to advance innovative ideas

Mayo Clinic received a \$15 million gift from philanthropist Jay Alix to provide resources directed by the Mayo Clinic president and CEO to advance innovative ideas with the potential to transform health care. In 2018 Alix made a \$200 million gift to support the endowment for Mayo Clinic Alix School of Medicine.

The new gift is in gratitude to the leadership of Mayo Clinic, honoring John Noseworthy, M.D. (N '90), emeritus president and CEO, Mayo Clinic. In appreciation of this gift, Mayo Clinic will establish the John H. Noseworthy, M.D., and Jay Alix Distinguished Chair, which will be conferred to the sitting president and CEO of Mayo Clinic.

"Mayo Clinic has always had visionary leaders with more brilliant ideas than funds available," says Alix. "My hope is this gift will empower and leverage Mayo Clinic's knowledge and expertise with emerging opportunities in artificial intelligence, digital technologies, data science and more, advancing Mayo Clinic as a global institution with the patients' best interests in mind."

Graduate school associate deans announced

Mayo Clinic Graduate School of Biomedical Sciences announced new associate deans.



John Fryer, Ph.D. (NSCI '11)

Associate dean for Arizona
Department of Neuroscience
Associate professor of neuroscience
Mayo Clinic in Arizona



Bruce Horazdovsky, Ph.D. (MBIO '02)

Associate dean of Academic Affairs
Department of Biochemistry and
Molecular Biology
Associate professor of biochemistry
and molecular biology
Mayo Clinic in Rochester



J. Luis Lujan, Ph.D. (NS '18)

Associate dean of Student Affairs
Department of Neurologic Surgery
Department of Physiology and
Biomedical Engineering
Associate professor of neurosurgery
Assistant professor of biomedical
engineering
Mayo Clinic in Rochester



Evette Radisky, Ph.D. (CB '16)

Associate dean for Florida
Department of Cancer Biology
Professor of cancer biology
Mayo Clinic in Florida



Virginia Shapiro, Ph.D. (IMM '08)

Associate dean of Faculty Affairs
Vice chair, Department of Immunology
Professor of immunology
Mayo Clinic in Rochester

Common early sign of cardiovascular disease may indicate cancer risk

A Mayo Clinic-led study of 488 cardiac patients followed for as long as 12 years found that microvascular endothelial dysfunction, a common early sign of cardiovascular disease, is associated with a more than twofold risk of cancer.

The study found that microvascular endothelial dysfunction may be a useful marker for predicting risk of solid-tumor cancer in addition to its known ability to predict more advanced cardiovascular disease.

The association between microvascular endothelial dysfunction and cancer was independent but more prominent among men and in patients with factors such as hypertension, significant coronary artery disease, smoking and obesity.

“This abnormal vasoreactivity should alert clinicians not only to the risk of cardiovascular disease but also to malignancy,” says Amir Lerman, M.D. (I ’89, CV ’94), Division of Ischemic Heart Disease & Critical Care, Mayo Clinic in Rochester, the Barbara Woodward Lips Professor III and the study’s senior author. “This risk prediction appears to precede the development of disease by more than five years.

“The study demonstrated that noninvasive vascular function assessment may predict the future development of cancer. More studies are needed, but assessment of vascular function potentially may predict individuals at risk.”



Amir Lerman, M.D.

Many younger patients with stomach cancer have a distinct disease

Mayo Clinic research has discovered that many people younger than 60 who develop stomach cancer have a genetically and clinically distinct disease. Compared to stomach cancer in older adults, this early-onset form often grows and spreads more quickly, has a worse prognosis and is more resistant to traditional chemotherapy treatment.

While rates of stomach cancer in older patients have been declining for decades, this early-onset cancer is increasing and now makes up more than 30% of stomach cancer diagnoses.

“This is an alarming trend because stomach cancer is a devastating disease,” says senior author Travis Grotz, M.D. (CI ’12, CTSA ’15, S ’15), Division of Hepatobiliary and Pancreas Surgery, Mayo Clinic in Rochester. “There is little awareness in the U.S. of the signs and symptoms of stomach cancer, and many younger patients may be diagnosed late — when treatment is less effective.

“Hopefully, studies like this will raise awareness and increase physician suspicion of stomach cancer, particularly in younger patients,” says Dr. Grotz. Younger patients who feel full before finishing a meal or who have reflux, abdominal pain, unintentional weight loss and difficulty eating should see a health care provider.



Travis Grotz, M.D.

President & chief medical officer named for Mayo Clinic Platform

John Halamka, M.D., the Michael D. Brennan, M.D., President's Strategic Initiative Professor, has joined Mayo Clinic as president of Mayo Clinic Platform. The platform will elevate Mayo Clinic to a global leadership position in digital health care.

Dr. Halamka has been executive director of the Health Technology Exploration Center for Beth Israel Lahey in Massachusetts; chief information officer at Beth Israel Deaconess Medical Center; and International Healthcare Innovation Professor at Harvard Medical School. He remains chair of New England Healthcare Exchange Network Inc. and is a practicing emergency medicine physician.



John Halamka, M.D.

Clark Otley, M.D. (DSRG '96), Department of Dermatology at Mayo Clinic in Rochester, is chief medical officer of Mayo Clinic Platform.

The Mayo Clinic Platform is the strategic initiative to improve health care — in Mayo Clinic's own practice and globally — through insights and knowledge derived from data. Mayo is developing a coordinated, portfolio approach to create new platform businesses, an engine for artificial intelligence and digital product commercialization, and an ecosystem of partners that will transform health care and strengthen the Mayo Clinic core.



Clark Otley, M.D.

Board of Trustees news

The Mayo Clinic Board of Trustees elected Katherine Baicker, Ph.D., as a public trustee. Dr. Baicker is the dean and the Emmett Dedmon Professor at the University of Chicago Harris School of Public Policy; a research associate at the National Bureau of Economic Research; and an elected member of the National Academy of Medicine, National Academy of Social Insurance and American Academy of Arts & Sciences.

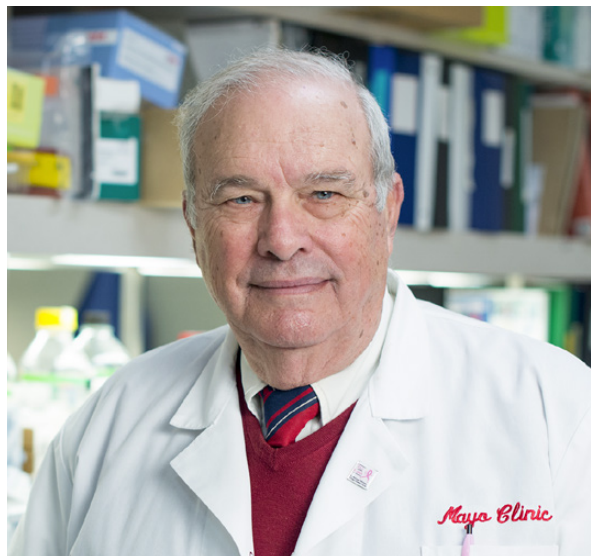
Dr. Baicker also serves on the Congressional Budget Office's Panel of Health Advisers and as a director of Eli Lilly and Company and HMS Holdings. She is a member of the Advisory Board for the National Institute for Health Care Management and a trustee of NORC at the University of Chicago. She has served as chair of the board of directors of AcademyHealth and as a Senate-confirmed member of the president's Council of Economic Advisers.

Research examines predictors of breast cancer late recurrence

Mayo Clinic researchers are examining the factors that contribute to the risk of breast cancer recurrence, including the patient's subtype of cancer. E. Aubrey Thompson, Ph.D. (CBS '03), Department of Cancer Biology, Mayo Clinic in Florida, and his team reviewed a decade's worth of follow-up data for thousands of patients to assess the risk of breast cancer recurrence after initial cancer treatment. The researchers were particularly interested in a breast cancer subtype that is HER2-positive and hormone-receptor positive.

The investigators found a low risk of long-term cancer recurrence in patients with this subtype who received trastuzumab-based chemotherapy after surgery, with 3% incidence of recurrence between years 5-10 in patients with no lymph node involvement. Their data suggests a long-term benefit of trastuzumab among patients with this subtype.

"It's often recommended that hormone-receptor-positive breast cancer patients take medication for many years to prevent breast cancer recurrence," says Saranya Chumsri, M.D. (HEMO '16), Division of Hematology and Medical Oncology, Mayo Clinic in Florida. "However, not every patient may need this prolonged therapy. When it comes to preventing late relapse in this group of patients, our data suggest that the benefit of trastuzumab persisted long term and this group of patients may have lower risk of late recurrence. If so, this group of patients may be able to avoid the long-term side effects of endocrine therapy."



E. Aubrey Thompson, Ph.D.



Saranya Chumsri, M.D.

Mayo Clinic Alix School of Medicine reaccredited through 2027

Mayo Clinic Alix School of Medicine was reaccredited by the Liaison Committee on Medical Education through 2027. The surveyors commended the school for its focus on meeting the needs of students across locations and disciplines, specifically pointing out the

excellent academic counseling, career advising and personal counseling as areas of strength. Surveyors also commented on the school's investment in faculty support and education technology.

Access to windows & outdoor views improves cognitive performance

Research from the Well Living Lab, a Mayo Clinic and Delos collaboration, shows that office areas with windows that provide natural light and views of the outdoors improve workers' cognitive performance and satisfaction with their office environment.

Study participants moved into a simulated office setting matching their regular office cubicles and conducted normal work activities for 14 weeks while their environment and behavior were monitored. Every two weeks, participants were exposed to a different window condition — mesh shades, dynamically tinted windows or blackout shades to remove daylight and view.

Cognitive function improved when participants had access to daylight and view in their office area.

Their ability to hold and manipulate items in memory and ability to inhibit responses increased. Eyestrain lessened when participants had access to daylight and view from the windows as did environmental satisfaction.

"We've added to the growing evidence that the ability to see the outdoors has a positive impact," says Brent Bauer, M.D. (PHYS '86, MED '88, I '91, ADGM '92), medical director of the Well Living Lab and a principal investigator on the study. "Other studies have shown access to daylight and views reduces stress, improves mood, lowers work absenteeism and reduces work errors. Additional studies can build upon these findings to help complete the picture that is emerging — windows are good for us."



Refer-a-friend

Physician and scientist alumni can refer friends and family who are not their patients through a handy referral tool. These referrals receive priority attention: alumniassociation.mayo.edu/resources/refer-a-friend.

Recent Mayo Clinic rankings

2019 Leading Disability Employer, National Organization on Disability, second consecutive year

- Recognizes organizations that demonstrate exemplary employment practices for people with disabilities, including hiring people with disabilities and tapping into their talents
- Based on performance on Disability Employment Tracker, a survey that considers disability employment practices and performance; organizations also receive points based on percentage of people with disabilities in their workforce

Patient safety 'A' grades, Leapfrog Group

- Hospital Safety Score uses 17 measures of publicly available hospital safety data combined with 11 self-reported survey answers to produce a single patient safety score
- Hospitals at Mayo Clinic that received the "A" grade:
 - Mayo Clinic Hospital in Arizona
 - Mayo Clinic Hospital in Florida
 - Mayo Clinic Hospital — Rochester
 - Mayo Clinic Health System — Austin and Albert Lea, Mankato and Red Wing, Minnesota; Franciscan Health System in La Crosse, Wisconsin

Patient experience achievements in 2019, Press Ganey

- Guardian of Excellence Award — organizations that achieved 95th percentile or higher composite overall rating for patient experience, staff engagement or clinical quality performance:
 - Mayo Clinic Hospital in Arizona (third consecutive year)
 - Mayo Clinic Hospital in Florida (third consecutive year)
 - Emergency department, Mayo Clinic Health System — Oakridge in Osseo, Wisconsin

- Pinnacle of Excellence Award — organizations that have maintained consistently high levels of excellence in patient experience, staff engagement or clinical quality performance for a three-year period:
 - Mayo Clinic Hospital in Arizona (third consecutive year)
 - Mayo Clinic Hospital — Rochester, Methodist Campus (second consecutive year)

Center of Excellence for Enhanced Recovery After Surgery (ERAS)

- Mayo Clinic in Arizona recognized — second medical center in U.S. to earn distinction; has reported decreased lengths of hospital stays and fewer complications and readmissions while achieving significant cost savings
- ERAS improves care of surgery patients and enhance postoperative recovery through evidence-based practice, audit, education and research



Mayo Clinic & W. L. Gore form joint venture for regenerative therapies

Mayo Clinic formed a joint venture, Avobis Bio, with W. L. Gore & Associates Inc., a global materials science company, to advance the development of implantable cell therapies to treat debilitating conditions with no cure.

Avobis Bio will explore the use of mesenchymal stem cells combined with bioabsorbable scaffolds that enhance the effectiveness of the cells in stimulating the body to heal.

Mayo Clinic's William Faubion Jr., M.D. (PDGI '98, GI '02), Eric Dozois, M.D. (S '00, CRS '01), and Allan Dietz, Ph.D. (ONCL '02), in collaboration with

Gore experts, developed an innovative investigational treatment for perianal fistulas that has shown promising results in a clinical trial. The treatment involves harvesting and processing a patient's own mesenchymal stem cells, which are then populated on Gore's bioabsorbable polymer scaffold and surgically implanted in the fistula. In a phase I clinical trial, 76% of patients experienced healing at one year. If validated in a larger trial, this success would dramatically exceed outcomes achieved with existing conventional treatment.



Allan Dietz, Ph.D., William Faubion, M.D., and Eric Dozois, M.D.

Obituaries

Gordon Arnold, M.D. (I '69), Oct. 15, 2019.

Francis Bledsoe, M.D. (I '60), died Oct. 24, 2019.

Johannes Eberle, M.D. (S '53), died Nov. 11, 2014.

Merlyn Eckelberg, M.D. (RD '68), died June 6, 2018.

Pierre Forgacs, M.D. (I '74, INFD '76), died Nov. 15, 2019.

William Glew, M.D. (OPH '58), died Nov. 21, 2019.

William Kimber, M.D. (I '66), died March 9, 2018.

Ernest Lorenc, M.D. (DERM '60), died Nov. 20, 2019.

Thomas McDonald, M.D. (ENT '72), died Sept. 10, 2019.

Charles Piper, M.D. (S '59), died Oct. 4, 2016.

Edmund Rieder, M.D., D.O. (P '73, CAP '75),
died Sept. 23, 2019.

Edward Spudis, M.D. (N '58), died March 25, 2019.

Jorge Torriglia, M.D. (U '79), died Aug. 18, 2019.

William West, M.D. (OR '66), died April 30, 2019.

Lorin Whittaker, M.D. (S '37), died May 27, 2000.

Complete obituaries and alumni news:
alumniassociation.mayo.edu/people

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 throughout Mayo Clinic.

**Please send correspondence
and address changes to:**

Mayo Clinic Alumni Center
Siebens 5-33, Mayo Clinic
200 First Street S.W.
Rochester, MN 55905
mayoalumni@mayo.edu
507-284-2317
Fax 507-538-7442

Executive Editor

Judith D. Anderson

Managing Editor

Melissa Abrams Caulfield

INFORMATION

Alumni meetings
Receptions
alumniassociation.mayo.edu

ALUMNI PHILANTHROPY

Doctors Mayo Society
844-330-5855
507-284-2800
doctorsmayosociety@mayo.edu

ALUMNI CENTER

507-284-2317
mayoalumni@mayo.edu
alumniassociation.mayo.edu

PHYSICIAN REFERRAL

Arizona 866-629-6362
Florida 800-634-1417
Rochester 800-533-1564
mayoclinic.org/medicalprofs

EDUCATION VERIFICATION

Mayo Clinic College of
Medicine Student Services
Fax 507-538-0771
507-538-7129
msgmeverification@mayo.edu

PATIENT TRANSPORTATION

Mayo Clinic MedAir
Mayo One
800-237-6822
mayomedicaltransport.com

*Mayo Clinic is committed to
creating and sustaining an
environment that respects and
supports diversity in staff and
patient populations.*

**MAYO CLINIC ALUMNI
ASSOCIATION OFFICERS**

Carl Backer, M.D.
Winnetka, Illinois
President

Theresa Emory, M.D.
Williamsburg, Virginia
President Elect

Burkhard Wipperman, M.D.
Hildesheim, Germany
Vice President

M. Molly McMahon, M.D.
Rochester, Minnesota
Secretary-Treasurer

Eric Edell, M.D.
Rochester, Minnesota
Past President

Judith D. Anderson
Rochester, Minnesota
Director, Alumni Center

EXECUTIVE COMMITTEE

Gerardo Colon-Otero, M.D.
Jacksonville, Florida, Ex Officio

Elizabeth Cozine, M.D.
Rochester, Minnesota

Dawn Marie Davis, M.D.
Rochester, Minnesota, Ex Officio
Medical Director, Alumni Center

Eddie Greene, M.D.
Rochester, Minnesota

Bruce Horazdovsky, Ph.D.
Rochester, Minnesota

Mitchell Humphreys, M.D.
Scottsdale, Arizona

Sydney Larkin
Rochester, Minnesota
MCASOM representative

Kent Richter
Scottsdale, Arizona
MCASOM representative

Erik St Louis, M.D.
Rochester, Minnesota

Olayemi Sokumbi, M.D.
Jacksonville, Florida

Tamiel Turley
Rochester, Minnesota
MCGSBS representative

Michelle Wyatt, M.D.
Rochester, Minnesota
MCR-MCSGME representative

BOARD OF DIRECTORS

Amado Baez, M.D.
Augusta, Georgia

Robert Bratton, M.D.
Lexington, Kentucky

Melanie Brown, M.D.
St. Paul, Minnesota

Daniel Chan, M.D.
Mililani, Hawaii

M. Sertac Cicek, M.D.
Rochester, Minnesota

Sean Dinneen, M.D.
Galway, Ireland

Erin Gillaspie, M.D.
Nashville, Tennessee

Kyle Kircher, M.D.
Stillwater, Minnesota

John Loftus, M.D.
Napa, California

Olufunso Odunukan, M.B.B.S.
Atlanta, Georgia

Michael Rock, M.D.
Rochester, Minnesota

William Sheaffer, M.D.
Scottsdale, Arizona
MCA-MCSGME representative

David Skillrud, M.D.
Bloomington, Illinois

Thomas Smith, M.D.
Littleton, Colorado

William Stross, M.D.
Jacksonville, Florida
MCF-MCSGME representative

Daniel Townsend, M.D.
Boston, Massachusetts

Kajetan von Eckardstein, M.D.
Kaiserslautern, Germany

Enrique Wolpert, M.D.
Mexico City, Mexico

Elaine Yacyshyn, M.D.
Edmonton, Alberta, Canada

Patricia Yugueros, M.D.
Atlanta, Georgia

ALUMNI CENTER
Mayo Clinic
200 First Street SW
Rochester, MN 55905

ELECTRONIC SERVICE REQUESTED

NON-PROFIT ORG.
U.S. POSTAGE
PAID
MAYO CLINIC

FIND MAYO CLINIC



We've got you covered from head to toe.

Show your Mayo Clinic pride with these new offerings from the Alumni Association. Protect your noggin with a dermatologist-approved sun hat. Treat your feet to socks with the three-shield logo. Shop in person on the Rochester campus or order online alumniassociation.mayo.edu/shop.

Model: Lindsay Warner, M.D.
(MED '14, I '15, ANES '18, ANPD '19,
ANOB '20), an obstetrics anesthesiology
fellow, Mayo Clinic in Rochester.

