REDEFINING LEADERSHIP
THE NEXT GENERATION OF LEADERS & BEST
2018 INTERNAL MEDICINE ANNUAL REPORT
During 2018, our Department of Internal Medicine hit its 170th anniversary within the University of Michigan (itself 201 years old). We continued to hold our own in the national rankings and to grow, evolve and innovate to meet the ever-changing needs of health care.

U.S. News and World Report (USNWR) ranked Michigan Medicine as the No. 5 health system in the country. Five internal medicine specialties were ranked in the top ten: Pulmonary (#5), Gastroenterology & GI Surgery (#6), Geriatrics (#7), Cardiology & Heart Surgery (#8) and Nephrology (#8).

Also receiving impressive rankings were: Rheumatology (#11), Diabetes & Endocrinology (#13) and Cancer (#15).

The U-M Medical School was ranked No. 7 for training both internal medicine and primary care physicians.

The theme of this year’s report is “Redefining Leadership: The Next Generation of Leaders and Best.” The Department of Internal Medicine has always been a leader in size, vision and research, but also for our people. We are leaders and best. It can be seen from our historical successes (page 50), as well as our internal and external contributions to education (page 71), patient care (page 53) and research (page 93).

When I trained here as a fellow, the bar was set high so I always aspired to do that. I took that lesson with me throughout my career wherever I went. Here I am today, carrying out that tradition and hopefully passing on that lesson to others, as my esteemed colleagues have (page 25).
NEW LEADERS AND TRANSITIONS

Goutham Narla, MD, PhD joined us in July 2018 as chief of the Division of Genetic Medicine (page 26), replacing Eric Fearon, MD, who had served as chief since 2010 and is now the director of the Rogel Cancer Center.

In July 2018, Robert Ernst, MD, was named associate vice president for student life and executive director of the University Health Service. In his most recent position as the senior associate division chief for ambulatory care at Michigan Medicine, Ernst provided leadership and oversight for more than 70 clinical faculty and also helped lead institutional efforts in service to primary care transformation, all while providing direct clinical care and teaching in internal medicine.

NiJuanna Irby-Johnson, MD, took on the new role as associate chief of population health, quality and strategy for the Division of General Medicine (page 60).

David Fox, MD, stepped down as chief of the Division of Rheumatology after 28 years of service in fall 2018. He will now focus solely on his research. (page 40).

Raymond Yung, MD, is doing double duty acting as division chief of Geriatric and Palliative Medicine, as well as interim division chief of Rheumatology.

LIVING UP TO OUR REPUTATION

At the end of 2018, we had an external review of our department. This 19-page report praised much of what we do. It included comments like “best in class” and “ideal role model” validating our many efforts to be a transformative Department of Internal Medicine. As we’ve cultivated generations of leaders and innovations in medical care and strive to be the best in all we do, this external perspective confirms that we are living up to our reputation.

These are some of the reasons why Internal Medicine is ranked No. 8 by USNWR.

“ As we’ve cultivated generations of leaders and innovations in medical care and strive to be the best in all we do, this external perspective confirms that we are living up to our reputation.”
Our volume of off-site primary and specialty care and on-site specialty care visits increased during 2018 while on-site primary care remained steady. Michigan Medicine’s outpatient facilities in Ann Arbor, Brighton, Livonia, Northville and West Ann Arbor are performing well and our recently opened center in Brighton is already thriving. Michigan Medicine was ranked No. 1 in Michigan and No. 5 in the country in U.S. News & World Report’s 2018-19 “Best Hospitals” rankings, an honor that measures excellence in patient care. We’ve been growing to meet that demand.

IN THE COMMUNITY
In fall 2018, the Brighton Center for Specialty Care opened. It offers a variety of specialty services together in one building that is not a hospital, and provides a significant number of services that patients would normally have to go see at multiple locations all under one roof. At the new state-of-the-art facility, Michigan Medicine faculty physicians will bring patients the same high level of care they have come to expect in Ann Arbor, now in Livingston County.

In addition to specialty services, the center has four operating rooms, with the ability to add two more in the future, and 16 infusion chairs. The Michigan Medicine Brighton Health Center, located across the street from the new facility, remains in operation and specializes in general pediatrics, internal medicine and obstetrics and gynecology.

In addition to our Brighton Center for Specialty Care, our Parkland Plaza (West Ann Arbor) Health Center opened in November 2017. Our East Ann Arbor Medical Campus expansion will begin in 2021. Its first phase will include moving high-volume ambulatory services to this location to serve our patients while opening up space for more specialty clinics on the main medical campus.

There are also plans underway to create a Northville Health Center II at the current site in order to meet the growing demand for our services.

INPATIENT CARE
Another project in the works includes a potential new adult inpatient facility in Ann Arbor that would include the relocation of 110 beds from University Hospital plus 154 new beds for a total of 264. In addition, the plan calls for up to 23 procedural suites for surgical and interventional radiology. If construction goes forward, this proposed building would be constructed on the main Medical Campus, just west of the Frankel Cardiovascular Center.

The proposed adult inpatient facility is the latest project in Michigan Medicine’s quest to enhance patient access while improving quality and safety. Rafina Khateeb, MD, MBA is leading the effort to operate up to 26 beds by U-M hospitalists at St. Joseph Mercy Ann Arbor for U-M patients, encompassing the previous Acute Care for Elders Unit, which will improve inpatient access at University Hospital.

UPDATING STRUCTURE
The U-M Medical Group (UMMG) has been enhancing its organizational structure to better prepare our system to shift from a high-performing regional system to a statewide hub capable of managing 400K local and 3.5M statewide lives. This level of commitment requires additional leadership and management capabilities to support continuous expansion efforts, large multi-specialty facilities and a growth of patient-centered programs all while demonstrating clinical, operational and financial value.

As a result, clinical departmental governance will be separated from routine daily clinical operations. Clinical departments will continue to focus on the clinical strategic direction and oversee faculty retention, recruitment, deployment and performance efforts. UMMG will manage daily ambulatory operations, including staffing, and hold clinics accountable to metrics and goals.

With this in mind, new faculty leadership positions have been added to the UMMG structure, including a new chief clinical officer which has been taken on by John Allen, MD, MBA, professor in the Division of Gastroenterology & Hepatology (page 54). As the new structure has created additional leadership opportunities for faculty, he is now helping to recruit the physicians who will anchor each oversight team.

Northville Medical Director Audrey Fan, MD, was named UMMG’s associate medical director for quality (page 58). In this role, she’s working with UMMG Chief Quality Officer Hae Mi Choe, PharmD, to lead the development and implementation of quality improvement initiatives across UMMG.

IMPROVING ACCESS
As one of the many efforts to improve patient access to care the Office of Patient Experience began working with departments and UMMG to identify opportunities for improvement. The Department of Internal Medicine was one of the departments that took part in a pilot project which brought key people together to discuss the issues faced by each division and to understand availability for new-patient and return-patient appointments by analyzing past data. After the analysis, the project team was able to make several scheduling recommendations including: standardized appointment types, four-hour patient-facing blocks and utilizing physicians, residents, fellows, physician assistants and nurse practitioners working at the top of their licenses to improve access within the department.

Over the past two years, divisions with the new appointment templates are showing improvements in the percentage
of new patients being seen within two weeks. In the clinics where the new scheduling is in place, the staff have noted that they have a predictable patient load, patients are moved to rooms faster and there is less gridlock in the waiting room.

MEETING NEEDS

The need for quality health care continues to rise. As the largest department at Michigan Medicine, internal medicine provides an important leadership role in meeting this need. As you will see reflected in the stories of this report, we do this not only literally through the many leadership roles of our faculty but also through our many efforts to improve the quality and access to patient care throughout our system.
The total number of Department of Internal Medicine faculty remained fairly steady in 2018 with some slight growth seen in our clinical track. The chart at right breaks down our faculty growth trends by year and faculty type.

FACULTY PROMOTIONS
The Regents approved 50 promotions of faculty from the Department of Internal Medicine during 2018. Congratulations to these faculty members on their new status and achievements.

HONORS
Our faculty are “redefining leadership” in the field of medicine in many different ways and they are regularly recognized for it. Some highlights from the last year include:

Sharlene Day, MD; Megan R. Haymart, MD; Theodore (Jack) Iwashyna, MD, PhD; and Keith S. Kaye, MD, MPH were elected into the American Society for Clinical Investigation.

John M. Carethers, MD, was named president of the Association of American Physicians in April 2018. The AAP, the oldest honorific medical society in America, is composed of members who are leading senior physician-scientists and are competitively selected. Dr. Carethers has served on the AAP Council since 2012.

Phillip E. Rodgers, MD, FAAHPM, received the Gerald H. Holman Distinguished Service Award in 2018 for outstanding and dedicated service to the American Academy of Hospice and Palliative Medicine.

FACULTY DEVELOPMENT
Developing leaders has always been a priority of our department and Michigan Medicine as you will see in the stories featured in this year’s report (pages 82-86). The Rudi Ansbacher Program, Leadership Academy and the Executive Leadership in Academic Medicine Program are enabling our faculty to reach higher levels of success. The U-M Medical School also introduced a new program in 2018 called the Advancing Professional Excellence (APEX) Program for Mid-Career Faculty, designed to enhance the mid-career faculty experience and provide support for them to engage in the next level of career excellence (page 86).

DIVERSITY, EQUITY & INCLUSION AND WELLNESS
Diversity, equity & inclusion continues to be a main priority of the University of Michigan. The issue of physician burnout and wellness has also become a major focus for both our department and Michigan Medicine (page 87). These are two important areas that need increased awareness and support to ensure that all can excel and thrive at U-M.

That is why a new vice chair
for equity, inclusion and well-being has been developed by our department and will be appointed in 2019.

**CLINICAL EXCELLENCE**

The department inducted 10 new members in our Clinical Excellence Society in 2018 (see page 69) to honor their high expertise and devotion to clinical care. The Clinical Excellence Society is focused on actively developing programs to enhance all internal medicine faculty members’ ability to deliver the best patient care possible.

**2018 ENDOWED PROFESSORSHIPS**

Department faculty currently hold more than 85 endowed professorships. The new professorships inaugurated in 2018 included:

- James A. Shayman and Andrea S. Kevrick Professor of Translational Medicine – Richard Auchus, MD
- Margaret Terpenning MD Collegiate Professor in Geriatric and Palliative Medicine – Julie Bynum, MD

**TAKING THE LEAD**

In my nearly 40 years on the faculty of the Department of Internal Medicine, I have truly witnessed how we’ve grown, evolved and redefined leadership. We’ve made great strides in providing opportunities to develop our faculty members’ leadership skills instead of just having to learn "on the job." We’ve focused on how to improve clinical care delivery and created a cadre of leaders devoted to that in addition to our already robust research enterprise. We’ve focused on outreach and developing relationships with other health systems to share our expertise, expand our impact and better serve the people of Michigan. Through it all, we’ve remained dedicated to our missions of education, research and patient care.

"We’ve made great strides in providing opportunities to develop our faculty members’ leadership skills instead of just having to learn "on the job." We’ve focused on how to improve clinical care delivery and created a cadre of leaders devoted to that in addition to our already robust research enterprise."
The VA Ann Arbor Healthcare System (VAAAHS) continued to experience steady outpatient and inpatient activity in 2018. Our Ann Arbor campus handled 819,447 outpatient encounters and 81,010 inpatient encounters. Through numerous quality improvement and patient safety initiatives, we continue to address the needs of veterans in a holistic manner. Many of these VAAAHS efforts are serving as models to improving patient care across the country.

A WELCOMING PLACE
The final phase of construction for our new Veteran Welcome Center at the VA Ann Arbor Medical Center began in fall 2018 and was recently completed.

A Fisher House, otherwise known as “a home away from home” for families of patients receiving medical care at major military and VA medical centers, is currently being planned for the VAAAHS. Groundbreaking is anticipated to begin in Spring, 2019 and construction is expected to take about 15 months. Fisher homes are normally located within walking distance of the treatment facility or have transportation available. There are 80 Fisher Houses located on 25 military installations and 33 VA medical centers. Many more houses are under construction or in design.

NEW APPOINTMENTS
During 2018, the following faculty took on new appointments:
Scott Hummel, MD, was named chief of the VA Cardiology Section.
Richard Auchus, MD, was named chief of the VA Endocrine Section.

LEADERSHIP DEVELOPMENT
In terms of redefining leadership, VA faculty and staff are continually finding new ways to develop better leadership skills and provide better patient care.

Our DOCTOR Program, which stands for Direct Observations of Clinical Teaching On Rounds, is an evidence-based program teaching techniques and behaviors to attending physicians. Peers observe an attending physician’s teaching on rounds and provide feedback focused on relationship and communication skills (skills that are needed to best serve patients and learners). This program was first piloted at the VA and is now being introduced at Michigan Medicine.

Another new VA program, Leaders Developing Leaders: Fueling Leadership in Yourself (F.L.Y.) is a four-session program promoting leadership throughout Medicine Service for both physicians and staff. Each one-hour session includes a speaker and hands-on learning activity. Past sessions have included: The Art of Leadership; Mindfulness; Effective Communication; and
Continuous Quality Improvement.
An abstract about this program was selected to be featured in the Innovations Category at the 2019 Society for Hospital Medicine annual meeting.

AN HONORED MENTOR

Carol A. Kauffman, MD, a dedicated mentor to countless trainees and colleagues during her career, was chosen as the recipient of the Infectious Diseases Society of America’s 2018 Walter E. Stamm Mentor Award. Chief of the Infectious Diseases Section of the VAAAHS since 1977, Kauffman fosters an energetic, productive, close-knit team and has created a culture of support and encouragement that provides trainees with strong and enduring mentorship.

VIRTUAL CARE

The VAAAHS is leading the way in virtual care. Grace Su, MD, our chief of gastroenterology is leading the charge. After one of her patients died when he couldn’t return for a follow-up visit, she turned frustration into action by researching how technology could be applied to reach more rural patients and their doctors.

In a study published in Hepatology, Su and her team found that patients of primary care physicians who participated in video consultations with liver disease specialists had a 54 percent higher survival rate than patients whose primary doctors didn’t participate in those exchanges.

We continue to expand upon these efforts. Every section at the VAAAHS will have a virtual care lead.

PROUD TO SERVE THOSE WHO HAVE SERVED

The VA is the largest integrated health care system in the U.S., with about 160 hospitals and nearly 1,000 other facilities such as outpatient clinics. It is also the largest provider of health care training in the country; nearly two-thirds of all U.S. doctors receive some of their training at a VA hospital. Studies consistently show that the VA does well compared with non-VA care. Still, much work remains to be done. Here at the VAAAHS we continue to focus on making it better.

There are many special things that VA medical centers do that are rarely talked about, in particular the final salute for veterans who die at the hospital. After a patient is pronounced dead, the family is called in to see them. The body is placed on a gurney and draped with the American flag. “Taps” plays in the hallway as the body and family are led toward the exit, signaling health care workers and fellow soldiers to pay tribute — civilians stand with hands on their hearts while veterans give the military salute, standing if they are able.

It’s moments like these that remind me how lucky others and I are to care for these men and women who have sacrificed for this country. The most remarkable aspect of VA hospitals is the patients. We have a duty to provide America’s veterans high-quality care, delivered humanely.

“In terms of redefining leadership, VA faculty and staff are continually finding new ways to develop better leadership skills and provide better patient care.”

PROUD TO SERVE THOSE WHO HAVE SERVED
BASIC AND TRANSLATIONAL RESEARCH PROGRAMS

BEN MARGOLIS, MD
VICE CHAIR FOR BASIC AND TRANSLATIONAL RESEARCH

The University of Michigan was the No. 1 public university in research spending in the United States in 2018, at $1.55 billion, and the Medical School was responsible for nearly half of those research expenditures. Discovery and translational research continue to be critical to our mission to advance health care in Michigan and around the world. During 2018, the Department of Internal Medicine was awarded more than $200 million in research funding and published nearly 3,000 research articles to further advance that goal. Several other highlights included:

ADVANCING CANCER RESEARCH

Michigan Medicine received its largest gift ever from Richard and Susan Rogel to boost innovative cancer research and develop the next generation of cancer pioneers. The Rogels committed $150 million to the University of Michigan Comprehensive Cancer Center to realize that vision. This transformational gift will enable Michigan Medicine to draw on its collaborative research culture to drive cancer care forward. It will help attract and support outstanding cancer researchers from around the world, including the most promising fellows and trainees, making U-M a premier center fostering the development of new leaders in cancer research and care.

The National Cancer Institute (NCI) has awarded the University of Michigan Rogel Cancer Center a grant worth $33.4 million over five years. At the same time, the center's designation as a "comprehensive cancer center" was renewed. U-M is in its 30th year of NCI funding for its cancer center. The new grant will fund the center through 2023. It represents a 9 percent increase over the previous support grant and reflects the tremendous breadth and depth of resources we have here at the University of Michigan.

FACULTY HONORS

The American Association for the Advancement of Science named two Department of Internal Medicine faculty as fellows in 2018:

Eric R. Fearon, MD, PhD, the Emanuel N. Maisel Professor of Oncology and Professor of Internal Medicine, Human Genetics and Pathology And Director of the Rogel Cancer Center, was honored for distinguished contributions to the cancer field, particularly in defining the role of accumulated mutations in oncogenes and tumor suppressor genes in colon cancer pathogenesis.

Liangyou Rui, PhD, professor of molecular and integrative physiology, and internal medicine-gastroenterology, was recognized for distinguished contributions to the field of medical science, particularly
for obesity, diabetes and liver disease, and for using mouse models to study human disease.

Elif Oral, MD, MS, a professor from the Division of Metabolism, Endocrinology & Diabetes (MEND) was named to the American Society for Clinical Investigation in December 2018.

William Herman, MD, MPH, the Stefan S. Fajans/ GlaxoSmithKline Professor of Diabetes and a professor from the Division of Metabolism, Endocrinology & Diabetes (MEND) was elected to the Association of American Physicians.

RESEARCH LEADERSHIP

Members of the Endocrine Society have elected five new officers and council members to lead the world’s oldest, largest and most active organization devoted to research on hormones and the clinical practice of endocrinology. Department of Internal Medicine faculty member Gary Hammer, MD, PhD, has been selected as president-elect in 2019-2020 and will serve as president in 2020-2021. Hammer is director of the Endocrine Oncology Program at Michigan Medicine.

SUPPORTING YOUNG FACULTY

In July 2018, the Department of Internal Medicine created three Early-Career Endowment Awards (page 94), valued at $250,000 each, that will be given out annually over the next five years to encourage and support our young researchers. These awards are competitively assigned to junior faculty at the assistant professor level (any track) who are within five years of their terminal residency/fellowship/postdoctoral training. Each award is named in honor of a senior faculty member who has made notable contributions to their field. After nominations and competitive evaluations, the department announced its 2018 awardees:

Robert Dickson, MD, from the Division of Pulmonary & Critical Care Medicine received the Bruce C. Richardson, MD, Department of Internal Medicine Early-Career Endowment Award

Hallie Prescott, MD, MSc, from the Division of Pulmonary & Critical Care Medicine received the Carol A. Kauffman, MD, Department of Internal Medicine Early-Career Endowment Award

Renuka Tipirneni, MD, MS, from the Division of General Medicine received the Grace H. Elta, MD, Department of Internal Medicine Early-Career Endowment Award

You can view profiles of these faculty members on page 94 of this year’s annual report.

DEVELOPING RESEARCH LEADERS

The Department of Internal Medicine has always been known for the great work of its research leaders. While external funding and facilities are key to this success, it is our commitment to investing in, supporting and developing our faculty that truly sets us apart.

“WeWhile external funding and facilities are key to this success, it is our commitment to investing in, supporting and developing our faculty that truly sets us apart.”
The department continues to advance toward our vision of making Michigan Medicine an international leader in clinical research. We devoted particular attention in 2018 to building our cadre of early-career investigators via two new mechanisms — the Clinical Trials Academy and Early-Career Faculty/Investigator Forum.

**CLINICAL TRIALS ACADEMY**

In July, we graduated the first class from our Clinical Trials Academy. Designed to be the clinical-trial counterpart of MICHR’s highly successful R01 Boot Camp, the academy taps the expertise of our leading trialists, statisticians and regulatory experts to guide participants through the complex and changing landscape of clinical trial design. Participants’ final projects are a fully designed clinical trial protocol that is ready for submission to the National Institutes of Health (NIH), a foundation or the pharmaceutical or device industries. The 2018 graduates have submitted their protocols, and while most are under review, some have already secured foundation and industry support (see page 113).

In addition, one graduate, Kara Mizokami-Stout, MD, clinical lecturer in the Division of Metabolism, Endocrinology & Diabetes (MEND), was accepted into the National Clinician Scholars Program at U-M’s Institute for Healthcare Policy & Innovation. In addition to her clinical research on diabetes interventions, she plans to conduct health services research on gender differences in diabetes complications and how psychosocial factors impact diabetes care and outcomes.

Based on the academy’s strong outcomes and participant feedback, we have expanded the 2019 class with two additional slots and extended participation to investigators throughout the Medical School, now including those with non-clinical appointments. As a result, this year we are pleased to welcome an academy participant from biomedical engineering, Assistant Professor Scott Lempka, PhD.

**EARLY-CAREER FACULTY/INVESTIGATOR FORUM**

Also launched in 2018 was the Early-Career Faculty/Investigator Forum. It features events and online resources designed to keep members informed of clinical research opportunities and news, to link early-career faculty investigators across divisions and along the basic-to-clinical research continuum, and to open the lines of communication with senior faculty and administrators who support their development.

The forum hosted its annual luncheon with Department Chair John Carethers, MD, and other senior administrators. It also piloted a joint symposium to connect investigators in internal medicine and biomedical engineering.

Each year, the forum also highlights some of the department’s rising stars in clinical research; 2018’s featured faculty member was Adina Turcu, MD, assistant professor in the MEND Division (see box).

**BROADER CLINICAL RESEARCH SUPPORT**

The year 2018 saw significant changes to the documentation required by the NIH for clinical trial applications. With the help of the department’s grant support team, led by Judy Carrillo, we were able to create step-by-step tailored tutorials for both principal investigators and pre-award support staff to guide them through the application process. We also held an in-person educational session to help prepare them for these changes. The tutorials are posted on the department’s internal clinical research website.

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**FORUM’S RESEARCH SPOTLIGHT**

Adina Turcu, MD, aims to develop steroid biomarkers that could greatly simplify the diagnosis and treatment of patients with androgen excess, such as congenital adrenal hyperplasia (CAH) and polycystic ovary syndrome. She is an investigator in several multi-center clinical trials of new therapies for patients with CAH and Cushing’s syndrome.
We also continue to integrate clinical research into clinical care, both within Michigan Medicine and with our affiliates across the state. We have been able to dedicate two rooms in Taubman Health Center to clinical research and have created a streamlined scheduling system that allows investigators from across internal medicine to access this space. Under the leadership of the Medical School, we’ve been an integral part of the dialogues initiated with Metro Health and MidMichigan Health related to the expansion and integration of clinical research at these affiliates. Members of the department, including Assistant Dean for Clinical Research Anna Lok, MD, MSc, Vice Chair for External Relations & Quality Scott Flanders, MD, and myself met with our colleagues at these institutions to discuss collaborative clinical research opportunities. Our goals include expanding recruitment for large multi-center trials, helping our investigators access a more diverse patient population, and enhancing Metro Health and MidMichigan’s physician and patient involvement in clinical research.

Through this work, we are well on our way to transforming Michigan Medicine’s clinical research enterprise.

“The Clinical Trials Academy has been transformative for my project and my career. The lectures were spot on, the critiques helped shore up my study design and I was introduced to senior faculty and institutional resources that I otherwise may never have known about. My faculty mentor has had a career I would love to emulate, and I envision this relationship continuing to support my progress.”

— Kristen Pettit, MD (Hem/Onc), 2018 Clinical Trials Academy Graduate
This year’s annual report theme, “Redefining Leadership,” fits well with the work our administrative team accomplished in 2018. Because of the ever-changing landscape of health care, we created new training sessions and resources to better support our leaders. We bolstered our orientation process for new administrative team members and launched the “Year of Learning” series to foster greater collaboration and share best practices. In addition, during our Annual Leadership Strategic Planning Retreat, we learned about the critical role compassion plays in effective leadership.

NEW TEAM MEMBERS

BRANDON BROGAN, administrator

Brandon Brogan joined our team in 2018 as the administrator for the Division of Gastroenterology and Hepatology. Prior to joining our team, Brandon, a veteran of the United States Marine Corps, served as the chief financial officer for the VA Ann Arbor Healthcare System where he was a key member of the medical center’s top management team. Brandon began his health care career as a program manager at the University of Michigan Depression Center where he managed the development and implementation of two major veterans peer outreach programs funded by private foundations and the Veterans Health Administration.

KENDRA BROWN, director of clinical affairs

This year we welcomed Kendra Brown to our team as the director of clinical affairs. Prior to joining us, Kendra was responsible for the financial, administrative and operational aspects of the Adult Inpatient Unit, Child and Adolescent Inpatient Unit, Psychiatric Emergency Service, Adult and Child Consultation Services, Electroconvulsive Therapy Program and formerly the Comprehensive Eating Disorders Program. As internal medicine’s director of clinical affairs, Kendra’s initial projects will include our patient access initiative, supporting work related to operational improvements in our clinical operations and partnering with our divisions to achieve our clinical goals.

JENNIFER HAWKINS, administrator

Jennifer Hawkins joined our team as the administrator for the Division of Infectious Diseases. Prior to joining our team, Jennifer served as a clinical research project manager in the Division of Nephrology and has been part of Michigan Medicine since 2005. As clinical research project manager for the P30 O’Brien Renal Center Core, Nephrology Research Registry, METAPHOR and PEARL, Jennifer was instrumental in the development of recruitment goals, regulatory guidelines, project protocols, training and certification procedures and the management of data teams and clinical coordinators.

REDEFINING ADMINISTRATIVE TRAINING

The demands for our administrative leaders are constantly evolving and because of this, we established an in-depth orientation program for new division administrators. In the first few weeks of joining our team, new leaders meet with the managers who oversee areas such as facilities, faculty affairs, finance, human resources, and marketing, and also spend time with each of our associate chairs. The meetings are short and concise so the process is not overwhelming, and they provide new team members useful information and resources to make their transitions as successful as possible.

We recognize that the initial orientation provides only cursory information so to support continued learning, we also established the “Year of Learning” for administrators and directors. These are monthly
sessions focused on specific areas of responsibility. It is an effective way for our team to come together, learn more about a particular area of work and collaboratively solve problems that advance the team’s collective goals.

LEADERSHIP STRATEGIC PLANNING RETREAT

We held our annual Leadership Strategic Planning Retreat, which was an all-day retreat for faculty and staff leadership teams. This year we focused on the current state of the department and best practices for developing a positive culture. In addition, we welcomed guest speaker Christopher White from the University of Michigan Center for Positive Organizations. His presentation, entitled “Compassion at Work,” taught the need to lead with compassion and how this ultimately opens doors, fosters inclusion and increases productivity—a recipe for success.

The goals of the retreat included:

- understanding the current state of culture from a national, organizational and departmental perspective and its impact on our daily work.
- discovering best practices for developing positive culture in our workplace from evidence-based research.
- setting the stage for continued success of our department through diversity of thought and opinions.
- identifying successes and brainstorming ways to further align and strengthen the people vision of our strategic plan.

ADMINISTRATIVE AWARDS & RECOGNITION

Judy Carrillo, our financial senior manager, was honored by the University of Michigan Office of Research with the Research Administrator Recognition Award for her outstanding service to the research community. “Judy successfully manages a group of research administrators across the department’s 13 divisions. Her skills are evident, based on results from a recent faculty survey about grant submissions, which revealed satisfaction scores of higher than 84 percent in categories such as knowledge of the staff, ability to solve problems, accuracy and understanding of faculty needs.”

Eric Mullen, our finance director, received the Department of Internal Medicine Award for Excellence in Administration. “Eric is amazing in the work that he does. He is effective, dedicated and creative in how he approaches our finances. Eric has that great skill set of being able to take a complicated financial issue, breaking it down and then helping the rest of us understand it as well.”

4TH ANNUAL SERVICE AND EXCELLENCE CELEBRATION

We celebrated the 4th Annual Service and Excellence Celebration which recognizes the many contributions and achievements staff have made to the Department of Internal Medicine. These staff members embody the values, skills and behaviors reflected in our Department’s Guiding Principles for Service Excellence. The celebration also included a focus on the faculty and staff who achieved a milestone anniversary with Michigan Medicine in calendar year 2017. Attendees enjoyed lunch, a fun trivia quiz, earned prizes and had an opportunity to capture the moment in a photo booth.

The 2018 Award Winners

Administrative Excellence Award
Silvana Janevski, Crystal Neal and Vicky Vincent

Clinical Excellence Award
Veronica “Ronnie” Downer, Dena Fernandez, Michelle Fugate, Melissa McInroy and Emily Weatherup

Research Excellence Award
Trina Bailey, Jeff Cole, Tamara Gay, Mohammed Kabeto and Andrea Waltje
Our department has a strong commitment to education and service to our students. Our faculty has had extensive teaching responsibilities and leadership roles throughout the medical school curriculum. Overall, internal medicine provides about 25 percent of all educational experiences during the medical school’s four-year curriculum. The department gets very high overall ratings from the students. Our faculty are extraordinarily committed to the education and mentorship of students despite increasing clinical pressures. We are dedicated to active learning and creating the habits that foster lifelong learning.

MATCH DAY 2018

The Department of Internal Medicine experiences provide students with an excellent foundation for lifelong success. Our students are among the best and brightest nationally and our graduating students are extremely valued by residency programs nationally. On Match Day 2018, students received their residency matches. This year, 37 students matched into an internal medicine (28) or med-peds (9) residency; about the same number as previous classes. Many of these students chose their area of focus due to the role models they encountered throughout medical school. The students often express their gratitude for the strong nurturing support they received from internal medicine faculty and house officers, especially the clinical counselors.

COMMENCEMENT

Our 168th graduating class received their diplomas in a commencement ceremony in May 2018 capped by an address from the 19th Surgeon General of the United States, Vivek Murthy, MD, MBA.

THE NEXT GENERATION OF LEADERS & BEST

Our class of incoming 2018 U-M Medical School students were the first to take a new oath during the annual White Coat Ceremony at Hill Auditorium. Called the UMMS White Coat Pledge, it focuses on the health policy and medical innovation initiatives — especially fitted this class of 165 future health care leaders, which included the first students to complete special coursework and projects in those topics. Most students completed one of the optional Paths of Excellence that were introduced as part of the new Medical School curriculum in recent years: Ethics, Global Health & Disparities, Health Policy, Innovation & Entrepreneurship, Medical Humanities, Patient Safety/Quality Improvement/Complex Systems, Scholarship of Learning & Teaching and Scientific Discovery.
elements of “humanism” that can get lost in modern medicine.

Our new U-M medical students came to Michigan from 30 states, and nearly half are Michigan residents. One in five members of the class were from groups that are traditionally underrepresented in medicine.

MAINTAINING EXCELLENCE

To maintain and build upon our excellence, the Medical School is in the process of preparing for a site visit by the Liaison Committee on Medical Education (LCME), the organization that provides programmatic accreditation to medical schools in the U.S. and Canada.

In anticipation of the 3.5-day LCME team site visit in April 2020, we are conducting an 18-month self-assessment of our medical education program and its evolving curriculum to increase our awareness of our competencies and competitiveness with peer schools.

Numerous internal medicine faculty are leading and taking part in the self-study task force and seven committees that are currently reviewing the school’s medical education program. Their work will inform a self-report package ahead of LCME’s site visit.

The Medical School completed a similar self-study in 2012, earning accreditation through 2020.

LEARNING TO LEAD

Michigan has a long history of graduating leaders. Our innovative curriculum embeds and integrates leadership training during the entire medical school experience. The majority of leadership skills and knowledge development comes from our students’ experiences as leaders, through working on teams, observing other leaders and reflecting on their own and others’ experiences. It also comes from meaningful interactions with mentors and coaches — a role many Department of Internal Medicine faculty fill with dedication and pride.

“Michigan has a long history of graduating leaders. Our innovative curriculum embeds and integrates leadership training during the entire medical school experience.”
The Internal Medicine Residency Program welcomed its incoming intern class of 59 individuals on June 19, 2018, including eight graduates of the U-M Medical School along with other top tier medical schools. Of this group, 46 percent were newly elected members of the Alpha Omega Alpha Honor Medical Society and 13 individuals have earned additional advanced degrees.

This select group came from a pool of more than 2,500 applications of which, approximately 570 medicine and medicine-pediatric candidates were interviewed by our faculty and program leadership from October 2017 through January 2018.

NEW TEAM MEMBERS

Nathan Houchens, MD, from the Division of Hospital Medicine, took on the new role of assistant program director for the Internal Medicine Residency Program in 2018. He will oversee inpatient services at the VA Hospital (VAH) and the VAH Quality and Safety CMR position. In addition, Dr. Houchens will continue to lead the Quality Improvement and Patient Safety Curriculum for the training program.

Some examples of our resident’s Quality Improvement and Patient Safety projects can be seen in this year’s report on page 66.

EXPANDED PRIMARY CARE TRACK

The Internal Medicine Residency Program received GME approval to expand the Primary Care track by two FTEs per year (four total), for the next three years.

Congratulations to Kristin Collier, MD, for an outstanding job in leading this important initiative.

EXPANDED PRELIMINARY TRACK

This year the Internal Medicine Residency Program received GME approval to begin training the seven ophthalmology residents for their internship in internal medicine prior to beginning their ophthalmology training. This provides an enhanced educational opportunity by providing ophthalmology trainees early exposure to ophthalmic medical knowledge, clinical skills and systemic management of ocular disease.

PROFESSIONAL DEVELOPMENT & WELLNESS

The Department of Internal Medicine Residency Program continues to redefine leadership and explore the best ways to train the next generation of leaders and best.

For instance, Jennifer Reilly Lukela, MD, conducted a survey of residents a few years ago that found that our women trainees were facing some unique challenges and potential gaps in their professional development. She worked with two internal medicine house officers, Aditi Ramakrishnan, MD, and Nicole Hadeed, MD, to create “Equal Medicine,” a novel career development program that provides opportunities and programming for women trainees in the Department of Internal Medicine. For full details see page 80.

Rachel Perlman, MD, an associate program director, is leading our new initiative focused on promoting and maintaining resident wellness. We are looking at modifying schedules and implementing changes in the next year that will foster more balance and flexibility for our trainees. This work will complement similar efforts that are being launch in the department and throughout Michigan Medicine. See page 87.
In addition, the Chief Medical Residents (CMRs) for internal medicine for the 2018-2019 academic year are: Matthew Ettleson, MD; Shannon Kay, MD; Kevin Platt, MD; and Meaghan Trainor, MD. In the Medicine-Pediatrics program, the CMR is Julie Barrett, MD. These residents have been selected based on their outstanding performance during their residency period and strong commitment to their respective programs.

CHIEF MEDICAL RESIDENTS

In addition, the Chief Medical Residents (CMRs) for internal medicine for the 2018-2019 academic year are: Matthew Ettleson, MD; Shannon Kay, MD; Kevin Platt, MD; and Meaghan Trainor, MD. In the Medicine-Pediatrics program, the CMR is Julie Barrett, MD. These residents have been selected based on their outstanding performance during their residency period and strong commitment to their respective programs.
This past year was exceptionally productive on both the quality and external relations fronts, with both efforts bearing the fruit of previous years’ work in program development and relationship building.

**QUALITY & INNOVATION**

Our Quality & Innovation (Q&I) program remains extremely active (see figure). After four years, it has also matured to the point that it is showing deeper impact across our four focus areas: projects, education, dashboards and scholarship. For example, the quality dashboards we’ve developed for several divisions are now being used in the U-M Medical Group’s newly expanded ambulatory care pay-for-performance program.

Likewise, our revamped second-year residents’ patient safety/quality improvement (PS/QI) curriculum and our support for their quality projects have contributed to a surge in resident interest and leadership on the topic. In 2018, the percent of our residents presenting, publishing, implementing or connecting their projects to larger QI efforts increased by 75 percent over the previous year. As a result, we’ve seen a sizable uptick in requests for data and guidance from our support team as residents continue working beyond their month-long project term. An example of this ongoing resident involvement in QI projects is showcased in our cirrhosis readmission feature on page 66.

In 2018 we continued to strengthen resident education by reimagining the first-year PS/QI curriculum, making it more case-based, interactive and experiential. We also instituted a monthly QI speaker series during noon conference, with topics such as using data to improve practice and designing systems to reduce errors. Thanks to such efforts, residents are reporting they feel even better prepared to hit the ground running on their second-year projects.

Our QI projects have crossed an important threshold as well. Last year we projected that this work was poised to begin moving the needle on clinical outcomes, and that is precisely what has happened. Together, two lab utilization projects — one of which was profiled in last year’s report — have shown that reducing unnecessary routine complete blood counts and inappropriate serotonin release assays can improve the patient experience and save money for the health system.

This year, we profile three projects with early impact and exceptional promise. The first was spearheaded by our inaugural Faculty Quality Improvement Award Winner.

<table>
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<th>Q&amp;I Project Highlights:</th>
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<tr>
<td>Chest pain pathway</td>
<td>page 62</td>
</tr>
<tr>
<td>Penicillin allergy testing</td>
<td>page 64</td>
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<tr>
<td>Cirrhosis readmission prevention</td>
<td>page 66</td>
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It evaluated an inpatient skin testing protocol designed to identify the significant number of patients who are labeled as but are not truly allergic to penicillin, so that more of them can be treated with first-line antibiotics (page 64). Another project is taking a multifaceted approach to reducing cirrhosis readmissions (page 66). A third involves implementing a new test and pathway to better stratify and assess the needs of patients presenting to the emergency department (ED) with chest pain (page 62). Initial results show that the new approach can substantially reduce ED length of stay for low-risk patients and increase the percentage of these patients going home. The benefits to patients are clear, and early projections suggest that there will be significant cost savings, as well.

**EXTERNAL RELATIONS**

The quality theme continues in the external relations arena through our work with our statewide affiliates.

In 2018, we launched a major QI initiative with MidMichigan Health, our partner in central Michigan. We are working together to design dashboards for key clinical conditions in order to standardize our reporting, analyze our performance and learn from each other within a framework of continuous improvement.

Several disciplines are piloting this work, including two from internal medicine. One of these is critical care, which is being led on the U-M side by Assistant Professor Jakob McSparron, MD, in the Division of Pulmonary & Critical Care Medicine. McSparron is co-leading a multidisciplinary team from both health systems, examining measures such as catheter-associated urinary tract infections, central-line associated bloodstream infections, falls, pressure ulcers and liberation from mechanical ventilation. The team will analyze how both institutions address these issues in order to adopt best practices across the partnership.

Associate Professor Thomas Crawford, MD, from the Division of Cardiovascular Medicine is doing similar work in the electrophysiology space.

“Early results from our chest pain project indicate the new pathway can substantially reduce ED length of stay for low-risk patients and increase the percentage of these patients going home, benefiting them and freeing up much-needed inpatient beds.”
collaborating with colleagues at MidMichigan on the quality of ablation and device therapy.

Such collaborations speak volumes about the maturity of our relationship with MidMichigan and the level of trust that has developed between our health systems. It is incredibly meaningful that we have arrived at a place where our clinical leaders can come together to understand one another’s care processes, agree on metrics essential to delivering high-quality care and then share those measures to improve both the patient experience and outcomes.

In 2018, Metro hired gastroenterologist and transplant hepatologist Ammar Hassan, MD, and rheumatologist Andrew Lewandoski, DO. Both did their fellowship training at U-M.

This is particularly gratifying for us because not only are we providing Metro with a source of highly trained subspecialists, but we are helping to fill significant unmet need for care in the region. Additionally, our trainees’ connection to both institutions makes it easy to collaborate around case conferences, clinical research and care innovations.

NEXT STEPS

In my dual roles within the Department of Internal Medicine, I’ve been able to make deeply satisfying progress toward ensuring that our health system and those we partner with are working together to bring exceptional care to a growing number of patients across the state. As of 2019, I’ll be stepping away from my Q&I role in the department and transitioning into a health system-wide position as the Chief Clinical Strategy Officer for UMHS.

In this new post, I’ll work closely with the Chief Strategy Officer, representing the medical group and health system in fully implementing our clinical network strategy. I will retain my external affairs role within the department and hope to leverage this experience to deepen our relationships with existing partners, continue building key clinical programs and strengthen the infrastructure to support high-quality care across the network. I will also focus on developing new clinical affiliations.

Our goal is to realize our vision of a fully integrated clinical network committed and able to provide exceptional, patient-centered care to the state of Michigan.

Second Faculty Quality Improvement Award Winner

Assistant Professor Daniel Giesler, MD, in the Division of Hospital Medicine, will use his QI award to implement his project, “Reducing Overuse of Antibiotics at Discharge (ROAD) Home.” His team will evaluate a pharmacist-delivered antibiotic timeout and checklist designed to curtail inappropriate antibiotic use at discharge and reduce the incidence of Clostridium difficile infection.

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2018 INTERNAL MEDICINE AWARDS

INTERNAL MEDICINE AWARD FOR EXCELLENCE IN ADMINISTRATION
Eric Mullen

SPECIAL RECOGNITION FOR CONTRIBUTIONS TO THE MEDICAL STUDENT TEACHING PROGRAM
Nathan Houchens, MD

RICHARD D. JUDGE AWARD FOR MEDICAL STUDENT TEACHING
Andrew Tai, MD, PhD

SPECIAL RECOGNITION FOR CONTRIBUTIONS TO THE HOUSE OFFICER TEACHING PROGRAM
Robert Dickson, MD

H. MARVIN POLLARD AWARD FOR OUTSTANDING TEACHING OF RESIDENTS
Renuka Tipirneni, MD, MSc

STEVEN E. GRADWOHL EXCELLENCE IN CONTINUITY GENERAL INTERNAL MEDICINE TEACHING AWARD,
Mariana De Michele, MD

JEROME CONN AWARD FOR RESEARCH EXCELLENCE
Michelle Kahlenberg, MD, PhD

PAUL DEKRUIF LIFETIME ACHIEVEMENT AWARD
Grace Elta, MD

CHAIR’S AWARD FOR IMPACT
Michelle Anderson, MD
Scott Flanders, MD

CHAIR’S AWARD FOR OUTSTANDING SERVICE
Robert Ernst, MD
Eric Young, MD

2018 DEAN’S AWARDS

The Dean’s Award Program has announced this year’s outstanding faculty members. These awards recognize Medical School faculty and staff who demonstrate exceptional accomplishment in the areas of teaching, research, clinical care, community service and administration. Congratulations to the following faculty members:

BASIC SCIENCE RESEARCH AWARD
Jason R. Spence, PhD

COMMUNITY SERVICE AWARD, GLOBAL
Joseph C. Kolars, MD

KAISER PERMANENTE AWARD FOR EXCELLENCE IN TEACHING, CLINICAL
Sarah E. Hartley, MD

LIFETIME ACHIEVEMENT AWARD IN CLINICAL CARE
Robert C. Hyzy, MD

OUTSTANDING CLINICIAN AWARD
Roma Y. Gianchandani, MBBS
Mark M. Zalupski, MD
PROFILES IN LEADERSHIP

NEW ROLES ............................................... 26
MAKING AN IMPACT ..................................... 32
LEADERSHIP REFLECTIONS ............................ 38
HISTORICAL SUCCESS .................................... 50
Goutham Narla, PhD, MD, chief of the U-M Division of Genetic Medicine, will tell you that he was destined to become a physician-scientist. “My father is a PhD and my mother an MD, so I was at some level at an early age interested in being a physician-scientist,” he says.

Not surprisingly, Narla went on to train at Mount Sinai School of Medicine in New York in 1997, earning both MD and PhD degrees, and quickly turned his focus to cancer biology and cancer genetics. It was during that period that a considerable shift began to take shape. “I can still recall a single moment that changed my thinking in terms of career trajectory, which at the time was closely aligned with oncology,” says Narla. “As a resident, on the second day of training in internal medicine, we had a very young patient who had widely metastatic breast cancer. She was only 42 years of age and quickly succumbed to her disease. This immediately made me think about what makes a young woman have such an aggressive, advanced breast cancer. As we began to probe a bit and talk to the family, we found that there were multiple family members who had breast or ovarian cancer histories in her family. It became clear to me that there are these inherited predispositions that really result in having a high risk for developing breast cancer.”

Following that powerful realization, Narla quickly transitioned to training in cancer genetics, with medical genetics as a subspecialty. He completed a residency in internal medicine, and a fellowship in medical genetics at Mount Sinai. From there, in 2012, Narla went on to work at Case Western Reserve University in Ohio, where he became an associate professor, and remained until 2018.

NARLA JOINS THE INTERNAL MEDICINE FACULTY

In 2018, Narla joined the faculty of the Department of Internal Medicine to become the seventh chief of the Division of Genetic Medicine, since its inception in 1977. “I was approached by John Carethers, MD, chair of the department, and David Ginsburg, MD, investigator of the Howard Hughes Medical Institute and former division chief of Genetic Medicine about potential opportunities in the division,” he explains. “I was more than excited about exploring this further, and was immediately struck by things I’d already known, which is the scientific firepower and strength of the health system. But equally and perhaps more important to the decision was that the environment at U-M is highly collegial. It felt like the perfect balance between a high-powered academic center with all the resources that come with that and a really unique camaraderie among faculty.”

Just one year into the job, Narla remains humbled by those that came before him in this role, including Francis Collins, MD, PhD, currently director of the National Institutes of Health. “These people are incredibly storied physician-scientists and luminaries in their respective disciplines,” says Narla. “U-M has one of the oldest, freestanding divisions of genetic medicine focused on medical genetics and genetic diseases in adults. It is truly an honor to be able to help shepherd and lead the division into the next 5-10 years of our continued existence.”

LEADING WITH THE SPARK OF COLLABORATION

Narla admits that he leans more toward the collaborative approach in his leadership style. “I try to be as collaborative and inclusive as possible, and I listen and collect many opinions of relevance, if possible. I have to make
decisions and be accountable for those decisions, so I try to be as transparent as possible with everyone, and informed about the decisions that I make,” he explains. “I also try to lead by example. I don’t think it’s fair to tell people to work harder if I’m not working harder. I don’t think it’s fair to tell people to be more academic and write more papers if I’m not doing the same. And I don’t think it’s fair to ask people to see more patients if I’m not seeing patients. The most important thing I can do is just take the incredible group that already exists here and hopefully create an environment in which they feel empowered to continue to do the great work that they are doing, and supported from a research, teaching and clinical perspective.”

**FACING KEY CHALLENGES ON THE HORIZON**

**Patient Care**

Narla is quick to point out that genetic testing and genetic counseling have taken a stronghold in the discipline. “What has become incredibly apparent in the years that I’ve trained and been an attending physician is the number of patients that require genetic testing to really decipher and understand their genetic predispositions in developing adult diseases, including but not limited to cancer. The number of patients we see has grown incrementally, by 30-40 percent a year, both at the U-M and nationally,” says Narla. “Keeping up with that pace to provide the highest quality of care for those patients from a physician, genetic counselor and division administration perspective is critical. Currently, we have a wait list of six plus months to see patients, given the breadth of opportunities clinically that now exist. In this case, U-M has some unique challenges in that it’s been so successful that the health system does not have enough beds or clinic space to see all of their patients. This is, at a very high level, being actively addressed.”

**Staffing and Recruiting**

Narla highlights a growing workforce shortage that has taken hold on the genetic medicine talent pool. “One of our greatest challenges from a clinical perspective is that we don’t have enough trained medical geneticists and pediatric geneticists nationally. We also don’t have enough genetic counselors to hire. Even with the resources to hire them, they just don’t exist. I think we need to make more of an effort to educate at the undergraduate level, as well as with medical students and residents, and to show them what a great career medical and pediatric genetics can be,” he explains. “We are uniquely positioned to do research that has both basic science and translational impact, so continuing to recruit and retain the very best scientists and physician-scientists to grow the research footprint of the division in areas that are aligned with our longstanding expertise in cancer genetics is another major focus of mine. We want to bring drugs that are tailored to the genetic alterations that cause disease in humans to the clinic.”

**Work/Life Balance**

These days, Narla is increasingly interested in the challenges of work/life balance. “My wife, Analisa DiFeo, PhD, is an accomplished faculty member at U-M who was recruited at U-M who was recruited as an associate professor of pathology, and we have three incredible kids,” says Narla. “One of the things my wife has taught me is the importance of staying balanced. Our collective jobs here can be all-consuming because there is excitement and impact in what we do. But I think it’s critical to strike a balance because it gives us a humanity and an approachability that is very important when working with patients, staff and students.”

THE YOUNG SCIENTIST FOUNDATION

Narla, along with his wife, Analisa DiFeo, PhD, Andrew Castaldi, a colleague and close friend and Chef Floyd Cardoz in New York created The Young Scientist Foundation which to date has supported over 50 high school and college students from underserved areas to do biomedical research in the New York and Cleveland areas. Now he wants to bring the Foundation to the Ann Arbor area.

“While I think it is deeply important to mentor our graduate and undergraduate students here and our MD/PhD students, I think we need to start even earlier, as we miss a lot of high school and middle school students because they don’t have the opportunity to be in a laboratory and experience what it is like. This has been a part of my life and it continues to be a major focus of what I do.”

— Goutham Narla, MD, PhD
PROFILES IN LEADERSHIP

NEW ROLES

To say that Wendy Uhlmann, MS, CGC, a clinical professor from U-M’s Department of Internal Medicine and Department of Human Genetics, has followed an unconventional career path would be an understatement. A genetic counselor with the U-M Medical Genetics Clinic since 1993, Uhlmann is the first genetic counselor with a master’s degree to reach the rank of clinical professor at the University of Michigan, and the only faculty member in the U-M Medical School at this rank with a master’s degree.

“My faculty path was unconventional because of the master’s degree, which is the terminal degree in the field of genetic counseling,” says Uhlmann. “I was a student in U-M’s program in 1986-1987, when the career was in its early years. The master’s degree in human genetics (specialization in genetic counseling) was a 16-month program with coursework and clinical rotations. My class had just two students. Now it is a 20-month master’s degree in genetic counseling, with research as an added degree requirement, the option for a dual degree in public health, nine students per class and growing.” Back in the 1980s, genetic counselors took the American Board of Medical Genetics certification exam with the physicians; since 1993, genetic counselors are board certified (CGC) by the American Board of Genetic Counseling.

BLAZING A NEW TRAIL

WENDY UHLMANN, MS, CGC PAVES THE WAY FOR HOW GENETIC COUNSELORS AND OTHER ALLIED HEALTH PROFESSIONALS REACH FACULTY APPOINTMENT AT U-M

FORGING PATHWAYS TO PROMOTION

Uhlmann has worked as a genetic counselor for over 30 years, 25 at U-M. In 1993, she was hired as the genetic counselor/clinic coordinator of the Medical Genetics Clinic. Since 1994, Uhlmann has taught in the Genetic Counseling Program. Teaching has expanded over the years to giving lectures in the Medical School, School of Public Health and School of Social Work, and she provides clinical supervision to genetic counseling students, medical students, residents and fellows. In 2013, Uhlmann received the Basic Sciences Teaching Award in Human Genetics.

In 1997, she was appointed clinical instructor of human genetics. It took 11 years and a cultural shift to be appointed clinical assistant professor of internal medicine and human genetics in 2008. In 2012, Uhlmann was promoted to clinical associate professor. And, in September, 2018, she was promoted to clinical professor of internal medicine and human genetics. Uhlmann is appreciative of the support from division and department leadership in both Internal Medicine and Human Genetics.

“I became a clinical professor by achieving all of the benchmarks required in the clinical track. I did clinical work. I taught, I published, I was active nationally in my field. It just took time and a change in thinking to open the pathway to faculty appointment and promotion with a master’s degree,” she says.

Nationally, approximately 20 percent of genetic counselors have faculty appointments with just a few at the professor level. Uhlmann is fast to tell you that, in the early days, there was no established pathway for master’s degree allied health professionals to reach faculty appointment.

“I do not think every allied health professional should have a faculty appointment, but if
actively involved in clinical care, teaching and research, then there should be consideration for appointment,” she adds.

CONTRIBUTIONS TO THE FIELD

Uhlmann oversees the operations of the U-M Medical Genetics Clinic, established in 1941, the oldest and one of the few adult genetics clinics in the country. She provides genetic counseling and coordinates genetic testing for adults with a personal and/or family history for a wide range of genetic conditions. Uhlmann is appreciative of the clinical team she works with and proud of the clinic’s significant growth in patient numbers and conditions seen, which presents both opportunities and challenges.

“In 2018, about 190 different genetic conditions were seen, with approximately 160 seen just 1-2 times. Almost 70 percent of patients had genetic testing compared to 31 percent in 2014,” says Uhlmann.

“Case preparation, including researching the conditions and genetic testing, is time-intensive. Genetic test results are often complex to interpret and explain and may require additional testing of the patient and/or family members.”

Genetic advances mean that more patients will need genetic services and genetic testing. Uhlmann thinks U-M is well-positioned to be a leader nationally in genomic medicine and addressing genetic service delivery across the lifespan given that U-M is unique in having adult, pediatrics and prenatal genetics clinics in addition to genetics clinics in multiple specialties, including cardiology, neurology, oncology and ophthalmology. Furthermore, U-M has strong basic science and translational research in genetics being conducted throughout the university.

In addition to her clinical and educational roles, Uhlmann has been active in research and has co-authored more than 50 peer-reviewed articles. She has been a co-investigator on NIH funded studies on Alzheimer’s disease, direct-to-consumer genetic testing, and disclosure of genomic sequencing results, and has served as a mentor/committee member for more than 25 genetic counseling students’ research projects. Uhlmann is interested in genetic testing, especially ethical issues, serves on the Adult Ethics Committee and is a faculty member of the Center for Bioethics and Social Sciences in Medicine.

She has received leadership awards from the National Society of Genetic Counselors (NSGC): Regional Leadership Award (1996), Outstanding Volunteer Award (2009) and a lifetime achievement award (2011). She was a co-editor and chapter author of both the 1998 and 2009 editions of "A Guide to Genetic Counseling,” the first book devoted to the principles and practice of genetic counseling and an international standard in the field.

Uhlmann has also held numerous national positions, most notably NSGC president in 1999-2000. “It was an amazing time to be leading NSGC and overseeing the work of the 21-member board and the organization. Highlights included testifying three times to the United States Secretary of Health and Human Services Advisory Committee on Genetic Testing (SACGT) [she later served on the SACGT’s Work Groups on Test Classification and Informed Consent], representing NSGC at President Clinton’s issuance of an Executive Order banning genetic discrimination in the federal workplace and then at the White House when the draft of the human genome was announced,” she says.

Locally at U-M and nationally, Uhlmann remains committed to mentoring students and colleagues to be active professionally, contributing to the field of genetic counseling, being at decision-making tables and seeking leadership roles and faculty appointments. It is important to Uhlmann that a pathway for master’s degree genetic counselors and allied healthcare professionals has now been forged. “To see that the next generations will be able to go through faculty appointment and promotion knowing this is possible, is very gratifying,” says Uhlmann. She likens this progression to a favorite quote from Ralph Waldo Emerson, which seems to define what she has accomplished at U-M: “Do not go where the path may lead, go instead where there is no path and leave a trail.”
U-M’s Chief Health Officer
Preeti Malani, MD, MS, MSJ, professor in the Division of Infectious Diseases (ID), sees her unconventional path to leadership in academic medicine as the way of the future. “My path to success was not the traditional one,” she says. “I didn’t work in a lab and write grants; I worked in the spaces that felt natural to me — writing, caring for patients and learning from different disciplines. It wasn’t a straight line, and I think we’ll see more of this in the future.”

However circuitous, her path to her current leadership roles — which include director of the National Poll on Healthy Aging and associate editor of JAMA — reveals not only what drives her, but a great deal about what it takes to transform curiosity and initiative into leadership.

FOLLOW YOUR INTERESTS, EMBRACE SERENDIPITY
Malani’s early career was shaped by her willingness to follow her interests and embrace serendipity. When a high school teacher refused to let her double up on math classes, she filled the hole in her schedule with journalism. “This seemingly random decision changed the trajectory of my life,” she says.

At U-M, Malani designed an independent major in “medical journalism” and then applied to graduate school at Northwestern’s Medill School of Journalism. The summer before starting, she did an internship at a newspaper, which would again redirect her career. Asked to interview the parents of a young man who’d died in a motorcycle crash about their decision to donate his organs, Malani felt intrusive. She realized she’d rather be the one making the organ transplants possible.

She completed her master’s degree and then went on to medical school at Wayne State University, where infectious diseases caught her imagination. “Like journalism, ID is about asking questions,” she says, “particularly the questions no one else asks — like what kind of water you drink or what kind of animals you’re in contact with.”

Malani returned to U-M for her residency and ID fellowship. When her husband’s career took them to Oregon, she took on a second fellowship in geriatrics. “Though I had an interest in older adults from my work in infectious diseases, I probably wouldn’t have taken this step if we hadn’t moved,” she says. “But it ended up being transformative.”

Geriatrics training would not only position Malani for key opportunities later in her career; it reshaped how she would think as a clinician. “While many physicians think about ‘cure,’ I think more about ‘function’ and whether someone can remain independent and have a good quality of life,” she says.

KNOCK ON DOORS, CREATE OPPORTUNITY
When Malani returned to U-M as an ID faculty member, she found herself keen to return to the writing she had done both in medical school and during her training.

“In medical school, I had this fun, little role as a student editor at JAMA,” she explains. “We put out just a few pages a month, but it was amazing how many famous people came through this pipeline, like the recently resigned FDA Commissioner, Scott Gottlieb.”

During training, Malani worked on a specialty ID journal and took on every writing project she could find. “I would literally knock on doors and ask, ‘Can I write that paper? Can I help edit this textbook?’” she says. “I wrote the papers others left behind, so my name got attached to a lot of material.”

Knowing she wanted to return to JAMA, as a faculty member Malani reconnected with the journal by writing its book reviews. She also filled a key gap in her background by completing a master’s in clinical research design and statistical analysis from the School of Public Health.

ELEVATE OTHERS’ VOICES
Thanks to this preparation, Malani was ready when JAMA needed an associate editor for infectious diseases. The position has allowed her to help shape its ID content. “As associate editor, I’ve been able to advocate for some papers that, though imperfect, brought attention to important clinical topics like infection prevention,” she says. “JAMA only publishes about 200 original research articles a year, so being able to guide a handful of papers through the process generates a lot of influence.”

In this role, Malani began to realize how much she values being able to “elevate the voices” of other authors.
of experts who have something of value to say, but aren’t often heard.

National Poll on Healthy Aging

Another opportunity would soon come her way, in the directorship of the National Poll on Healthy Aging. “This is an example of the magic of Michigan,” she explains. “I wasn’t a policy researcher, but I was a member of the Institute for Healthcare Policy & Innovation because I wrote about policy, and they have a big tent. They decided to develop this poll of older adults modeled on the child health poll run out of Mott Hospital. I arrived on the scene as someone who was trained in geriatrics, understands media and likes to write. It was a perfect fit.”

Malani relishes the role, which has allowed her to bring to the attention of clinicians, policymakers and family members, important, often underdiscussed, issues affecting older adults’ health and well-being. The poll has taken on topics such as loneliness, health-insurance decision making, opioids, sleep quality, patient portal use, caregiver health and sexuality.

Malani has found the project’s reach especially gratifying. “The poll is sponsored by AARP, which has a big presence on Capitol Hill,” she says. “This gives us a megaphone for our message.”

She’s been keen to share that megaphone with her fellow clinician-experts. “We’ve been able to bring clinicians into this space,” she says. “Their perspectives strengthen the research, and we can elevate their voices to the national level.”

Chief Health Officer

Malani’s newest leadership position is that of U-M’s chief health officer. In it, she advises the university’s president on matters such as disease management, public health preparedness and health promotion on all three U-M campuses.

For Malani, this was another opportunity to elevate voices in the U-M community. One example is “Meal Madness,” a healthy-recipe contest she initiated to coincide with March Madness. It was a great opportunity, she explains, to engage not just faculty and students, but U-M’s large community of staff, around healthy eating.

Another topic she’s addressing is equity in health care utilization. She’s particularly eager to leverage U-M’s unique niche as an employer and health care system to be creative in benefit design. “At Michigan we have similar health benefits for all our employees, but we know that they use them differently,” she explains. “Our lower-wage workers use less preventive care, fewer mental-health services and more emergency care. I’m interested in bringing together U-M experts to explore questions like, what would happen if we got rid of copays for mental health care? And, can we test our innovations through research studies so others can learn from us?”

In 2018, Malani presented at the National Academy of Sciences on the role of employers in improving equity in the use of high-tech health services. She shared U-M’s experience restructuring benefits for in vitro fertilization, which succeeded in making utilization patterns more equitable across employee salary brackets.

Though a large part of Malani’s success is attributable to her persistent acquisition of expertise and willingness to jump in where needed, she says she appreciates working in a department that is supportive of nontraditional career paths. “Leadership in our department is expressed in a lot of different ways,” she says. “You can be primarily a clinician like I am and still have a voice nationally and internationally. If you get good at what you do, there are lots of people and resources to support you.”

Malani values being able to “elevate the voices” of experts who have something of value to say, but aren’t often heard.
In 2012, John Ayanian, MD, MPP, became the inaugural director of the U-M Institute for Healthcare Policy & Innovation (IHPI) — one of the world’s largest groups of health care and health policy researchers. With more than 600 experts from across the university and partner organizations, the IHPI mines vast quantities of health care data to assess the impact of policy, payment and practice changes on patients’ health — from diabetes and cancer to heart disease and mental health. He is also the Alice Hamilton Professor of Medicine in the U-M Medical School, professor of health management and policy in the School of Public Health and professor of public policy in the Gerald R. Ford School of Public Policy.

Ayanian’s intrigue with health services research and health policy took root early on. “During college I was a pre-med student, but also majoring in history and political science,” he says. “At the time, I was very interested in understanding how the health care that we deliver in the medical system is influenced by broader social and political forces within the country, and, in particular, the role of government policy in influencing how the health care system functions, particularly the Medicare and Medicaid programs.”

Ayanian came to the U-M from Harvard Medical School, where he was a professor of medicine and of health care policy. He was also a professor in health policy and management at the Harvard School of Public Health, and a practicing primary care physician at Brigham and Women’s Hospital in Boston. “When I interviewed with IHPI, I remember being very impressed with the planning that U-M had done for the new institute. I saw it as a great model for what all leading universities should be doing to promote interdisciplinary research and collaboration that can translate into policy impact for improving health care and population health,” explains Ayanian. “Prior to the creation of IHPI, U-M was already strong in health services research and health policy, but that strength was scattered across campus in smaller units.”

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“One of the big challenges we face is the increasingly polarized environment for government decision making, particularly in Washington, which makes it more difficult to achieve bipartisan solutions to some of the most important health care challenges that we face as a society.”

— John Ayanian, MD, MPP
DEVELOPING NEW PARTNERSHIPS AND INITIATIVES

Ayman points to one of IHPI’s ongoing initiatives, a partnership with the Michigan Department of Health and Human Services, as an example of the critical work being conducted by IHPI. “Beginning in 2014, we were invited to serve as the official evaluator of the Healthy Michigan Plan, an expansion of Medicaid coverage to low income adults in Michigan under the Affordable Care Act. The plan currently covers about 670,000 adults in the state; about 7 percent of the population,” explains Ayman. “We have assembled a team of 15 faculty members from five U-M schools affiliated with IHPI to evaluate the health and economic consequences of this major new health program in the state.”

CHALLENGES ON THE HORIZON

In the decade ahead, Ayman will remain focused on broadening connections to policymakers in the public and private sector so that IHPI research can be translated to the decision makers who have the greatest impact. “For example, we’ve begun tackling some major challenges in the health care system, such as the opioid epidemic, the aging population and the role of community health workers in underserved communities,” he says. “Another challenge we face is the increasingly polarized environment for government decision making, particularly in Washington, D.C., which makes it more difficult to achieve bipartisan solutions to some of the most important health care challenges that we face as a society. We’ve had better prospects working within Michigan, where there has been more willingness to seek bipartisan solutions, such as to expand Medicaid or address the opioid epidemic for the benefit of a broad range of Michigan residents.”

With such challenges in mind, IHPI has created a communications and policy engagement team who work closely with faculty to communicate and disseminate research findings to policymakers in the public and private sectors, and to the media and social media through connections with decision makers in the public and private sector. “We have a number of tools to bridge the gaps so that the best research we produce is making a difference in the health care system,” explains Ayman. “We pay attention to how the end users of research and evidence can benefit from the work we produce, so that we are not just conducting research for our academic peers, publishing in academic journals, or presenting at academic conferences, but in how that evidence can be translated to policymakers in a timely and understandable way.”

Not surprisingly, Ayman will tell you that he derives great satisfaction from connecting the dots between his medical training and his training in statistics, economics and other social sciences to collaborate with colleagues from a wide range of disciplines. In the end, it seems he has found an ideal fit for a passion that began many years ago in his pre-med days.

IHPI MEMBERS FROM THE DEPARTMENT OF INTERNAL MEDICINE

Currently, there are 117 faculty members within the membership of the IHPI from the U-M Department of Internal Medicine. “We provide important training programs that have helped to develop some of the emerging stars on our faculty, as well as trainees that have gone on to success at other leading medical schools,” says Ayman.
For Jessie Kimbrough Marshall, MD, MPH, clinical assistant professor in the Division of Hospital Medicine, it was a given that she would one day take on a leadership role in population health management with a focus on health equity. “I knew I wanted to work in public health even before I enrolled in medical school,” says Kimbrough Marshall.

That point of focus prevailed over the last 12 years, as Kimbrough Marshall dedicated her efforts to advanced training in population health management, community engagement and health equity practice, particularly in the area of vulnerable populations. And in 2016, she officially assumed the role of medical director of the Washtenaw County Health Department (WCHD).

“When the opportunity presented itself to take on this position about three years ago, I knew it aligned with the training I’d done, and my long-term goal of doing work in this area,” she says.

As medical director, Kimbrough Marshall provides clinical oversight for all aspects of the WCHD, most importantly serving as liaison between the health department and the medical community. She also utilizes her medical license to write standing orders for immunizations, and antibiotics for treatment of post-exposure prophylaxis for communicable diseases and sexually transmitted infections.

“Often, I’m the only physician in the health department, so I have a unique role in bringing my expertise in clinical care and its intersection with public health,” she adds.

“Washtenaw County is a place where there are tremendous resources and opportunities for wellness and good health; however, those resources and opportunities are not realized by all of our residents,” she explains. “We have data that has consistently shown that race and zip code predetermine the trajectory of our residents’ long-term health outcomes and socioeconomic status. In a broader sense, these health inequities can be seen in comparing Washtenaw County’s eastern and western regions, in terms of differences in life expectancy, chronic disease, income, employment and school test scores.”

In that regard, she continues to work within the health department with a magnified focus on the social determinants of health. “We are looking at income and wages, work environments and opportunities to gain employment,
neighborhood conditions and crime rates, access to grocery stores that are stocked with fresh fruits and vegetables and public transportation infrastructure to meet the needs of our local residents. These are areas that health departments have not traditionally focused on,” says Kimbrough Marshall. “We continue to identify best practices to move toward racial equity in our county. Along with key stakeholders, we strive to be a voice at the table to help ensure that matters of health equity, social justice, diversity and inclusion are woven through whatever the issue is at hand.”

Among her notable contributions is her work in leading the development of cross-cultural training centered on health equity practice for all the WCHD staff, which comprises over 120 individuals. Already gaining momentum, some of the core principles of this training are now being considered for implementation by others in the county. As a follow-up to this training, she is currently leading a team within the health department to better integrate health equity practice across all programs.

LOOKING AHEAD

In the decade ahead, Kimbrough Marshall hopes to realize many dreams. “My hope for our health department is that we will continue to expand our capacity and impact to help all residents realize health equity in our community,” she says. “Also, as a health department, I would like to see us serve as a national model for how to tackle some of the most intractable health inequities, turning them around so that there are no, or minimal, disparities in life expectancy regardless of one’s zip code, race or ethnicity.”

She credits many of WCHD’s key partners in helping to accomplish their mission, including the U-M Office of Multicultural Health and U-M School of Public Health. “We are very grateful for their partnership and support of our work. Our community partners are vital to helping us address the varied needs of our residents,” explains Kimbrough Marshall.

DEFINING THE ROLE OF MEDICAL DIRECTOR

Kimbrough Marshall is part of a forum with other local health department medical directors from across the state who are in the process of redefining the role of medical directors.

“We are aiming to highlight the medical director’s unique perspective on population health as health care providers and leaders. Medical directors bring a wealth of training and experience that speaks to the upstream and downstream factors related to the public’s health.”

— Jessie Kimbrough Marshall, MD, MPH
In February 2017, Monica Lypson, MD, MHPE, formerly professor in the U-M Department of Internal Medicine, and part-time associate chief of staff for education at the VA Ann Arbor Healthcare System, was appointed director of medical and dental education for the Office of Academic Affiliations within the U.S. Department of Veterans Affairs, in Washington, D.C.

In this role, Lypson provides broad leadership and oversight in coordinating the VA’s graduate and undergraduate medical and dental programs to enhance the quality of care provided to veterans within the VA health care system across the nation.

“The ability to serve at the intersection of health profession education, health policy and veteran care is a once-in-a-lifetime honor,” she says.

Lypson will tell you that her days are varied and full. “I might be consulting with the educational leaders at a VA facility, sitting in on a meeting to provide input into new regulations that must be written following adoption of new legislation, preparing VA leaders for meetings with leaders in academic medicine, representing the VA on national committees such as the Council of Graduate Medical Education and reviewing and auditing compliance with VA requirements,” explains Lypson.

“Our office is really a kind of touchpoint for academic medicine at the VA, so we have many contacts at the national level.”

While at U-M, Lypson also served as assistant dean for graduate medical education and interim associate dean for diversity and career development, which enabled her to bring many strengths to her new role. “Working within a large, robust health care environment at U-M provided me with an understanding of the pace and scale of my current federal role. Right now, I’m working on faculty development issues within the VA, so my experience with faculty affairs over the course of my U-M career has helped me in terms of understanding the needs of clinician educators,” she says.

“Also, working across training specialties at the dental, pharmacy and nursing schools at U-M has prepared me in my work in developing the health care workforce of the future, and what kind of policies need to be implemented.”

**HEALTH CARE EDUCATION TRANSFORMATION**

Lypson, who has published over 80 peer-reviewed publications in top-tier medical education.
Notably, she has been elected to serve on the Society of General Internal Medicine, Executive Board and National Council as national secretary, as well as a steering committee member and chair of the Group on Resident Affairs and Association of American Medical Colleges. She currently holds many national positions, including an *ex officio* role on the Council on Graduate Medical Education, and is a member of the Internal Medicine Residency Review Committee and Internal Medicine Milestones Committee of the Accreditation Council of Graduate Medical Education.

From these roles, Lypson explains that she was able to create a wide network of colleagues and associates. “When I came into this role in D.C., it was great in that I didn’t have to reestablish many relationships I already had here,” she says. “The one thing I would remind junior and mid-level faculty is that networks are very important. You never know when you might need to revisit and enhance prior relationships that you cultivated in the past.”

Today, Lypson remains committed to the relationship that the University of Michigan has with the VA Ann Arbor Healthcare System. “This is a special relationship and should continue to be cultivated. It would be hard to replicate the intellectual energy and commitment of the faculty at U-M,” says Lypson. “That community is still part of my ‘go-to network.’”

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— Monica Lypson, MD, MHPE
In a career that has spanned 37 years, Grace Elta, MD, AGAF, FASGE, H. Marvin Pollard Collegiate Professor of Gastroenterology, has witnessed extraordinary progress and change. “The Department of Internal Medicine has grown unbelievably, as has the Division of Gastroenterology and Hepatology,” says Elta. “When I joined, there were only seven faculty members, and now we have almost 80 faculty in the division. Those are pretty impressive numbers.”

Grace Elta began her practice in 1982 at the University Hospital (Old Main), a small clinic building on Catherine Street in Ann Arbor. “We didn’t have the new University Hospital yet. That opened in 1986. Today, the division has 12 off-site clinics, and three off-site endoscopy units, in addition to its hospital location. The growth has been tremendous. Our knowledge of medicine has also seen astounding growth and change, even in my own field. What I knew back when I was a resident would be nothing compared to what we have available to us today. It’s just a totally different world,” she says.

“Maybe the most amazing change has been with imaging, since it was so rudimentary when I began. The first CAT scanner was bought by the University Hospital when I was a third-year medical student. There was no ultrasound or MRI technology at the time. If you had abdominal pain and you couldn’t figure it out with a barium x-ray, you went to exploratory laparotomy. Nobody does this anymore because we have such great imaging.”

Despite massive advances throughout the last three decades, Elta explains that the division will continue to focus on important challenges ahead. “The key challenge, of course, is always finances. The department has three missions: research, patient care and education, and it’s difficult to balance the three areas. Unfortunately, research and education have a hard time paying their way, so clinical medicine tries to fund these areas. This is all a very delicate balance. My hope is that we can face the financial challenges ahead.”

Added to that is a considerable shift toward subspecialization in clinical care. “There are very few generalists any more, which is a dramatic change. Back in the 1980s, there was not as much subspecialization in medicine. We had only seven or eight gastroenterologists, and we all did

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— Grace Elta, MD

LEAVING A STRONG AND STORIED LEGACY

GRACE ELTA, MD, RETIRES FROM THE DEPARTMENT OF INTERNAL MEDICINE

PASSING THE TORCH

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everything. I suppose that’s true of medicine in general,” she says. “In 1918, if you were a doctor, you did everything across the board. You operated, delivered babies and took care of kids. Now, especially in academic medicine, and even in a field like gastroenterology, we often have four or five subspecialties. In the years to come, I think subspecialization will become even more fixed within our divisions because medicine keeps getting more complex.”

Elta reflects with great satisfaction on three decades of service, during which time she has dedicated significant efforts to the administration for the division, and to the department. “I was clinical chief for the Division of Gastroenterology and Hepatology, and I ran the endoscopy unit, which was a huge undertaking,” says Elta. “I’m proud of what I’ve done, and the legacy that I will leave behind. Perhaps my greatest honor has been the opportunity I have had in teaching residents and fellows. I have so many outstanding prior trainees; that is a true legacy.”

AN HONOR THAT’S DEVELOPING THE FUTURE

In 2018, the Department of Internal Medicine created three Early Career Endowment awards valued at $250,000 each that will be awarded annually over the next five years to junior faculty in any track who are within five years of their terminal residency/fellowship/postdoctoral training. One of these awards was named in honor of the work and career of Elta: The Grace H. Elta, MD, Department of Internal Medicine Early Career Endowment Award. This year’s recipient was Renuka Tipirneni, MD, MS, from the Division of General Medicine.

In March 2019, Elta officially retired from the Division of Gastroenterology and Hepatology. “I’m turning my job over to others now,” she says. A hallmark of her invaluable contributions to both the division and the department, Elta’s position will now be restructured and split between three people. “I was probably burning the candle at both ends in the last few years.”

AWARDS AND ACCOLADES

In May 2018, in recognition of her outstanding career, Elta received the prestigious Rudolf V. Schindler Award from the American Society for Gastrointestinal Endoscopy, the highest honor for lifetime achievement and contribution to the science and practice of endoscopy. “I was very proud to receive this, and was the second woman ever to get it. It had been 62 years since the last woman received it,” she explains. Elta was also the recipient of the Paul DeKruif Lifetime Achievement Award in 2018.

Grace Elta, MD, AGAF, FASGE, H. Marvin Pollard Collegiate Professor of Gastroenterology, Division of Gastroenterology and Hepatology, retired from service in 2019, following a 37-year career.

“Grace is an outstanding clinician and very skilled in endoscopy, having trained five of the seven advanced endoscopy faculty in our division.

She is a wonderful person and was key to our operations.

It will be hard to replace her.”

— Chung Owyang, MD, Chair, Division of Gastroenterology and Hepatology
In September 2018, after 28 years of dedicated service, David Fox, MD, the Frederick G.L. Huetwell and William D. Robinson, MD Professor of Rheumatology, stepped down as chief of the Division of Rheumatology. He remains a faculty member in the division, conducting research and patient care.

“In the months leading up to the transition, I talked with John Carethers, chair of the Department of Internal Medicine, and explained that it was time for a new person with fresh ideas to take over. I enjoyed my role very much, but I wanted to go back to my research,” says Fox. “I’ve always been involved in patient care, and that continues at roughly the same amount. It was a shift toward more research and less administrative work. That’s the general framework.”

Fox looks back on his entry to the U-M in 1985, when William Kelley, MD, was chair of the Department of Internal Medicine and actively involved in recruiting faculty. “Dr. Kelley had his recruiting eye on trainees of the program where I had done my residency and fellowship training — Brigham and Women’s Hospital in Boston, Massachusetts,” he explains. “Actually, from the cohort of interns and residents who were in the same year of training as I was at Brigham, four of us got recruited to the department at about the same time, including my wife Paula Bockenstedt. Today, all four of us remain on the faculty. We had other opportunities, but this seemed like a good career choice and a good place to live and have a family. The University of Michigan was a place where a young person just out of fellowship that was interested in research could come and establish a research program, get their own laboratory space and have enough resources.”

Over the years, he has been able to accomplish much while remaining true to his vision. “As division chief, it was important to me to sustain an environment in which faculty and trainees could develop their careers and follow their own interests, be creative and also work together well with each other,” says Fox. “In particular, a division in which the clinical world and laboratory research were not separate places, but just different sides of the same place. There is a lot of interaction between what goes on in patient care and what we do in research, and we are recognized for having an environment like that.”

“I hope that over the next 30 years U-M will be deeply involved in getting to the cause, cure and prevention of rheumatologic diseases. Our faculty will play major roles in these accomplishments and our patients will derive enormous benefits from the research.”

— David Fox, MD
exclusively on the disease with less of a downside. Understanding how important both genetics and epigenetics are in creating autoimmunity has been a big development in rheumatology. The genome being sequenced and tools for manipulating genes, and understanding those areas of science have just transformed rheumatology.”

PHILANTHROPIC SUPPORT AND NIH FUNDING
Fox is the first to admit that advances in research could not have been accomplished without the generous support of donors. “We’re very happy about this, in terms of the division as a whole, in that we’ve been able to generate a lot of philanthropic support for lupus, scleroderma, rheumatoid arthritis and other conditions,” he explains. “This has allowed us to do a lot of things that are new and support our faculty to be creative and break new ground, with our largest growth area over the last couple decades.”

Yet challenges remain ahead, such as competition for external grant support from funding agencies like NIH. “There is never enough money for all the good research and you can’t slip up. You can’t rest on your laurels if you plan to continue to compete for grant funding. Overall, we’ve been pretty successful, with a lot of attention and hard work to build and maintain a portfolio of grant support,” says Fox.

FACING INCREASING PATIENT DEMAND AND WORKFORCE SHORTAGES
Fox says that clinical operations have become much larger and much more complicated. “We used to have one clinic at the University Hospital, in addition to the clinic at the VA Hospital. Then the health system decided to expand and create satellites and be more accessible for patients, so we now have rheumatology clinics in seven different locations. Many more patients are being seen today, with at least three times as many patient visits as we had back in 1990,” he explains. “We’re not really meeting the referral demand that is out there. Added to this is a workforce shortage in the discipline of rheumatology. In trying to grow clinics and programs, there are just not that many medical professionals being trained in rheumatology. It’s a very complicated field and very broad field. Often physician assistants and nurse practitioners want to specialize in something a little more defined.”

REALIZING THE PROMISE OF THE FIELD
Fox has made longstanding contributions to the field. He is the author of more than 230 scientific papers and book chapters, and has served on the editorial board of Arthritis & Rheumatism, along with posts as section editor of the Journal of Immunology and associate editor of the Journal of Clinical Investigation. He is a member of the American Society for Clinical Investigation and the Association of American Physicians. In 2007-2008, Fox served as the 71st president of the American College of Rheumatology. “I served a year as president of the American College of Rheumatology. “I served a year as president of the American College of Rheumatology, and was the sixth rheumatologist from U-M to have this role. That is one the highlights of my professional life,” says Fox.

Looking ahead, he envisions great promise for the Division of Rheumatology. “I hope that over the next 30 years U-M will be deeply involved in getting to the cause, cure and prevention of rheumatologic diseases. Our faculty will play major roles in these accomplishments and our patients will derive enormous benefits from the research.”

LIFETIME ACHIEVEMENT
In 2017, Fox received the Paul De Kruif Lifetime Achievement Award recognizing his lifetime achievement in serving the academic missions of the Department of Internal Medicine.
Margaret Gyetko, MD, professor in the Division of Pulmonary & Critical Care Medicine, and senior associate dean for faculty and faculty development, Office of Faculty Affairs and Faculty Development, U-M Medical School, began her career at the University of Michigan as an intern in 1981. “It was my first choice for house officer training and I stayed on through residency from 1982-1984. I was a chief medical resident under William Kelley, MD, then chair of the department, so I gained a bit of knowledge about how things worked,” says Gyetko. “From there, I did a fellowship in pulmonary and critical care medicine at the University of Michigan from 1985-1988.”

Without delay, Gyetko joined the ranks of the labor market. “I had various job offers, but I was really impressed with the Department of Internal Medicine, and even more so with the new pulmonary division chief, Galen B. Toews, MD. I agreed with his vision, and, in 1988, joined the faculty in the Division of Pulmonary Medicine,” she says. “At the time, I was the only woman in pulmonary medicine at the University of Michigan, and the first woman ever appointed on the tenure track. Dr. Toews was extremely supportive and continued to be supportive, and I was able to accomplish frankly more than I had dreamed of.”

Gyetko is known for numerous contributions in her laboratory work which were deemed seminal in the field, including two observations in particular: 1) regulation of beta integrin function by the urokinase receptor; and 2) the critical role of urokinase in acquired immunologic responses and the role of the urokinase receptor in innate immune responses. “Many scientists get to have only one paradigm-changing discovery, and I was lucky enough to have two. I always said that I would like to make a fantastic discovery. But no matter what, I wanted each and every little step that I contributed to my field to be rock solid; to be something that could be stood on and built on by generations to come. Many of my papers are still being cited regularly, which is very fulfilling,” says Gyetko.

Not surprisingly, Gyetko has witnessed massive changes since coming on board. “For one, the department has probably doubled in terms of the number of faculty since I began,” she says. “Another major change is that there has been a huge expansion of clinical track faculty who are really carrying the lion’s share of teaching and delivery of patient care. The clinical track didn’t exist when I was an intern, and previously most of us were physician-scientists. Now, the clinical track massively outweighs the number of faculty on the tenure track. Also, there is a growing spirit of collaboration across divisions that has been really delightful.”

“At the time, I was the only woman in pulmonary medicine at the University of Michigan, and the first woman ever appointed on the tenure track.” — Margaret Gyetko, MD
Added to this are important scientific advances in molecular biology. “I am really dating myself here, but the major thing that I have seen is the explosion of molecular biology, and the appreciation of being able to detect and sequence RNA and DNA,” explains Gyetko. “In one of my first grant submissions, I actually published a northern blot which was viewed as a breakthrough in pulmonary medicine. Now I think they probably do that in junior high school. Back in my early career, if you wanted to sequence DNA, it was a southern blot. It took forever and was very labor intensive and fraught with difficulty. Today, sequencing can be done extremely quickly and economically, in some cases even at the bedside. Twenty-five years ago, if you’d told me this would be the case, I would have looked at you like you were writing science fiction.”

**PROVIDING FACULTY LEADERSHIP & GUIDANCE**

In 2007, Gyetko assumed the role of senior associate dean for faculty and faculty development, Office of Faculty Affairs and Faculty Development where she advises the dean on a wide range of faculty issues. Under her leadership, the U-M Medical School has developed a robust faculty development program designed to support the acquisition of skills in teaching and research to further the advancement of faculty careers.

Prior to this, for the better part of seven years, Gyetko served as associate chair for faculty in the Department of Internal Medicine. “I saw my role as a way to help faculty learn what they needed to do in order to be promoted,” she explains. “What surprised me most was how many faculty members really didn’t know what they needed to do to be successful. At that time, we had a seven-year tenure clock. Sometimes I’d meet with faculty in year five, and they wouldn’t have any grants and maybe only a handful of papers, making it almost impossible to recover in the remaining two years. This was very discouraging for me to see because these people were brilliant, and there was no reason why they couldn’t have been successful if they were developed properly. So, when the position in the dean’s office opened up, my goal was to come and establish a faculty development program so that this wouldn’t happen anymore.”

Thankfully, the next generation of medical leaders at U-M are now benefiting from her insights and experiences.

“What surprised me most was how many faculty members really didn’t know what they needed to do to be successful.

So, when the position in the dean’s office opened up, my goal was to come and establish a faculty development program so that this wouldn’t happen anymore.”
Laurence McMahon, Jr., MD, MPH, professor in the Department of Internal Medicine, and professor of health management and policy at the School of Public Health, joined the faculty of the U-M Medical School in 1985, with joint appointments in the Medical School and the School of Public Health. Since 1988, he has also served as chief of the Division of General Medicine, the largest division in the Department of Internal Medicine. McMahon is also the founding co-director of the Robert Wood Johnson Clinical Scholars Program at Michigan Medicine.

“The kind of research I do is generally called health services research, which is non-biologically-based research that looks at quality, safety, cost, utilization and management of clinical services,” says McMahon. “I came to the U-M Medical School because I was looking for an institution that had a great school of public health with which I could collaborate. Also, I was a gastroenterologist, and, although my research placed me in the realm of general medicine, especially in 1985, I also wanted to work in the field of gastroenterology.”

At the time, William Kelley, MD, was chair of the Department of Internal Medicine and Tadataka Yamada, MD, was chief of the Division of Gastroenterology and Hepatology. “They both agreed that I could split my clinical time between general medicine and gastroenterology,” he explains. “This combination of having a great clinically focused foundation, along with an incredible school of public health that would become my collaborating base, was important in my decision to come to U-M. Also, during this period, there was really not a large group, or any group in the medical school, doing health services research.”

In the 1990s, Joel Howell, MD, PhD, professor in the Department of Internal Medicine, and McMahon led the successful effort in having U-M awarded a Robert Wood Johnson Clinical Scholars Program in a national competition. “We had the program for about 20 years and it seeded health services research in other clinical disciplines, notably urology, and surgery, which now have incredibly robust health services research groups,” says McMahon. “We have faculty throughout the organization who came through the Clinical Scholars’ Program, and who subsequently nurtured health services research focused in their clinical specialties.”

**IDENTIFYING THE NEXT WAVE**

McMahon went on to build the field of health services research at the U-M Medical School, which he will tell you was a 20- or 30-year effort, recruiting candidates within the Divisions of General Medicine and Hospital Medicine. “We’ve been able to recruit some really spectacular health services research-focused investigators through the years. It was pretty clear when you started looking at these people early on that they were going to be incredible leaders and do outstanding work, which they have done,” he says. “The reputation we’ve developed over time at U-M is due to these faculty.”

Such efforts ultimately led to the creation of the U-M Institute for Healthcare Policy & Innovation (IHPI) in 2012, which has become...
the home, both physically and intellectually, for health services research areas across the U-M Medical School. “The institute is led by John Ayanian, MD, MPP, who we were fortunate to recruit from Harvard Medical School. He has continued to develop and foster health services research at the medical school, but, most importantly, has reached out across the university to establish relationships in all of the schools and colleges, including the School of Public Health, Law School, School of Social Work and School of Nursing,” explains McMahon. “Dr. Ayanian’s expertise has fostered a diverse group of investigators and enhanced interdisciplinary collaboration. IHPI is probably one of the largest groups of health services research investigators under one roof in the country.”

In his role at the institute, McMahon focuses his research in the area of small area variation in the use of hospital and health services, with particular attention to differences in care delivered to sociodemographic and racially diverse segments of our society. He has continued to develop systems to measure and manage hospital-based practices, focusing on both utilization and the quality of care. Most recently his work with collaborator Jennifer Meddings, MD, MSc has examined Medicare’s move to “value-based payment” and its impact on patients and hospitals.

**UNCONVENTIONAL APPROACHES TO LEADERSHIP**

McMahon admits that his leadership style leans toward finding people that are “much better” than he is. “One of the areas that is hard to identify but is critical in a leader is someone who takes unconventional approaches to solving problems. The usual approach is to do the usual thing, which leads to predictable results and doesn’t move the field forward. So, trying to identify true transformational leaders is to me the goal of leadership. I don’t look for someone that can do the usual kind of research. I look for someone who has a spark and who is asking important, and not necessarily the next step kind of questions, but changing the field in different and more interesting directions,” he explains. “I think you’ve got to be able to identify those people and not just take the incremental leader, but try to find those transformational people that really take organizations like a research program from being a usual kind to one that transforms a field. And, we’ve had pretty remarkable successes in recruiting such faculty.”

**U-M INSTITUTE FOR HEALTHCARE POLICY & INNOVATION**

The Institute for Healthcare Policy & Innovation (IHPI) is committed to improving the quality, safety, equity and affordability of healthcare services. IHPI is the nation’s largest university-based group of health services researchers, working together across diverse disciplines to solve complex and timely health challenges that refuse simple definition or confinement within a single field of study. IHPI unites nearly 600 faculty across 14 U-M schools and colleges, strategically aligning broad expertise to respond to vital questions within healthcare policy and practice.

Read more about IHPI on page 32.
Richard Simon, MD, joined the faculty of the Division of Pulmonary & Critical Care Medicine in 1981 and has spent his entire faculty career at Michigan. In that time he has witnessed and experienced a lot of change. “As our department has grown, I have been impressed with how we’ve been able to balance and stay true to our missions of research, education and patient care. That shows great forethought and leadership. Very few institutions can claim this. This has a lot to do with our excellence and the dedication of our faculty,” he explains.

When he was asked to become the Department of Internal Medicine’s associate chair for faculty affairs in 2007, he knew it was a role that he could truly believe in. Simon takes great pride in supporting and advancing the work of his colleagues. “To see the quality and impact of all of their accomplishments is exciting, inspiring and impressive,” he explains. “To be able to represent such a talented group of individuals is humbling in many ways.”

One of the hallmarks of U-M’s CF program — the largest in the state of Michigan — is the close collaboration between the pediatric clinic and adult clinic. Between age 18 and 21, patients transfer from the pediatric team to the adult team of physicians, nurses, social workers, physical therapists, respiratory therapists, pharmacists, clinical researchers and dietitians who see patients on a regular basis. To achieve coordinated care, clinic staff come together once a week to discuss patients — both from a
medical perspective and from a psychosocial perspective.

In order to provide the best care to patients, Simon has been dedicated to maintaining a culture of respect in the clinic.

“We work hard to foster a trusting relationship among staff members,” Simon explains. “We do that by allowing our teams to share their expertise and knowledge in both informal and formal ways.”

For instance, once a month, a different discipline will present to the entire team new findings, updates about CF or just some of the important work they are carrying out.

“This helps keep all of us up to date, and it helps us all realize how impressive our colleagues are,” he explains. “It becomes quite apparent that it’s important that we lean on one another to provide our patients with a level of care that goes above and beyond what many of them expect.”

**DEVELOPING BETTER TREATMENTS**

Over the years, Simon has also participated in national efforts to develop better medications for CF. Many patients are benefiting from participating in clinical trials sponsored by U-M on a new class of drugs called modulators, designed to help the mutated CF protein work the way it’s supposed to.

“These drugs are small molecules that bind to the abnormal cystic fibrosis protein and make it perform more normally,” Simon explains. A newer version of this treatment that combines three modulating drugs that is in late clinical trials holds enormous promise for the majority of people with CF whose disease is caused by specific gene mutations.

“Early results from the trials show that the triple combination is very effective. If the studies show that the treatment is also safe, leading to approval by the U.S. Food and Drug Administration, the triple-combination drug will provide highly effective therapy to 90 percent of people with CF,” he says.

All of this research and preventive care has resulted in a better quality of life and extended life spans for people with CF. “Since 2002, the average life span of a person with CF has improved from 33 to 44 years old. We have patients in their 60s and 70s, which would have been unheard of decades ago,” he says.

It may soon be possible that infants with CF starting treatment with these new therapies could potentially live a near-normal life avoiding most of the problems confronted by adults with cystic fibrosis today.

“Since 2002, the average life span of a person with CF has improved from 33 to 44 years old. We have patients in their 60s and 70s, which would have been unheard of decades ago.”

— Richard Simon, MD
For nearly 30 years, Chung Owyang, MD, has served as chief of the Division of Gastroenterology and Hepatology. “When I assumed this role in 1990, the division had roughly 20 faculty members. Today, we have close to 100, so there has been a fivefold expansion during my tenure. We have expanded our clinical operations, which are now situated in 14 locations, with about 50,000 patient visits each year. In addition, we currently perform endoscopy at four different sites,” says Owyang. “It is truly rewarding to see how much the GI division has been able to achieve in the past three decades. We have truly reached the height of national prominence because of our dedicated faculty and staff and commitment to excellent patient care.”

Along the way, Owyang has been instrumental in guiding the next generation of clinicians and investigators, providing the necessary infrastructure to succeed. “One of our major goals has been to transform our training and fellowship programs. We now have 21 gastrointestinal fellows, two advanced endoscopy fellows and two transplant fellows. Most of our trainees have gone into academia. In fact, half of our faculty are actually trained from our own fellowship program,” he explains. “This program has been fantastic in grooming future faculty members for our division. Our training program has been supported by two T32 NIH-funded grants. This is rather unique because most training programs don’t have NIH-funded training. We have two grants: one for basic translational research and one for outcomes research in gastrointestinal epidemiology.”

GROWING THE RESEARCH INFRASTRUCTURE

Another area of growth has been in research infrastructure within the division. “We have over $20M per year in external research funding in gastroenterology as well as center grants and program projects supported by the NIH. In addition, we have eight K08 and K23 awards, which are career development awards supporting young investigators. This speaks well about our pipeline,” says Owyang.

Over the last 20 years, the division has also witnessed significant milestones in gastrointestinal science. “In the early 1990s, my predecessor, Tadataka Yamada, MD, was the first to apply molecular biology techniques in the study of the biochemistry and physiology of gut hormones. And, this has transformed the way we think about gut endocrinology,” he explains. “For example, somatostatin is one of the gut hormones that has been used to treat intestinal pseudo-obstruction. It can stimulate motility in a very unusual way and is now the treatment of choice for patients with intestinal pseudo-obstruction. We were the first to propose the use of somatostatin for the treatment of these types of GI disorders.”

Also of note is the work conducted on the characterization of CCK-releasing peptide which is secreted into the intestinal lumen in response to food and stimulates CCK release. “Pancreatic enzymes subsequently secreted into the lumen inactivate CCK-releasing peptide, thereby creating a feedback regulating loop,” says Owyang. “This novel observation has provided the basis for understanding the clinical utility of pancreatic enzyme supplements in alleviating pain in chronic pancreatic patients by diminishing CCK-mediated stimulation.”

LEADING BY DOING

As for leadership style, Owyang believes in setting an example. “I don’t ask people to do things
that I don’t want to do. As division chief, I’m still actively involved in clinical practice. I continue to receive NIH funding and share in clinical teaching to fellows and residents. Leading by example is critical,” he explains. “I have tried to develop an environment that is conducive to success and a place where people feel like family. I also believe in developing opportunities for young faculty so that they do not need to look outside the U-M for growth opportunities. Our retention rate has been 90 percent over the years.”

AWARDS AND ACCOLADES
In the late 1980s, Owyang was inducted into the American Society of Clinical Investigation and the American Association of Physicians. In 2013, he received the AGA Julius Friedenwald Medal, which is the highest honor bestowed on a member. Owyang is also the recipient of the U-M Paul De Kruif Lifetime Achievement Award (2017) and the Mayo Clinic Distinguished Alumnus Award (2018).

MEETING CHALLENGES AHEAD
Owyang explains that many factors have created complex and unique challenges during the last 30 years. First and foremost, obtaining NIH research funding is extremely competitive. “It’s really not possible to rely on the U-M Medical School or the Department of Internal Medicine for long-term research support,” says Owyang. “You have to find ways to get external support, such as NIH research support, and this has been a constant battle. The same can be said for clinical operations, due to severe competition from hospitals and private practice groups around us. We need to improve our clinical efficiency so that we can be much more competitive. These are some of the real challenges we face today.”

Looking back, Owyang is proud of the accomplishments of the division, many of which would not have been possible without the support of former department chairs, and current chair John Carethers, MD, who has been helpful in advancing the division’s missions. “One example of this support is bridge funding. As investigators, we sometimes need funding for a short time. The department always comes through with bridge funding so that our researchers can continue their efforts without interruption,” he explains. “This has really helped to sustain growth and development within our division over the last 30 years. This is a very important component for excellence.”

“It is truly rewarding to see how much the GI division has been able to achieve in the past three decades. We have truly reached the height of national prominence because of our dedicated faculty and staff and commitment to excellent patient care.”
— Chung Owyang, MD
**HISTORICAL SUCCESS OF LEADERS & BEST**

THE U-M DEPARTMENT OF INTERNAL MEDICINE HAS A LONG HISTORY OF ITS FACULTY, RESIDENTS AND FELLOWS GOING ON TO PROVIDE LEADERSHIP WITHIN U-M AND ACROSS THE COUNTRY

**Francis Collins, MD, PhD**
Director, National Institutes of Health
Former Howard Hughes Medical Institute investigator at U-M and faculty member in the Departments of Internal Medicine and Human Genetics.

**Kathleen Cooney, MD**
Chair, Department of Medicine
Duke University School of Medicine
Former faculty member who served as chief of the U-M Division of Hematology and Oncology, and as deputy director of the U-M Comprehensive Cancer Center. She completed her both her residency training and fellowship at U-M and also served as chief resident.

**Angie Faegerlin, PhD**
Chair, Department of Population Health Sciences
University of Utah School of Medicine
Former co-director of U-M’s Center for Bioethics and Social Sciences in Medicine and research scientist at the VA Ann Arbor Health System’s Center for Clinical Management Research.

**Eric Fearon, MD, PhD**
Director, University of Michigan Rogel Cancer Center
Current faculty member who also served as division chief for Molecular Medicine and Genetics in the Department of Internal Medicine from 2010-2018.

**Juanita Merchant, MD, PhD**
Chief, Division of Gastroenterology and Hepatology
University of Arizona
Merchant spent 27 years of her successful career at U-M. She was the H. Marvin Pollard Professor of Gastrointestinal Sciences in Internal Medicine with a dual appointment in the Department of Molecular and Integrative Medicine.

**Betsy Nabel, MD**
President, Brigham Health
Brigham and Women’s Hospital
Former faculty member who served as chief of the U-M Division of Cardiovascular Medicine and the U-M Cardiovascular Research Center.
HERE IS A SAMPLE OF WHAT THE LEADERSHIP LANDSCAPE LOOKED LIKE DURING 2018:

**Sanjay Saint, MD, MPH**  
Chief of Medicine, VA Ann Arbor Healthcare System  
A current faculty member who also directs the Ann Arbor VA Medical Center/University of Michigan Patient Safety Enhancement Program.

**David Spahlinger, MD**  
Executive Vice Dean for Clinical Affairs, University of Michigan Medical School  
President, University of Michigan Health System  
A current faculty member who completed his internal medicine residency and served as chief resident at U-M.

**Deneen Wellik, PhD**  
Chair, Department of Cell and Regenerative Biology  
University of Wisconsin - Madison  
Former faculty member who also served as director for the Center for Organogenesis and the NIH T32 Training Program in Organogenesis.

**James Woolliscroft, MD**  
Former Dean, University of Michigan Medical School (2006-2015)  
A current faculty member who completed his internal medicine residency and served as chief resident at U-M.
The new chief clinical officer for the University of Michigan Medical Group (UMMG), John Allen, MD, MBA, professor in the Division of Gastroenterology & Hepatology (GI), is helping to lead the effort to transform Michigan Medicine’s ambulatory enterprise. As the physician partner within UMMG’s executive leadership triad, Allen is working with Chief Nursing Officer Nancy May, DPN, and Chief Operating Officer Migdalia Musler, MHSA, to implement a new management model in which UMMG’s 160-plus Ambulatory Care Units (ACUs) will report up through interdisciplinary oversight teams, rather than departments. This more horizontally integrated structure is designed to better address the operational and financial pressures facing ACUs today while making care more coordinated and patient-friendly, improving patient access and enhancing providers’ professional satisfaction.

It’s an ironic task for someone who came to U-M two years ago determined that he “wasn’t going to be in charge of anything anymore.” This was a reasonable desire for someone who’d already offered decades of leadership to the American Gastroenterological Association (see page 56), turned a single-specialty GI practice into one of the largest GI practices in the country and served as clinical chief of digestive diseases at Yale. However, Allen found he couldn’t resist when this intriguing task — which just happened to be a perfect fit for his background — was put before him. That’s because he has also helped lead one of the most finely tuned integrated health systems in the country, Allina Health in Minneapolis. He sits on their board of directors and chairs their quality committee, so was eager to bring what he’s learned to the job of making UMMG more horizontally integrated.

**GOALS FOR INTEGRATION**

Allen says academic medical centers have been slightly behind their non-academic counterparts in pursuing an integrated management structure, in large part because of the utility of the department-centered model for their research and education missions.

That was fine, he says, when there were just a dozen ACUs, and most were single-specialty clinics. However, the shift toward both a larger number of ACUs and more multispecialty facilities has made the departmental model inefficient for clinical care delivery.

The more horizontal structure, says Allen, will enhance cooperation across ambulatory operations to share best practices, identify efficiencies, standardize protocols, centralize key services and ensure practitioners are working to the top of their licenses.

**A NEW STRUCTURE**

In the new structure, department chairs will continue to set strategic direction for their departments and recruit and oversee faculty. However, UMMG leadership will assume oversight of ambulatory operations through eight program-based oversight teams (see figure at right), each with a physician, nursing and administrative head. Multiple specialty teams and ACUs will report to a single oversight team in their programmatic area.

“These oversight teams will coordinate closely with each other to maximize clinical care delivery across the health system here in the Ann Arbor area, while..."
UMMG’S NEW MANAGEMENT STRUCTURE

President, University of Michigan Hospitals and Health Centers and Executive Vice Dean, UMMG

Executive Director, UMMG

UMMG Leadership Chair Coordination Partnership

UMMG Leadership Triad

Chief Clinical Officer

Chief Nursing Officer

Chief Operating Officer

Department Leadership

Dept. Chair/Div. Chief

Dept. CDA

Clinical Services Oversight Teams (8)

Center Leadership

Interdisciplinary Programs

Urology

Primary Care

Cardiovascular

Musculoskeletal

Children & Women

Neurosciences

Medical Specialties

Surgical Specialties

ACUs
considering statewide affiliations as well,” says Allen.

The new structure has created additional leadership opportunities for faculty. Allen is now helping to recruit the physicians who will anchor each oversight team.

**BENEFITS FOR PATIENTS AND PROVIDERS**

The vision is that this change in structure will lead to more coordinated care for patients and a better, more sustainable work environment for providers.

“A good example of the type of coordination we’re trying to achieve for patients is what has been done here in bariatric surgery,” says Allen. “There’s a complex series of steps that patients being considered for this surgery have to go through. There’s a medical weight loss program first, then they have to be assessed from a cardiac standpoint, for obstructive sleep apnea, psychologically, via endoscopy, and a number of other things. The program has had to coordinate all those individual services so that a patient doesn’t have to come back 17 times to get all of this done. We’re doing that same thing on a macro level.”

This has happened in a handful of programs, he says, such as cancer and cardiovascular care, as well as in the new multispecialty clinics (see page 58), but not yet across the board.

Some of the changes will be highly visible to patients, such as replacing the more than 250 scheduling phone numbers currently in use with a sophisticated, centralized scheduling system. Others will be more operationally focused, such as standardizing surgical “Doctor Preference Cards,” procedure bundles and infusion treatment protocols to meet patient needs and use resources more efficiently.

Also essential is revisiting workflows in order to improve patient access, while protecting providers from burnout. “We have practice improvement teams that are going through everyone’s jobs, helping with role delineation and working to maximize individuals’ contributions to the top of their license or scope of practice,” says Allen. “We’re working to enhance what the medical assistants do, what the LPNs do, the RNs, the nurse practitioners and physician assistants — moving some of the chronic care management off our physicians to open up their schedules to new or complex patients.”

Another change is centralizing the recruitment and onboarding of medical assistants to standardize the process and lift this responsibility from individual ACUs.

“What we’re trying to do is put an infrastructure together that moves us away from crisis management, where every patient is almost a new experience, to a more structured process,” says Allen. “Change is always challenging, but I think over time, this will become an easier place to both practice medicine and receive care. We’re maximizing the clinical care experience for everyone.”

**ARCHITECTS OF CHANGE**

The new management model has been championed by Marschall Runge, MD, PhD, executive vice president for medical affairs and CEO of Michigan Medicine, Medical School dean, and professor in the Division of Cardiovascular Medicine and David Spahlinger, MD, executive vice dean for clinical affairs, president of the University of Michigan Health System and professor in the Division of General Medicine.

Over the last two years, Timothy Johnson, MD, the previous executive director of UMMG and the Lewis and Lillian Becker Professor of Dermatology, has laid the groundwork for the change, conveying its value to department chairs and key stakeholders. The model is now being implemented under the direction of current UMMG Executive Director Michael Mulholland, MD, PhD, the chair and Frederick A. Coller Distinguished Professor of Surgery.

**AGA’S HIGHEST HONOR**

Earlier this year, the American Gastroenterological Association awarded Allen its highest honor, the Julius Friedenwald Medal, for his lifelong contributions to the field. Allen was cited for bringing critical knowledge about health care delivery and economics to the field, for his clinical leadership in academic and non-academic settings, and for his decades of AGA leadership, including a term as president.
As Michigan Medicine continues to expand its services, the Brighton Center for Specialty Care opened in September 2018. The three-level, 297,000-square-foot facility houses more than 50 adult and pediatric specialty services, including cancer, cardiovascular, orthopaedic surgery, MRI and more.
When UMMG leaders share their vision for seamless, coordinated, patient-centered ambulatory care, one of the examples they cite is Northville Health Center.

Medical Director Audrey Fan, MD, assistant professor in the Division of General Medicine, calls it the “first big-box, multispecialty clinic that was truly one Ambulatory Care Unit (ACU).” The clinic was the first at Michigan Medicine to integrate more than 40 specialties into a single operation—and it has done so with flying colors. It handles over 150,000 visits annually, is positive on its margin and boasts a 94 percent patient satisfaction rating.

That’s an impressive accomplishment for any medical director, but especially so for one with no formal background in management who decided to jump into ACU leadership to see if she could make an impact. The way she works is very much the ideal within Michigan Medicine’s new ambulatory structure, and it’s why she was recently tapped to take on a UMMG-wide role in quality improvement (see box at right).

PROVING HER METTLE

Fan tested the ACU management waters by becoming medical director of the Livonia Health Center in 2012. Though a smaller primary care site, Livonia was facing the system-wide rollout of MiChart within just three months of Fan taking the reins.

Though something of a baptism by fire, the process would prove to Fan—and her colleagues—just what a natural leader she was.

“No one in the clinic had prepared for this transition,” she says, “and it was challenging because it impacted everyone — call center, clericals, check in/check out, MAs, nurses, physicians and patients. We had to sit down and think through all the different workflows, processes and ways people would be affected then come up with a plan, communicate it and make sure people were comfortable with what they would have to do.”

Fan says her biggest lesson was the value of being present—physically walking around, talking to people and helping them get familiar with the system, both before and during the launch.

“When it launched, I was just there all the time, asking people, ‘OK, what’s the problem? How can we figure it out?’” This hands-on approach paid off. When Connie Standiford, MD, then-executive medical director of ambulatory care services, stopped by to see how things were going, she told Fan that Livonia was by far the calmest of the ACUs that day.

The STRENGTH OF A GENERALIST

Fan transitioned to Northville in 2014. Though faced with the new challenge of managing multiple specialties, she quickly realized that one of her strengths was her general medicine background.

“As a general medicine physician, we tend to be the coordinator,” she says. “We coordinate among all the different specialists who are consulting on our patient and put their input together. I think being trained in this way, I’m able to look at the different roles and viewpoints across our site and put them together into a picture that makes sense.”

She’s been helped by a leadership structure in which assistant medical directors for each service area—infusion, musculoskeletal, medical procedures unit, ophthalmology, children and women’s and so forth—bring their expertise to the table. “I’m able to have this broad picture of how I want
PATIENT CARE

CLINICAL LEADERS

FAN AS A QUALITY LEADER

In 2018, Audrey Fan was named UMMG’s associate medical director for quality. In this role, she’s working with UMMG Chief Quality Officer Hae Mi Choe, PharmD, to lead the development and implementation of quality improvement initiatives across UMMG. A key part of this is engaging faculty and ensuring these initiatives are aligned across the ambulatory enterprise.

“Dr. Fan has done a great job of approaching the different divisions and asking how we can pull our quality improvement programs and metrics together in an organized way for the ambulatory footprint,” says UMMG Chief Clinical Officer John Allen, MD, MBA.

One of her early efforts has been developing a process to increase pneumococcal vaccine coverage across UMMG.

“Fan’s commitment to improving the clinical experience for both patients and colleagues was honored this year with her induction into the Department of Internal Medicine’s Clinical Excellence Society.”

CONTINUOUS IMPROVEMENT

Just as essential to Northville’s success has been its focus on continuous improvement. This also turns out to be one of Fan’s innate strengths. “It’s funny,” she says. “I go to trainings where they talk about quality-improvement cycles like ‘plan, do, study, act,’ and I think, ‘Isn’t that what people just naturally do?’”

She employs this mindset when she jumps in on a team’s daily huddle — asking questions, questioning assumptions and getting feedback from the group until a solution bubbles up. It’s how her teams have resolved specific challenges, like how to tell from down the hall which intake stations are free (answer: door flags) to the more pervasive puzzle of optimizing physicians’ schedules.

“When we find that particular physicians are running consistently behind,” says Fan, “we sit down together to make sure the schedule is aligned to the way they really see patients. Are we scheduling 20 minutes for patients who really need 40? Are we scheduling too many new patients? Do we have too many appointments too close together early in the day?”

Through this, her team realized, for example, that they needed to build in more time before pulmonology appointments for patients needing pulmonary function tests.

“Our goal is to maintain quality without burning people out,” says Fan.

A big piece of this is making sure that every member of her team is empowered to do what they do best. “In the old days, care was very much physician-centric, but today it’s about utilizing the whole team in ways that benefit everyone,” she says. “For example, I can see a complex patient who has uncontrolled diabetes and say, ‘You need to check your sugars more,’ but then my care navigator can call her once a week and ask, ‘What are your sugars doing; are you eating right?’ She can give that information to my pharmacist who says, ‘Oh, we need to adjust your insulin this way,’ and then send it to our social worker because the patient doesn’t have transportation and so on.”

Team-based care not only distributes the workload better, says Fan, it takes better care of the patient.

“Team-based care not only distributes the workload better, says Fan, it takes better care of the patient.”

One of her early efforts has been developing a process to increase pneumococcal vaccine coverage across UMMG.

“She is also one of the prime patient safety leads in internal medicine involved in scoring ambulatory safety events, and then doing root cause analysis to determine how we can avoid them in the future,” says Allen. “She’s unbelievably effective and has become a tremendous leader.”
Nijuanna Pertresh Irby-Johnson, MD, clinical instructor in the Department of Internal Medicine and assistant division chief of Ambulatory Care Operations, Washtenaw County, maintains a sharp focus on the challenges facing the delivery of high-quality primary care. In her current role, Irby-Johnson works to provide faculty, through their clinic leaders and/or directly, with tools and resources to shape and mold the primary care model of the future.

BALANCING PATIENT CARE WITH ADMINISTRATIVE ROLES
“Currently, the key issues we have, especially within a large, complex health care system such as Michigan Medicine, surround mobilizing the many layers within our matrix governance structure toward a more singular focus. We are developing a framework to move our division in a unified direction,” says Irby-Johnson. “As health care delivery is changing and becoming more complex, it is increasingly important to have a strong primary care foundation. An important component of that foundational base comes from leaders who are not only experts in primary care clinical skills, but who can manage the balancing act of handling administrative duties along with clinical care. It takes a certain skill set to wear many hats.”

Irby-Johnson explains that the majority of primary care physicians come to the career with a vision for building trusting relationships with their patients, and partnering with them through their health journeys. “Once in practice, though, primary care physicians are faced with the reality of clinical administrative work, inefficient work flows and a lack of robust coordination of care models which can obscure their vision,” she says. “As primary care physicians, our focus has always been on patient care, but new levels of patient access are driving doctors to develop new leadership skills.”

ASSUMING LEADERSHIP ROLES
While most primary care physicians are committed and driven, and probably at the top percent of their class academically, Irby-Johnson is quick to mention that such qualities don’t necessarily translate into strong leadership skills. “Primary care faculty have to be willing to lead because, essentially, we’re leaders by default in our practices. Once we come on board, we’re automatically viewed as leaders,” says Irby-Johnson. “As primary care leaders, we try to influence by role modeling, and not so much by authority. In that regard, we have to become really creative to inspire and motivate our patients to make healthier choices and our clinic staffs to provide top-shelf customer service.”

“As health care shifts, primary care must also shift to meet the changing demands of the market. So, reassigning tasks among team members is essential to address the gaps in patient and payer expectations. As we move toward demonstrating more value for our patients, there is a huge need for effective utilization of resources.”

— Nijuanna Pertresh Irby-Johnson, MD
Irby-Johnson remains committed to grooming future leaders by equipping them with the tools needed to lead practice transformation efforts in their local practices. “This is done by optimizing current infrastructures and advancing technologies,” she says. “I would like to see all incoming primary care physicians have a leadership course incorporated into their new faculty orientation. Right now, we offer new faculty quarterly ‘New Faculty’ workshops during their first year. The goal of the workshop series is to help oncoming faculty transition to their roles as Michigan Medicine primary care physicians. In the future, we are hoping to incorporate leadership lectures and interactive sessions during the quarterly workshops.”

She is currently working to create a physician-led team-based care structure within each of the general medicine practices. “All of our primary care sites are transforming our practices into team-based care models. The transformation efforts not only consist of organizing ourselves into teams but also defining staff roles, workflows and a continuous improvement process to help sustain the team-based care model,” says Irby-Johnson. “As health care shifts, primary care must also shift to meet the changing demands of the market. So, reassigning tasks among team members is essential to address the gaps in patient and payer expectations. As we move toward demonstrating more value for our patients, there is a huge need for effective utilization of resources.”

Patient care doesn’t just stop at the end of a patient’s visit. It is a continuous cycle, and one that can be challenging to juggle. “There are a lot of tasks that occur before a patient steps into our office. For example, we can start to gather and review information about the patient prior to the visit. This maximizes our time with the patient without disrupting our 20-minute visit,” says Irby-Johnson. “There are many essential tasks that we have to address before and after each visit, including paperwork for medical equipment, leave of absences for work and medication refills. When you have effective protocols in place, there are other people within practices that can safely perform some of these tasks. We are shifting our model to adapt to this, and are trying to reassign and redistribute tasks among team members to maximize physician time with the patient. By adapting to this new model, we will move closer to practicing the type of medicine we all envision.”
ENHANCING CARE FOR ED PATIENTS WITH CHEST PAIN

A NEW PATHWAY DEVELOPED WITH SUPPORT FROM THE DEPARTMENT’S Q&I PROGRAM IS HELPING LOW-RISK PATIENTS AVOID UNNECESSARY ADMISSIONS AND RETURN HOME SOONER

A project led by the department’s Quality & Innovation (Q&I) Program is improving care for patients presenting to the emergency department (ED) with chest pain. A preliminary analysis shows that the combination of a new test and pathway developed by the project team has resulted in shorter ED stays for low-risk patients and in fewer such patients being admitted — factors that not only benefit these patients but free up inpatient beds for the higher-risk patients who truly need them. So, how did they accomplish it?

THE PROCESS

The project was launched as a multidisciplinary quality improvement (QI) effort with representatives from the Divisions of Cardiovascular Medicine and Hospital Medicine and the Departments of Emergency Medicine and Pathology. Chest pain was chosen as a focus area because it’s one of the most common presenting complaints in the ED — accounting for up to 10 percent of University Hospital’s emergency room visits. The challenge for ED providers is to accurately stratify patients according to their risk for a heart attack and decide on next steps: Which patients should be admitted, which need further testing and which can safely go home for outpatient follow-up.

As the team dug into the process, one issue caught their attention. There are two standard intake tests for patients with chest pain — the electrocardiogram (ECG) and troponin blood draw — and the timing of serial troponin tests showed unexpected variability. The test measures proteins that signal injury to the heart, and comparing consecutive readings is important for risk-assessment. What surprised the team was that different providers ordered the tests at different intervals — and this seemed to be influenced more by when a particular provider was trained than by current guidelines.

Interestingly, just as this insight pointed to the troponin test as a meaningful target for standardization, the health system announced plans to adopt a new version of it — high-sensitivity troponin T. This gave the team the opportunity to reimagine the ED’s chest-pain pathway with this new test in mind.

“The upside of this test’s increased sensitivity,” says Geoffrey Barnes, MD, MSc, an assistant professor in the Division of Cardiovascular Medicine, “is that when it is negative, you can feel very confident that a patient does not have a cardiac condition going on.”

In addition, it’s cheaper — and much faster. “With the old test, you might have to wait eight or 12 hours for results from both tests,” he says. “But with the new version, you get your initial test when you come in and your second only a couple hours later. So, we can decide pretty quickly if a patient is having a heart attack.”

However, the increased sensitivity comes with a price. “With the old test, you could basically just rule in or rule out a heart attack,” says Katie Grzyb, one of the team’s continuous improvement specialists. “But the more sensitive test creates a new category of ‘indeterminants,’ where you need additional information to make that call.”

That’s because the new test picks up levels of troponin that are not overtly high-risk, but are elevated above normal. Such levels might signal a heart attack — or they might result from a range of other conditions, from chronic kidney disease to a pulmonary embolism.

“The increased sensitivity means a lot more patients are positive, but that doesn’t mean a lot more patients are having heart attacks,” says Barnes.

This gray area of positive results was poised to create new decision-making challenges for ED providers. Which patients

Early results show that ED stays for low-risk patients with chest pain have decreased by 69 minutes per patient and admissions have decreased by 1.6 per day.
with elevated results should be admitted, which should have a third troponin test, which should be sent for a stress test or coronary angiography, and which should stay for observation or ultimately be sent home?

Providers frequently use the HEART score to help with these decisions. It’s designed to put the troponin test in context with other key variables — the patient’s history, ECG findings, age, risk factors and serial troponin levels.

With the older, more clear-cut test, ED providers could generally account for these variables in their heads. But the team saw the ambiguity created by this new group of “indeterminants” as the perfect opportunity to bring decision support to the process. So, they began to assemble the elements — designing an interpretation for the new test, clarifying the decision-making algorithm, standardizing the testing interval, automating the test ordering, and adding decision support to the electronic health record (at right).

“We worked with the ED MiChart team to develop a pathway within the electronic health record on a single screen with several fields pre-populated,” says Grzyb. “When the remaining data is entered, it auto-calculates the HEART score and suggests appropriate next steps.”

The team designed this resource to provide workflow-based guidance that would complement the cross-disciplinary education they were already doing for the new test and pathway. They hoped it would improve the quality of interpretation and give ED providers more confidence in their decisions.

**NEXT STEPS**

The new test and pathway were implemented in the ED in early 2018 with exciting early results on reduced admissions and ED lengths of stay.

For a more detailed analysis, the team has partnered with the Michigan Program on Value Enhancement (MPrOVE), which is directed by Eve Kerr, MD, MPH, professor in the Division of General Medicine. In addition to examining a year’s worth of data, MPrOVE conducted qualitative evaluations, including interviews with ED providers to understand what is working and what challenges remain. The team plans to use these insights to guide a forthcoming hospital-wide rollout of the new troponin test.

“This is a great example of the Department of Internal Medicine leading a project that involves multiple divisions and departments,” says Scott Flanders, MD, vice chair for external relations and quality, “while applying our quality improvement and clinical content expertise to an important health system problem that impacts a large number of our patients.”

Core team members on this project include: David Somand, MD, and Steve Kronick, MD (Emergency Medicine); Donald Giacherio, PhD (Pathology); Hitinder Gurm, MD, and Geoffrey Barnes, MD, MSc (Cardiovascular Medicine); David Paje, MD, and Robert Chang, MD (Hospital Medicine); and Scott Flanders, MD, James Froehlich, MD, MPH, Matthew Johnson and Katie Grzyb (Q&I Program).

The biggest winners in this have been our patients in the ER.” — Hitinder Gurm, MD

This work is helping to inform a forthcoming hospital-wide rollout of the new high-sensitivity troponin T test, which is used in conditions beyond chest pain.
PUTTING PENICILLIN ALLERGIES TO THE TEST

THE DEPARTMENT’S FIRST QI AWARD WINNER VALIDATED AN INPATIENT SKIN-TESTING PROTOCOL THAT IDENTIFIES FALSE PENICILLIN ALLERGY LABELS, ALLOWING PATIENTS TO USE SAFER, FIRST-LINE ANTIBIOTICS

Research shows that up to 15 percent of hospitalized patients consider themselves allergic to penicillin — yet a staggering 90 percent of them don’t have a true IgE-mediated reaction to the drug. Whether patients have outgrown the allergy or were misdiagnosed in the first place, these mistaken labels have major implications for their health care. They can cause patients to receive broader-spectrum antibiotics that may be less effective for a particular condition, cause serious side effects or contribute to the problem of drug-resistant infections.

But Rajan Ravikumar, MD, instructor in the Division of Allergy & Clinical Immunology, is chipping away at this issue with support from the department’s first annual Faculty Quality Improvement Award. In 2018 Ravikumar led a multidisciplinary team in piloting a hospital-based penicillin skin-testing protocol designed to tease out which patients reporting a penicillin allergy could safely have that label removed.

The results were encouraging. Of the 56 patients they tested, only one had a true penicillin allergy. Furthermore, among 36 of these patients who needed antibiotics during their stay, almost half could be safely and more appropriately treated with an antibiotic in the penicillin family.

Just as important as these findings was the team’s experience designing the inpatient testing protocol, which included a scratch test, intradermal injection and oral challenge. “We do this all the time in the outpatient setting and it’s really straightforward,” says Ravikumar. “But there’s much more to consider on the inpatient side, from patients’ complex schedules to altered mental status.”

In addition, the team had to figure out which providers should handle which steps in the process. “We had to assess what the various provider types could handle, given both the scope of their licenses and their workflow,” says Liz Spranger, the team’s continuous improvement specialist. “For example, who should identify appropriate patients, screen them, request consent, perform
the test, monitor them during the test, interpret the results, counsel the patients, change the allergy label and so forth. We also needed a place in MiChart to document everything."

This is where the multidisciplinary team and the QI Award were essential. The team was able to build the new MiChart functionality, identify the pros and cons of various staffing models and consider the multiple handoffs between tasks. Given these handoffs, one of the most valuable aspects of the QI Award from Ravikumar’s perspective was protected time to conduct nearly every step of the testing himself. This not only improved the reproducibility of the results, but it allowed him to see firsthand what would be needed for a sustainable model.

Based on these insights, the team is now presenting to hospital leadership its recommendations for a permanent testing program. In the meantime, they’re maintaining momentum through a variety of activities — following up with primary care providers and pharmacists to ensure the allergy-free labels stick; mining medical records for additional patients who were successfully treated with penicillin in order to remove their allergy label; and starting preoperative penicillin testing clinics and increasing access for penicillin-allergic patients at Michigan Medicine’s Domino’s Farms, Northville and Brighton health centers.

“For the majority of patients who have this allergy label, they’re avoiding a whole family of antibiotics for no real reason, and it’s led to unfavorable health outcomes. These patients have higher rates of Clostridium difficile colitis and superbugs like MRSA and VRE.”

— Rajan Ravikumar, MD
A patient safety/quality improvement (PS/QI) project undertaken by a group of second-year internal medicine residents has provided important insight to a health system committee charged with reducing cirrhosis readmissions.

The committee was convened by Vikas Parekh, MD, associate chief clinical officer for medical services at Michigan Medicine and professor in the Division of Hospital Medicine, and is being led by Elliot Tapper, MD, assistant professor in the Division of Gastroenterology & Hepatology.

The residents focused on a key driver of cirrhosis readmissions: hepatic encephalopathy (HE). This is where poor liver function leads to a buildup of toxins in the brain, causing symptoms from mild confusion to coma.

Hepatologists know how to keep the condition under control using a combination of drugs — primarily lactulose and rifaximin. So, the resident team set out to talk directly with patients, their home caregivers and emergency department (ED) providers to learn why this control was so difficult for patients to maintain upon discharge.

What they discovered will go a long way toward informing the committee’s planned interventions. First, they learned that patients and their caregivers often don’t understand and retain the discharge instructions designed to help them stay well. Second, patients frequently have trouble getting insurance approval for rifaximin and tolerating lactulose. Lactulose can not only be unpleasant to take, it can cause nausea and frequent, urgent bowel movements. The inconvenience this causes can make it easy for patients to fall behind on their dosing.

The team also learned that ED providers, who tend to see HE patients briefly and at their most unwell, often underestimate how quickly patients with even severe encephalopathy can rebound with the right therapy and assume they need to be admitted. The committee felt this was an ideal opportunity to create hepatology-endorsed HE protocols and share them across the health system, with embedded support in MiChart.

Armed with these insights, the resident team made a series of recommendations for further action. These include implementing a best-practice alert in MiChart to ensure providers are prescribing rifaximin to all HE patients. This is being paired with added support in getting the drug approved by patients’ insurance soon after they arrive in the ED. Recommendations also suggest prescribing those formulations of lactulose that patients tolerate better — and providing improved patient education on how to adjust this medication according to symptoms.

The cornerstone of the patient education recommendation is an HE Action Plan (HEAP). It aims to clarify for patients and their care providers how to manage their condition effectively and avoid readmissions.
The resident team recommended an HE Action Plan to educate patients on managing HE symptoms. GI fellow Mary Thompson, MD, is further developing and testing patient education materials.

The larger committee is now working to implement and evaluate the residents’ recommendations, and are piloting other ways to improve care for HE patients, such as increased use of the Ambulatory Diagnostic and Treatment Unit and a post-discharge HE clinic. Resident Ting (Johnny) Zheng, MD, and medical student Zachary Saleh (see box at right) have both joined the committee to continue this work.

Medical student Zachary Saleh met with skilled nursing facilities to better understand why HE patients were being readmitted from these sites. He identified care practices that delayed the administration of key HE medications, highlighting an opportunity to share HE protocols being developed by this project.

“There’s no HE quality improvement program in the world that is actually asking patients what we ought to be doing to prevent their unnecessary hospitalization. That’s what the residents added to our program.”

— Elliot Tapper, MD
In 2018, Metro Health hired two U-M fellowship-trained physicians to help bring subspecialty care to western Michigan — gastroenterologist and transplant hepatologist Ammar Hassan, MD, and rheumatologist Andrew Lewandoski, DO. Both were motivated by the opportunity to provide comprehensive subspecialty care to patients locally while maintaining ties to U-M through the network affiliation.

Metro Health’s operations have traditionally focused on its flagship osteopathic teaching hospital and network of primary care practices. Since joining the University of Michigan Health System network, however, it has partnered with U-M to strategically add subspecialty services to meet the region’s needs. Last year’s report highlighted the work of Michelle Anderson, MD, and four colleagues in the Division of Gastroenterology & Hepatology to bring interventional endoscopy and care for liver and inflammatory bowel disease to Metro’s patients. The U-M physicians traveled to Metro one day a week, with plans to hire permanent subspecialists to grow the programs.

Hassan was the first of these hires. He was delighted to be able to step into an established program, he says, but one with considerable opportunity for growth. “On this foundation of a strong clinical hepatology program, we hope to build a multidisciplinary liver cancer program,” says Hassan. “We already have a good medical oncology program as well as growing gastroenterology and interventional radiology departments — so we have all the pieces in place to establish a multidisciplinary cancer program, which we know is the best model for patient care.” His goal is to offer pre- and post-liver transplant management locally, as well.

Hassan says he’s excited that the GI program is serving as a model for building other subspecialty programs at Metro, and feels his appointment gives him the best of both worlds — the opportunity to deliver a high level of care to communities in western Michigan while staying connected to a “research powerhouse” in U-M.

Lewandoski also joined Metro to bring subspecialty care to an area that has been underserved for some time. “It’s not uncommon for patients to drive from Muskegon to Ann Arbor to see a rheumatologist,” he says. “Having trained at U-M, I feel well-equipped to manage a variety of patients locally. And, if the need for referral arises, I’m connected to U-M’s experts in areas like scleroderma and interstitial lung disease, so care can be seamless.”

As a Grand Rapids native, Lewandoski felt especially motivated to provide local access to care. He’s excited to be able to build a program from the ground up in partnership with the other rheumatologist Metro has recently brought on. He’s also eager to participate in the training of Metro’s internal medicine residents and, potentially, U-M residents seeking to train in a clinically focused community hospital. Lewandoski is also keen to expand the concept of local access. “We’ve discussed conducting outreach clinics in towns around Grand Rapids,” he says. “It’s a great opportunity to decrease barriers to care. Even if we’re just 45 minutes closer, that can be significant to patients.”

The department is partnering with Metro Health to facilitate additional hires and has hosted events to expose U-M trainees to these opportunities.
CLINICAL EXCELLENCE

LEADERS IN EXCELLENCE

Founded by Department of Internal Medicine Chair, John Carethers, MD, in 2013, the Clinical Excellence Society recognizes faculty who exude and demonstrate clinical excellence toward their patients and colleagues. Members serve as a thought group that advises the department on clinical matters and helps promote clinical excellence through example and mentoring.

OFFICERS 2018 - 2019

Mark McQuillan, MD
President (2020)

Hari Conjeevaram, MD, MS
Councilor (2021)

Jocelyn Wiggins, MD
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Julie Morelock, MD
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Robert Chang, MD
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Jocelyn Wiggins, MD
President Elect

David Smith, MD
Councilor (2021)

Robert Chang, MD
Erik-Jan Wamsteker, MD
Councilor (2021)

INITIATIVES

Committee members are currently working on the following initiatives:

Wellness
Michael Lukela, MD
William Chey, MD
Mark McQuillan, MD

Career Advising
Frank Worden, MD
Mark McQuillan, MD

Community Service
Doug Arenberg, MD
Mark McQuillan, MD

Philanthropy
Kim Eagle, MD
Mark McQuillan, MD

Mentorship
Jo Wiggins, MD
Greg Kalemkerian, MD

Global Education
Hari Conjeevaram, MD
Mark McQuillan, MD

Women in Medicine
Jo Wiggins, MD
Mark McQuillan, MD

Coaching
Jo Wiggins, MD
Richard Simon, MD

MiChart Efficiency
Enhancement
Robert Chang, MD

Website
William Chey, MD
Mark McQuillan, MD

2018 Clinical Excellence Society Inductees
(L to R): Francis Worden, MD; Floyd John Brinley, III, MD; Laraine Washer, MD; Michelle Anderson, MD; Matthew DiMagno, MD; Amy Rothberg, MD; Helena Schotland, MD; Steve Gay, MD; Tim Cotts, MD; and Christopher Lao, MD
The University of Michigan Medical School began a major transformation of its curriculum over five years ago as part of a select group of medical schools participating in the American Medical Association’s “Accelerating Change in Education” initiative, a competitive grant program designed to align medical education with our evolving health care system.

Internal medicine faculty member, Rajesh Mangrulkar, MD, Marguerite S. Roll Professor of Medical Education and associate dean for medical student education, is the principal investigator on the grant and one of the leaders spearheading this initiative to build the medical school of the future.

In all, one-third of the Medical School’s 2018 graduating students completed a Path of Excellence program (see sidebar) to gain enhanced experiences and training, including the global health and ethics paths. The school now offers eight paths, including newer ones in medical humanities, scientific discovery, scholarship of learning and teaching, and patient safety/quality improvement.

“Our curriculum transformation is entering a maturation phase,” explains Mangrulkar. “We are so proud of all of our graduating students, each of whom has embraced the mission of becoming outstanding clinicians, as well as trying to impact health by leading change.”

To exemplify this point, this class also paved the way for a service and innovation program that’s now required for all incoming U-M medical students, called the IMPACT Curriculum.

In the pilot phase of the program, 28 percent of today’s graduates completed a capstone project that allows them to leverage their leadership training in Medical School and make a measurable impact on a specific area of medicine. Projects from this graduating class ranged from biomedical research to literary endeavors to starting a company.

Mangrulkar continues, “With each successive graduating class, more and more students work through these exciting new elements of the educational program, making them better for the classes that follow.”

A NEW OATH

The 2018 incoming class of U-M Medical School students were the first to take a new oath during the annual White Coat Ceremony at Hill Auditorium. Called the UMMS White Coat Pledge, it focuses on the elements of “humanism” that can get lost in modern medicine.

The pledge was created by members of the school’s chapter of the Gold Humanism Honor Society, which is named for the late Columbia University physician Arnold P. Gold, MD, a national leader in ensuring that health care providers receive training in providing compassionate, patient-centered care.

“Attention to the human elements of caring for patients should always be as much a part of being a physician as harnessing the most advanced knowledge and technology,” adds Mangrulkar. “This new pledge crystallizes that commitment, and asks our new students to internalize it from the moment they begin their training.”

Mangrulkar notes that the school’s curriculum, fully implemented over the past four years, affords many opportunities to explore the human aspects of medicine. UMMS also makes the
Led by members of the graduating class who have been elected to the honor society, each of them pledged:

• I will listen to each patient’s unique human story.
• I will mind my biases and treat every patient with compassion.
• I will assume the best in others and be kind.
• I will support my colleagues as we join to care for patients.
• I will appreciate my opportunities in this profession and advance them for all who follow.
• I will care for myself as I care for my patients.
• I will forgive myself for my mistakes and learn from them.
• I will strive for excellence while being mindful of my limits and those of medicine.

“Attention to the human elements of caring for patients should always be as much a part of being a physician as harnessing the most advanced knowledge and technology.”

— Rajesh Mangrulkar, MD
Graduates leave the program fluent in five leadership competencies:

1. Leading oneself
2. Communicating and influencing others
3. Building teams
4. Problem solving
5. Impacting systems

PATHS OF EXCELLENCE

Early in this decade, a group of U-M Medical School deans, associate deans and other administrators proposed a new, optional curricular track called Global Health and Disparities (GHD), which would allow students, through deliberate study and experiential projects, to become agents of sustainable change in order to reduce domestic and global health disparities. With its small-group gatherings, one-on-one advising and capstone projects, GHD eventually became the template for what would become the Paths of Excellence. GHD began in 2013 under the direction of Brent Williams, MD, MPH, professor of internal medicine and a member of the Institute for Healthcare Policy & Innovation.

During the first few years of development, the GHD helped influence the Medical Ethics and Health Policy paths. Then, using a data-driven, student survey approach coupled with input from the workgroup, Innovation and Entrepreneurship, Medical Humanities and Scientific Discovery were added in 2014-2015. The two most recent paths — the Scholarship of Learning and Teaching, and Patient Safety, Quality Improvement and Complex Systems — began in 2016.

So far, students within the program have produced research projects, a nonprofit company, a book of poetry, medical devices inventions, patents, podcasts and a set of public health guidelines. The program operates on an efficient budget but is sustained in part by some 70 faculty advisers and mentors. Student response to the Paths of Excellence has been strong. Even though a Path of Excellence is not required to graduate, in 2017-2018, 75 percent of students followed one. And the future looks even brighter. Out of all first-year medical students, about 91 percent have expressed an interest in following a path.

LEADERSHIP DEVELOPMENT

To better prepare students to be impactful leaders in health care, the U-M Medical School has made leadership development a central component of its transformed curriculum. All students go through four years of leadership training while also learning the clinical tools necessary to succeed as practicing physicians. That means graduates leave the program fluent in five leadership competencies: leading oneself, communicating and influencing others, building teams, problem solving and impacting systems.
Each medical student is also a member of the medical school’s first Learning Community, called the “M-Home.” Here, students belong to one of four “houses” (see infographic) that serves as a connecting force in his or her Medical School experience. Each house offers community, support, small-group learning, well-being, service and mentoring opportunities within the school. Department of Internal Medicine faculty member, Michael Lukela, MD, directs the Dr. William Henry Fitzbutler House.

Specific activities in the Leadership Development Program include:

- Large-group events
  - Invited speakers
- Leadership 360° evaluations:
  - Feedback solicited from multiple evaluators pertaining to students’ leadership in different realms including academic, extracurricular and interpersonal
- Opportunities for one-on-one reflection on personal leadership development with faculty
- Small-group, interactive learning sessions: In each small group, students are challenged to perform an informed self-assessment, then work with their peer groups to further develop and enrich their leadership skills:
  - Leading from within
  - Presentation and speaking skills
  - Challenging conversations
  - Building and influencing teams
  - Seeking and incorporating feedback
  - Change management
- Capstone projects

HOUSE NAMES

- Fitzbutler
- Salk
- Hamilton
- Sanford

ACTIVITIES

- Doctoring Groups
- M-Home Olympics
- Wellness
- M-Home Reads Book Club
- eMpower Peer Mentoring
- M-Home Serves Near Peer Teaching
- House Social Events

PEOPLE

- Med Students
- Peer Mentors
- Doctoring Faculty & Coaches
- House Counselors
- House Directors
- Learning Specialist

FIVE PILLARS

- Coaching
- Educational Enrichment
- Community
- Service Learning
- Wellness
Twice a week, dozens of low-income Livingston County residents in need of medical care can visit the University of Michigan’s Student-Run Free Clinic.

U-M medical students provide care for more than 500 patients each year — regular checkups, sick visits, x-rays, and lab and other diagnostic tests at no charge. Visitors can receive prescriptions and assistance of all sorts, including signing up for health care coverage or other benefits they may be entitled to.

Hari Conjeevaram, MD, a professor from the Division of Gastroenterology & Hepatology is one of several physicians who volunteer at the clinic, guiding the medical students and supporting the patients. “The students are learning to be great doctors who understand the critical role of treating people without access to health care and the importance of keeping a community healthy and out of hospitals and emergency rooms,” he explains.

The clinic — started by a group of medical students — began as a pilot program in April 2012 and became a full-fledged “safety net” clinic in October the same year. Four months later a fire destroyed the clinic, but the students raised money, allowing it to move to its current location on Main Street in downtown Pinckney, Michigan. The clinic has grown every year since.

Besides using their medical education to treat a range of health concerns, the students are also learning how to run a medical office, including the many operational and administrative duties that come with it.

While the clinic is completely run by U-M medical students who collaborate with students from the schools of nursing, pharmacy, dentistry and public health, it relies on Michigan Medicine care providers to volunteer as preceptors overseeing the clinical care of patients and the instruction of students.

“"The students are learning to be great doctors who understand the critical role of treating people without access to health care and the importance of keeping a community healthy and out of hospitals and emergency rooms."” — Hari Conjeevaram, MD
The University of Michigan Medical School’s Doctors of Tomorrow program, founded in 2012 by Jonathan Finks, MD, associate professor of surgery, is recruiting and nurturing high-achieving ninth-grade students from Detroit’s Cass Technical High School and providing them with a yearlong mentorship and tools for success for a career in science and medicine through hands-on activities and discussions at the U-M Medical School.

During panel discussions about what it takes to have a career in medicine, students have had the chance to meet successful Cass Tech alumni including John Carethers, MD, chair of the U-M Department of Internal Medicine.

At U-M, they engage in mock patient exams, visit the human anatomy lab, attend lectures on global health, shadow physicians in the clinic and practice laparoscopic surgical skills in the Clinical Simulation Lab. During a clinical skills day, students learn to check vital signs, reflexes and heart and lung sounds and discover how doctors use those physical exam signs to diagnose disease.

Each ninth-grader is paired with a first-year U-M medical student who serves as a mentor and contact for questions about homework or to find out what it’s like to prepare for college.

At the end of the year, program participants present capstone projects at Cass Tech in front of their teachers, families and friends. These projects allow the students to not only research a disease, but to understand how that condition affects their community.

Doctors of Tomorrow hopes to provide a guiding framework for other U.S. medical schools to increase racial diversity by connecting with the bright minds in their states and neighborhoods.
Since 2015, Bishr Omary, MD, PhD, a professor of molecular and integrative physiology and internal medicine, has co-led the University of Michigan Institutional Research and Academic Career Development Award (IRACDA) Post-Doctoral program. One of 23 current IRACDA NIH-supported National Institute of General Medical Sciences programs nationwide, and the only one in the state of Michigan, the award provides four years of training, including 75 percent research training and 25 percent teaching.

Key to the program, which accepts three postdoctoral researchers each year, is the teaching component which involves a partnership between U-M and two local community colleges: Wayne County Community College District (WCCCD) with nearly 80 percent of its students being African American, and Henry Ford College (HFC) with nearly 45 percent of its students being underrepresented minorities. Some of the U-M postdoctoral fellows selected for the program are from underrepresented backgrounds as well, but all chosen are committed to working with minority populations.

“We started a summer pilot program in 2014, by bringing undergraduate students from the two community colleges to work in different laboratories at U-M. We applied for the grant twice and got it the second time,” says Omary. Currently in year four of the five-year grant, the program has recruited 12 post-doctoral trainees to date from U-M and other institutions, including Duke University, University of Alabama, University of Rochester, Indiana University and Northwestern University, among others.

The mission of the IRACDA program is to develop a diverse group of highly trained scientists to address the nation’s biomedical research needs, provide mentored research experiences and develop teaching skills through assignments promoting the advancement of underrepresented minorities.

“The NIH-supported IRACDA program provides a unique and exciting venue to train postdoctoral fellows in research and teaching. It has also provided a great opportunity for us to partner with local community colleges to enhance the diversity and the pipeline of students who will complete a baccalaureate degree in biomedical and STEM areas, and set their sights further to higher degrees. It’s an all-around exciting win-win.”

— Bishr Omary, MD, PhD

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ADDRESSING LACK OF DIVERSITY IN SCIENTIFIC CAREERS

The mission of the IRACDA program is to develop a diverse group of highly trained scientists to address the nation’s biomedical research needs, provide mentored research experiences and develop teaching skills through assignments promoting the advancement of underrepresented minorities. “The NIH-supported IRACDA program provides a unique and exciting venue to train postdoctoral fellows in research and teaching. It has also provided a great opportunity for us to partner with local community colleges to enhance the diversity and the pipeline of students who will complete a baccalaureate degree in biomedical and STEM areas, and set their sights further to higher degrees. It’s an all-around exciting win-win,” he explains.

“The feedback we’ve received from the postdoctoral trainees and the community college students has been very positive and so gratifying.”

Students not only have an opportunity to learn the subject content of the course, but also about the personal story of the postdocs, and the research they are undertaking. “Students and professors find this enriching and the postdocs have tremendously enjoyed interacting with the students,” says David Sept, PhD, professor and senior associate chair of biomedical engineering in the U-M College of Engineering, who co-leads the program with Omary.

Both community colleges provide the teaching experience to
postdoctoral fellows, which includes initial observation, followed by 2-3 lectures per semester and then potentially developing a new class curriculum or even teaching an entire class. The program, which operates through the U-M Medical School and the U-M College of Engineering, has provided research exposure to students who would not otherwise encounter such an opportunity.

The U-M IRACDA research summer undergraduate student awards have been sponsored by the Department of Molecular and Integrative Physiology, the Department of Biomedical Engineering and the Rogel Cancer Center. In addition, there are opportunities for summer research experiences to community college students through the U-M Undergraduate Research Opportunity Program overseen by Dr. Michelle D. Ferrez.

“The program partners with the U-M Center for Research on Learning and Teaching to provide a teaching boot camp to the fellows, in addition to offering workshops to both the postdocs and their teaching mentors. The community college students become the recipients of team-based teaching from the U-M postdocs and faculty mentors from both colleges,” says Omary.

ANNUAL SYMPOSIUM

The U-M IRACDA program hosted the 2019 annual summer national meeting in Ann Arbor, which features IRACDA postdocs, program directors, affiliated faculty and NIH officials. Nearly 350 individuals attended this highly successful meeting.

The program also features an annual symposium held in November which provides bus transportation for 80-120 students from WCCCD and HFC (40-60 students/school) to visit U-M for exposure to inspirational TED-like talks about bioengineering and biomedical sciences, STEM fields, clinical sciences and other allied health professions.

Featured U-M speakers have included: Patricia Hurn, PhD, RN, FAAN, dean of the School of Nursing; Alec Gallimore, PhD, dean of the College of Engineering; John Carethers, MD, chair of the Department of Internal Medicine; speakers from U-M who provide essential information on how to transfer to the university along with financial aid opportunities; and a student panel made up of students who have transferred from WCCCD and HFC to U-M to complete their undergraduate degrees. Many of these students come from underserved communities and are first-generation college students.

EDUCATION
Jennifer Reilly Lukela, MD, assistant professor in the Department of Internal Medicine, is determined to create greater awareness about the unique challenges faced by women in academic medicine. “About two years ago, one of our residents came to me to talk about experiences she had during her training, which to her, felt like gender bias. She felt that there were subtle differences in how she was treated by attendings, ancillary staff and nurses, and she didn’t feel like she had the tools to address any of these situations,” says Lukela. “In response to those conversations, she and I elected to conduct a survey of residents in our training program to understand if other residents also sensed that there were disparities or inequalities that existed around gender. Based on those survey responses, we found that our women trainees were facing some unique challenges and we identified some potential gaps in their professional development.” Over the course of the next few months, Lukela worked with two internal medicine house officers, Aditi Ramakrishnan, MD, and Nicole Hadeed, MD, to create “Equal Medicine,” a novel career development program for women trainees in the Department of Internal Medicine.

Lukela points to growing literature about the inequities for women in academic medicine. Despite the fact that women are now entering medicine at a rate greater than men, “This year, the incoming class at the U-M Medical School is more than 60 percent women, and women have represented close to 50 percent of medical school graduates for more than a decade,” she explains. “However, when you look at the number of women leaders in academic medicine, women continue to fare pretty poorly. If we are really trying to train future leaders and visionaries in academic medicine of both genders, we need to start thinking about skills development early on so that we can give our women trainees the tools they need to succeed.”

Since its inception, Equal Medicine has sponsored 3-4 events per year on a broad array of topics. The inaugural event was focused on leadership skills, and included panelists Grace Elta, MD, former professor and associate chief of clinical programs in the Division of Gastroenterology and Hepatology; Margaret Gyetko, MD, professor and senior associate dean for faculty and faculty development at the U-M Medical School; Martha Gray, MD, adjunct clinical instructor and current Governor of the Michigan chapter of the American College of Physicians and Lauren Heidemann, MD, former chief medical resident and current assistant clinical professor in the Division of Hospital Medicine to share their experiences of being women leaders in medicine. “Our residents loved hearing the personal stories of these women physicians and valued the opportunity to see women role models succeeding and thriving in a variety of leadership positions,” says Lukela.

“Women often have different styles of negotiation compared to their male colleagues, and there is increasing evidence that these differences can play an important role in the persistent gender disparities seen in academic medicine, including compensation, promotion and leadership opportunities.” — Jennifer Reilly Lukela, MD

EQUAL MEDICINE
PREPARING TRAINEES FOR THE UNIQUE CHALLENGES FACING WOMEN IN ACADEMIC MEDICINE

“Women often have different styles of negotiation compared to their male colleagues, and there is increasing evidence that these differences can play an important role in the persistent gender disparities seen in academic medicine, including compensation, promotion and leadership opportunities.” — Jennifer Reilly Lukela, MD
of their own abilities and accomplishments,” she explains.

Equal Medicine has also conducted sessions on the critically important topic of negotiation. “Women often have different styles of negotiation compared to their male colleagues, and there is increasing evidence that these differences can play an important role in the persistent gender disparities seen in academic medicine, including compensation, promotion and leadership opportunities,” says Lukela.

Lukela has been impressed with how supportive her colleagues have been to the mission of Equal Medicine. “I think what has been most encouraging is how receptive people have been to some of the ideas and potential problems that we have identified,” she says. “One of the things we identified in our gender survey two years ago was that the number of faculty staffing inpatient morning report, our flagship educational conference for residents, was heavily biased toward male faculty. Eighty percent of the faculty leaders of that conference were men. That was not representative of the demographics of our faculty or the gender makeup of our residency training program, and the women residents were noticing the disparity. This year, we have been more intentional in ensuring a more diverse representation of our faculty at that educational conference and, by December 2018, we had increased the percentage of women faculty staffing morning report from 20 percent to 44 percent.”

Ultimately, Lukela admits that her ideal vision would be that there was no need for a program like Equal Medicine. And, that issues of gender disparity in medicine were nonexistent. “Until then, I think it is important to have these conversations and to recognize the unique needs of our women trainees and faculty,” explains Lukela. “We want all of our trainees to flourish and advance, a goal that will help the department and the field of internal medicine as a whole.”

MAKING MENTORSHIP CONNECTIONS

Insufficient mentoring and lack of sponsorship are often cited as potential contributors to the under-representation of women in leadership positions in medicine. “Mentorship is critical for professional growth and development, especially in academic medicine,” says Lukela. “Yet data, including survey results from our own residency program, suggest that women may have more difficulty identifying mentors than men. While men and women residents both felt that they had good access to mentorship, we noticed that women trainees tended to lag behind male trainees as far as actually having an identified mentor. It has been demonstrated in the literature more broadly that women tend to struggle a bit more than their male peers in terms of mentorship, and especially in sponsorship for leadership positions, and these difference may have implications for moving up the leadership ladder in academics.”

To address these challenges, Equal Medicine invited all women residents, fellows, faculty and some departmental administrators to their fall “Imposter Syndrome” event. The evening also included a speed mentoring activity facilitated by Whitney Williams, a senior project manager from the Office of Faculty Development. “One of the goals of the event was to foster mentoring across different levels in the Department of Internal Medicine. That was why we intentionally invited residents, fellows and all the faculty, to create opportunities for intermingling,” she explains. Later in the year, Equal Medicine also sponsored a workshop focused on mastering menteeship with tips for both finding a mentor and how to be a better mentee from local experts in mentorship: Vineet Chopra, MD, chief for the Division of Hospital Medicine, and Valerie Vaughn, MD, MSc, assistant professor of Hospital Medicine.
DEVELOPING WOMEN LEADERS

THE RUDI ANSBACHER WOMEN IN ACADEMIC MEDICINE LEADERSHIP SCHOLARS PROGRAM

Margaret Gyetko, MD, professor in the Division of Pulmonary & Critical Care Medicine, and senior associate dean for faculty and faculty development, Office of Faculty Affairs and Faculty Development, U-M Medical School, has long considered the development of women leaders in academic medicine and health care to be of paramount importance.

In a career that has spanned nearly three decades, Gyetko has witnessed firsthand the shortage of women in leadership positions, both at the U-M Medical School and nationally. “Many times, in many leadership roles, I’ve been the only woman in the room,” she explains. “There is a desire to create greater parity throughout the entire system, particularly in upper levels of leadership. For decades, most medical schools have been made up of at least 50 percent men and 50 percent women. But despite a robust beginning pipeline of women in medicine, there is a drop-off in the percentage of women entering each step of academic career advancement, particularly in leadership positions.”

Like many others who aspire to leadership, Gyetko has attended the Executive Leadership in Academic Medicine (ELAM) program offered by Drexel University. “I found ELAM to be very instrumental in my own career and leadership progression. That sort of information, specifically targeted for women who have different needs than their male colleagues, has really made a huge difference. Many of the women who have gone through ELAM have very high-level leadership positions to this day,” says Gyetko. “But there are limitations. The problem is that only one woman a year can attend ELAM. We would suggest two faculty members each year and only one was chosen, and that’s just too slow. So we saw the need to create our own program, our own version of ELAM, in order to develop a strong pipeline of women in leadership at the U-M.”

Finding Support for a New Program

Soon, Dee Fenner, MD, now chair of the Department of Obstetrics and Gynecology, stepped forward and suggested that Rudi Ansbacher, MD, then an active emeritus faculty member in the Division of Obstetrics and Gynecology and former chair, might be willing to lend financial support to the program. Ansbacher, who had dedicated his life to the development of others within the department, wanted to develop all faculty, but he had a special desire to develop women. Conversations followed and he agreed to support the program. “It’s very interesting that when Ansbacher was very junior, the discipline of obstetrics and gynecology was dominated by men. Today, it’s dominated by women. He was a part of that transition,” Gyetko explains.

THE RUDI ANSBACHER SCHOLARS PROGRAM LAUNCHES

In 2015, U-M launched the Rudi Ansbacher Women in Academic Medicine Leadership Scholars Program, an intensive 18-month leadership development program designed to accelerate the development of women for senior positions in academic medicine and health care. Designed in partnership with the U-M Medical School, the program is modeled after ELAM. “I think there is a robust
future awaiting because the faculty demand is extremely high and people want to be able to advance, especially to leadership roles. This is not only for women, but for other underrepresented minorities or even minority groups in senior leadership,” she says. To date, one faculty member in the Department of Internal Medicine has been among three cohorts in the Ansbacher Program, and some have moved on to leadership positions in the past three years.

In 2018, Gyetko was awarded the Rudi Ansbacher Leadership Award for Support of Women in Healthcare.

Today, Gyetko oversees the content and operations of the Ansbacher Program. “Providing mentoring, sponsoring and coaching is a desired commodity, so the need is definitely there,” she explains.

“Also, a more inclusive medical school and hospital system is desired. Many leadership skills can be taught and learned and practiced and perfected, so I think the demand will probably increase as our systems become even more complex.”
Sonya Jacobs, chief organizational learning officer at the University of Michigan, creates programs and strategies aimed at building the professional capabilities of staff, managers and leaders across the university. Jacobs, who joined Michigan Medicine Human Resources in 2004, also serves as director of faculty and leadership development at the U-M Medical School, since 2010. This dual appointment allows her to identify opportunities to strengthen collaboration, identify available resources and replicate best practices across campuses. Jacobs began her career at U-M as a consultant in Human Resources in 2002, designing and implementing diversity, equity and inclusion and leadership training for supervisors in the U-M Health System (now Michigan Medicine). “The need for this role, the first of its kind at the university, was identified in 2002,” says Jacobs. “It is especially important today as we develop new diversity-related training programs to further the university’s inclusion efforts in a significant way.”

THE ORIGINS OF THE LEADERSHIP ACADEMY

In 2012, Jacobs provided oversight for the creation of the Leadership Academy, a partnership between the U-M Medical School and Michigan Medicine Human Resources, which focuses on the development of leaders at Michigan Medicine and the health sciences schools. Created through the U-M Office of Faculty Affairs and Faculty Development, the academy’s mission is to accelerate the development of leaders so that they can reach higher levels of success and produce greater results for Michigan Medicine. “We were on the cusp of developing a set of leadership competencies. And we needed to explore leadership development programs that could assist us in building our leaders’ capacities,” she says. “Our existing leadership programs had been cascaded downward throughout the organization and were very much saturated. So we knew that we needed a new program to fill in the gaps: a custom program that would be based on the competency model that had been created.”
THE ACADEMY’S CURRICULUM AND PROGRAMMING

A four-day immersive learning experience, the academy works to develop essential competencies and skills, introduce new approaches and global best practices and inspire personal commitment to leadership development. The curriculum focuses on three major themes: leading self, leading others and leading in a complex organization. The first two days concentrate on self and teams and the last two days on the organization, including interaction among peer leaders in the organization and leveraging a dynamic mix of concepts, activities, practical tools, self-assessments, case studies and team learning.

“The program brings multidisciplinary learning to both faculty and administrative leaders. It’s important to build the capacity of our leaders and we’re consistent in what that looks like,” says Jacobs. “Because of the changes in health care and academic environments, we need to make sure that we have leaders who are well equipped. It’s also vitally important that we are focused on staff, many of whom have important leadership roles. In this regard, we remain committed to providing opportunities for all to thrive and build success.”

The academy provides peer coaching opportunities for U-M leaders to learn with and through one another.

“Coaching is a vital tool in the comprehensive development of leaders. It affords attendees the opportunity to gain feedback and support from peers in action planning and goal setting,” she says.

Peer coaching is a significant piece of the academy’s offerings. “In addition to the formal learning that is provided by the academy, there is a need to focus on peer learning experiences,” says Jacobs. “So we have a platform now that facilitates mentor matching, and we’re also building our group of internal executive coaches.”

The program also includes a self-assessment component to help participants in evaluating emotional intelligence and understanding potential triggers. “We have an action learning component as well with exercises that require participants to step outside of their comfort zone to expand learning and growth as leaders,” she explains.

“It was John Carethers, MD, chair of the Department of Internal Medicine, Musty Habhab, chief administrative officer, Department of Internal Medicine and Michele Heisler, MD, MPA, professor, Department of Internal Medicine, who partnered with me to evaluate the academy as a public offering and to create a design team to customize the program for Michigan. They’ve all been on this journey with us from the very beginning.”

— Sonya Jacobs

Chief Organizational Learning Officer

“We appreciate the department’s commitment to leadership development, and we hold at least four or five slots for internal medicine in every cohort.”

— Sonya Jacobs
DIVISION CHIEF TRAINING

Even though there is no formal program, John Carethers, MD, chair, regularly meets with division chiefs one on one during the first one to two years of their appointment to provide advice on the direction, vision and guidance of their division. To help them become independent leaders and to go on the bigger things if they choose.

ADVANCING PROFESSIONAL EXCELLENCE PROGRAM FOR MID-CAREER FACULTY

Career development programs are often focused on junior faculty. However, the literature shows that mid-career faculty are least satisfied and at highest risk for leaving their institutions. The mid-career phase is also a time when faculty are most productive in their careers.

During 2018, the U-M Medical School launched the new Advancing Professional Excellence (APEX) Program for Mid-Career Faculty, designed to enhance the mid-career faculty experience and provide support for them to engage in the next level of career excellence.

Mid-level faculty can participate in many activities through APEX:

- A symposium that will leverage the knowledge and wisdom of senior and successful faculty to help mid-career faculty reflect upon and engage in best practices to reach mastery level in their fields.
- Opportunities to schedule post-promotion/mid-career meetings with Medical School assistant deans to discuss a path forward in order to rise to the next level of scholarship (across all disciplines), education and clinical care.
- Guidance, support and pilot funding for large-scale grants, including education, financial support, strategy output, project management, administration and editing.

“My job is to help division chiefs succeed and to grow their programs and get recognized for it.”

— John Carethers, MD
The University of Michigan and Michigan Medicine are currently led by two Department of Internal Medicine faculty members: U-M President Mark S. Schlissel, MD, PhD, and Marschall S. Runge, MD, PhD, the dean of the Medical School and the executive vice president for medical affairs. Both have taken on major initiatives during their tenure that are redefining leadership and success at U-M with the hopes of creating more diverse, equitable, inclusive and thriving communities. New roles, policies and awareness and training programs have been created in an effort to meet these goals.

**FOCUS ON DEI**

The University of Michigan was among 96 colleges and universities to earn the 2018 Higher Education Excellence in Diversity Award by INSIGHT Into Diversity magazine, for their progress in diversifying over the past few years.

Schlissel explains, “Our university cannot be excellent without being diverse in the broadest sense of that word, and we must ensure that our community provides all individuals with an equal opportunity to contribute and succeed. Thanks to the outstanding work by many individuals across our campus, we’ve made significant progress over the past few years.”

**A Five-Year Strategic Plan**

In 2015, President Schlissel made significant attempts to create a more diverse and inclusive campus through the development of a five-year strategic plan. Ever since, the university has strived for diversity in several areas: “from race and ethnicity to religious commitments and political perspectives; and to increase equity by working to challenge and respond to bias, harassment and discrimination,” to create a more welcoming campus.

Schlissel explains, “As leaders, we must embrace and model the new culture that will be necessary to effect change.”

— Marschall Runge, MD, PhD

**Key Initiatives & Training**

In the last year, U-M has implemented and strengthened a number of key initiatives meant to increase diversity across its campus.

To make earning a degree from U-M Ann Arbor more affordable, U-M leaders announced a “Go Blue Guarantee” that gives qualified in-state students whose family income is $65,000 or less the chance to receive free tuition for four years of undergraduate study.

There’s also Wolverine Pathways, a program that partners with local schools to reach middle- and high-school students from underserved communities.
communities. Thanks to this program, 88 scholars graduated last summer, and of them, 91 percent started attending college this year.

The Human Resources Learning and Professional Development department has developed a number of DEI training courses, including Unconscious Bias, Change It Up and Disability Awareness for departments and individuals that provide staff with the awareness and skills necessary to interact effectively and respectfully across differences. More than 17,000 U-M and Michigan Medicine staff members participated in courses last year. The Center for Research on Learning and Teaching provided 23 additional workshops on inclusive teaching for faculty.

**MAKING WELLNESS A PRIORITY**

In addition to DEI, the issue of wellness and physician burnout has become a major focus on U-M’s medical campus.

In a recent U-M Medical School faculty survey, 40 percent of respondents reported experiencing feelings of burnout. They cited several stressors, including an overabundance of email, pressure to meet work expectations, inadequate compensation, too many work hours and insufficient time for meaningful activities. “These results directly mirrored the findings of a Department of Internal Medicine wellness survey conducted by Michael Lukela, MD, for the Clinical Excellence Society the year before,” explains John Carethers, MD, chair of the Department of Internal Medicine. “It’s really bringing to light serious issues that need to be addressed. That is why we’ve made it a priority” (see highlight box).

**The Wellness and Civility Task Force**

This past year, Michigan Medicine launched a Wellness and Civility Task Force to identify opportunities to prevent and protect against burnout and improve the workplace environment. Their recommendations included:

- Establishing a Michigan Medicine Wellness Office that will partner with institutional stakeholders to develop, implement and track a strategic wellness plan;
- Assessing administrative burden for health care professionals — particularly as it relates to electronic health records — and developing and implementing strategies to lessen or remove this burden in order to improve provider efficiency and satisfaction among health care professionals;
- Incorporating wellness check-ins into mid-year and annual evaluations for faculty, staff and learners to enable leaders to address any challenges that may arise;
- Promoting a skill-building curriculum to increase awareness and equip our workforce with the skills necessary to engage in healthy interpersonal relationships; and
- Developing and implementing an enterprise-wide holistic recognition program for faculty, staff and learners to improve workplace satisfaction and promote greater engagement.

“Our university cannot be excellent without being diverse in the broadest sense of that word, and we must ensure that our community provides all individuals with an equal opportunity to contribute and succeed.”

— U-M President Mark S. Schlissel, MD, PhD
New Policies & Training

Many health care systems across the country are adopting policies aimed at creating more responsive, more flexible workplaces. Michigan Medicine recently began offering six weeks of paid leave after the birth or adoption of a child to new mothers, fathers and guardians. There are also efforts to expand child-care support and review scheduling procedures to provide more flexibility for caregivers without compromising patient care.

Recognizing that sharp increases in administrative paperwork are a major contributor to burnout, Michigan Medicine is testing the effectiveness of using scribes to handle some chores as well as new approaches and training to decrease the time tax on physicians that accompanied our shift to electronic health records. A great example of this work is the training provided by Greta Branford, MD, associate chief medical information officer for ambulatory care and assistant professor of internal medicine/pediatrics. She teaches “Home for Dinner” courses to help faculty cut done on the time they spend on electronic medical records. “These courses teach shortcuts and tricks to save time and cut down on added screen time by two to four hours a week. This really helps minimize the amount of time our physicians are spending online on nights and weekends trying to catch up on records,” explains Carethers. Michigan Medicine is also testing how to lessen physicians’ workloads by distinguishing between types of care only they can deliver and services that physician assistants and other trained personnel can effectively provide.

Making a Cultural Shift

As the leader of both Michigan Medicine and the Medical School, Runge stresses that, “New policies are helpful, but I am convinced they are not enough. We must also do the hard work of confronting the powerful cultural forces that view these opportunities and seeking work/life balance as signs of weakness. Such messages are common in a profession where war stories often center on sleepless nights and dedication is defined by single-minded focus. As leaders, we must embrace and model the new culture that will be necessary to effect change.”

A NEW ROLE: VICE CHAIR FOR EQUITY, INCLUSION & WELL-BEING

The Department of Internal Medicine created a new position for a vice chair for equity, inclusion & well-being in 2018 that will lead the department’s charge in DEI and wellness across all 13 divisions. This new leader will be part of a team that will:

- assess the current state and the needs of the department and create a strategic plan for moving forward
- identify best practices supporting and implementing professional development and well-being initiatives
- collaborate and coordinate with other health system and university programs
- work closely with leads in each division
- collaborate with division chiefs, service chiefs, other associate chairs, faculty and staff, and the general community
- monitor performance and adjust for improvement
- develop and implement innovative programs
- identify resources to aid in initiatives
- plan annual events that celebrate diversity
- represent the department at the broader level

This vice chair will also lead a newly proposed steering committee that will aid in setting the direction and implementing vetted programs throughout internal medicine.
STUDENT AWARDS

WILLIAM DODD ROBINSON AWARD
Thomas Dean Goslinga
Daniel P. Marcusa
Adam Christopher Niemann

HENRY FITZBUTLER AWARD FOR EXCELLENCE IN HOSPITAL MEDICINE
Thomas Dean Goslinga

ELI G. ROCHELSON MEMORIAL AWARD
Rachel Kramer Hechtman

DEPARTMENT OF INTERNAL MEDICINE SCHOLARSHIPS
Kunal Bailoor
Jooho Chung
Thomas Dean Goslinga
Daniel P. Marcusa
Adam Christopher Niemann
Elizabeth Scruggs

RESIDENT AWARDS

DR. JACOB P. DEERHAKE COMMUNITY SERVICE AWARD
Nicholas Helmstetter, MD
Marie Pfarr, MD

LAURIE EDMUNDS AWARD FOR THE MOST OUTSTANDING HOUSE OFFICER I
Virginia Sheffield, MD

GALENS MEDICAL SOCIETY BRONZE BEEPERS AWARD
Jonathan Bender, MD
Kathryn Levy, MD
Jeremy Silvnick, MD

INTERNAL MEDICINE AWARD FOR THE MOST OUTSTANDING HOUSE OFFICER
Kevin Platt, MD

BRUCE A. JONES AWARD FOR OUTSTANDING HOUSE STAFF SPIRIT
James Uebel, MD

KENNETH R. STARK INTERNAL MEDICINE HOUSE OFFICER RESEARCH
Matthew Thau, MD
Apurba Chakrabarti, MD (Oral)
FACULTY AWARDS

SPECIAL RECOGNITION FOR CONTRIBUTIONS TO THE MEDICAL STUDENT TEACHING PROGRAM
Nathan Houchens, MD

RICHARD D. JUDGE AWARD FOR MEDICAL STUDENT TEACHING
Andrew Tai, MD, PhD

SPECIAL RECOGNITION FOR CONTRIBUTIONS TO THE HOUSE OFFICER TEACHING PROGRAM
Robert Dickson, MD

H. MARVIN POLLARD AWARD FOR OUTSTANDING TEACHING OF RESIDENTS
Renuka Tipirneni, MD, MSc

STEVEN E. GRADWOHL EXCELLENCE IN CONTINUITY GENERAL INTERNAL MEDICINE TEACHING AWARD
Mariana De Michele, MD

KAISER PERMANENTE AWARD FOR EXCELLENCE IN CLINICAL TEACHING
Sarah E. Hartley, MD
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Health services researcher Hallie Prescott, MD, MSc, assistant professor in the Division of Pulmonary & Critical Care Medicine, has already become an internationally recognized expert on sepsis. She is widely known in the field for her work to identify factors that affect patients’ long-term outcomes from this life-threatening response to infection. The 2018 recipient of The Carol A. Kauffman MD Department of Internal Medicine Early-Career Endowment Award, Prescott has taken on a number of high-profile leadership roles that she hopes will help improve patient care.

**LEADERSHIP**

Prescott is leading efforts to draft new international clinical practice guidelines for sepsis; she is vice chair of the 2020 Surviving Sepsis Campaign guidelines and will co-chair the campaign’s 2024 effort. She’s also a council member of the International Sepsis Forum, a group of 20 invited world experts working to raise awareness and advance understanding of the condition. She co-chaired its 2018 research colloquium on long-term outcomes, which generated a set of research and practice priorities for the field. In addition, Prescott, who has an appointment with the VA Ann Arbor Healthcare System, serves as an expert advisor to the Sepsis Virtual Breakthrough Series, the U.S. Department of Veterans Affairs’ nationwide sepsis quality improvement project.

And her research has helped inspire the creation of a new post-ICU clinic at Michigan Medicine.

**HER RESEARCH**

Prescott looks at sepsis through the lens of health services research, leveraging large, granular data sets, such as nationwide VA electronic health record data, to understand how to improve long-term patient outcomes. She is a member of several major research groups on campus, including the Institute for Healthcare Policy & Innovation, the VA Center for Clinical Management Research and the Michigan Integrated Center for Health Analytics & Medical Prediction.

Her research to date has focused on contextualizing sepsis — understanding what happens in the days to months before and after a sepsis admission and whether this has implications for patients’ long-term recovery. 

“A lot of critical care research starts from the moment the patient presents to the hospital and ends when they leave it,” she says, “but we’ve been interested in the patterns leading into that and whether they predict meaningful differences in how people do.”

This is a vital question because, as Prescott’s own research has helped show, sepsis survivors face a number of long-term challenges. They have higher rates of potentially preventable re-hospitalization and, more troublingly, higher mortality rates which are not explained by their pre-sepsis health status. Looking ahead, she is turning her attention to what can be done to improve care for patients with potential sepsis early in their hospitalizations.

In particular, she’s interested in what happens to patients who are treated for suspected sepsis but are later shown not to have it.
This, it turns out, is the subject of a raging debate in the health care community. "We’ve shown that faster administration of antibiotics results in better outcomes for patients with sepsis," says Prescott. "But there is almost no data on the unintended consequences for patients who receive early sepsis treatment but turn out not to be septic."

"Sepsis champions firmly believe we are saving lives," she says, "while antibiotic stewards believe just as firmly that the intense focus on sepsis treatment is leading to unnecessary antibiotic use, harming people from antibiotic-associated organ injury and Clostridium difficile. People on each side are adamant, yet there is no data in this space."

Prescott hopes to provide that data. She also hopes her findings could help inform appropriateness guidelines for the administration of antibiotics in patients presenting with different constellations of risk factors for sepsis.

**TRANSLATION**

Another area Prescott is focusing on is how to best care for sepsis patients upon discharge — and she now has a new setting in which to do it. In March 2018, Michigan Medicine launched the University of Michigan Post-ICU Longitudinal Survivor Experience Clinic (U-M PULSE) at the Taubman Center. Designed to help patients recover from critical illnesses like sepsis and prevent them from being re-hospitalized, the clinic was inspired by research conducted by Prescott and Professor Theodore (Jack) Iwashyna, MD, PhD, from the Division of Pulmonary & Critical Care Medicine.

Directed by their divisional colleague, Assistant Professor Jakob McSparron, MD, it’s one of the few of its kind in the country. The clinic provides multidisciplinary care, allowing patients to be seen by a pharmacist, social worker, physical therapist and physician on their initial visit and supported by the team over time.

It is also designed to collect data on patients’ symptoms, treatment and post-sepsis experience. Prescott hopes to be able to use this data to learn how to make post-discharge care more effective.

Another thing she hopes the new clinic will do is prevent patients’ other health issues from falling through the cracks. "A patient may have had an imaging scan that was concerning for cancer but then had this life-threatening issue in the ICU," she says. "So, by the time that patient is discharged, the scan is no longer on anyone’s radar. But at the new clinic, we’re systematically going through patient records to be sure things like this receive follow-up."

Prescott says she’s extremely gratified that her research helped inspire the new clinic, which she thinks will go a long way toward supporting patients in their recovery.

She’s also grateful to the department for her award and for the inspiration of its namesake, Carol Kauffman, MD, who spent her career in infection prevention and treatment. She says, "This department has always encouraged me to do what excites me and not get bogged down in things I don’t enjoy; it’s awesome to have leaders who are so supportive."

"This award is so helpful because it allows you to take risks that you might not otherwise take — like hiring staff so that when a grant comes through, you’re prepared to hit the ground running. It says to us: We are going to invest in you because we believe in you. Then you can invest and believe in yourself."

— Hallie Prescott, MD, MSc
Robert Dickson is working to reveal the microbiome’s role in critical illness, with the goal of targeting it for treatment.

**HIS RESEARCH**

**Microbiome and Disease Mechanisms**

Dickson spends a large part of his effort working to understand how the microbiota of the gut and lung contribute to organ failure in critical illnesses like sepsis and acute respiratory distress syndrome (ARDS). Sepsis is a body-wide inflammatory response to infection; in ARDS, fluids leak into the lungs, preventing oxygen transfer.

In terms of gut bacteria, Dickson has shown that in critical illness, the gut wall gets leaky, allowing bacteria normally resident there to seep into the blood and migrate to other organs, like the lungs and brain. He’s now trying to determine whether these migrating bacteria are just an indirect sign that the gut wall is injured — or whether they’re actually contributing to the disease.

His lab combines human and animal studies to get at this issue from different angles. “Using prospective human studies and patient samples, we can ask questions like: Does the amount of bacterial DNA that we find in your blood or lungs correlate with the severity of your symptoms or predict your outcomes?” says Dickson. “But we also use animal models that let us get more mechanistic and interrogate the processes by which gut bacteria escape, migrate and cause inflammation and injury.”

His vision is to use this information to determine if the microbiomes of critically ill patients can be manipulated to prevent or reverse disease. Dickson also wants to know the mechanisms by which bacteria already in the lungs can contribute to pulmonary injury. He’s currently studying how they can make the lungs more susceptible to damage from oxygen treatment.

“The most common treatment given in the ICU is oxygen,” he explains, “and it’s actually quite toxic. If I put healthy mice in 100 percent oxygen, they will die in five days from severe lung injury. We know that oxygen is directly toxic to lung epithelial cells, but our group has recently discovered that oxygen also changes bacterial communities in the lungs.”

Dickson has discovered that the more oxygen ICU patients receive in the first 24 hours of their stay, the more likely they are to grow a specific type of oxygen-tolerant bacterium, *Staphylococcus aureus*, relative to other lung bacteria. He’s shown the same process in mice — and also that this change in lung bacteria correlates with the severity of the animal’s lung injury.

“In our most exciting finding,” says Dickson, “we’ve found that germ-free animals — mice that are completely devoid of bacteria — are protected from oxygen-induced lung injury. This suggests that the microbes are not just bystanders; they’re playing some causal role in lung injury.”

Dickson has just received a large NIH grant to illuminate this process. He’ll be studying it in mice, manipulating their microbiomes to see if this changes their susceptibility to oxygen-induced lung injury. He’ll also study it in humans, querying the electronic health record to see whether specific antibiotic exposures change patients’ susceptibility to oxygen-induced lung injury. Dickson and his...
RESEARCH

laboratory will be looking at the relationship between lung bacteria and oxygen toxicity from both directions: how oxygen-altered lung bacteria contribute to lung injury, and how the altered ecosystem of oxygen-injured lungs influences lung bacterial communities.

Bringing Sequencing Tools to the Bedside

Another key focus for Dickson’s lab is bringing the tools of microbiome research into the realm of patient care.

“The revolution in our understanding of lung microbiology has been driven by recent advances in technology,” he says. “Using bacterial gene sequencing, we can now identify communities of bacteria that we couldn’t previously detect with culture. Until recently these tools weren’t clinically relevant — they were expensive, slow and informatically demanding. But now we are using sequencers that you can hold in the palm of your hand, run on your laptop and cost less than your smartphone.”

Dickson has shown that these tools can detect pneumonia-causing bacteria from a patient sample in less than six hours. This is in contrast to a hospital’s microbiology lab, which usually takes 24 hours to identify a pathogen by culture and another 72 hours to determine the microbes’ antibiotic susceptibilities.

“These sequencing results are potentially fast enough to allow us to administer targeted antibiotics instead of the broad-spectrum ones that contribute to antibiotic resistance,” says Dickson. “This would bring precision medicine to the treatment of lung infections.”

In 2018 Dickson was awarded a grant through U-M’s Joint Institute for Translational and Clinical Research to apply real-time sequencing tools to ventilator-associated pneumonia (page 115).

HIS AWARD

Dickson is specifically interested in determining if decreased diversity of lung bacteria can be used to identify patients with pneumonia. “We think there are ecologic features of pneumonia that could be clinically useful, for instance, to determine whether a patient is acutely infected or just colonized with a given bug. We need to learn how to think about pneumonia ecologically.”

He plans to use his award to invest in key resources not traditionally covered by grants, like cutting-edge equipment and special training for his laboratory personnel. He has just hired a dedicated bioinformaticist to help him make sense of the mountains of sequencing data generated by his studies.

Dickson says he appreciates the department’s commitment to its young faculty. “In most places, endowments are reserved for full professors,” he says. “But we’re at a critical stage in our careers; we’ve made an early impact but are still establishing ourselves as investigators. These awards tell us that our contributions are valued and give us further confidence that we’re launching our careers at the right institution.”

Dickson says there are numerous reasons his work could only happen at U-M:

My work spans the translational spectrum: bacterial genomics and physiology, animal models, prospective human studies and hospital-level observational studies. Across the board, the resources available here are among the best in the country. I see myself as bridging two of U-M’s strengths: study of the microbiome and study of the pathophysiology of pulmonary and critical care medicine. For both of these, we’re hard to beat.

To give a couple of examples, for my animal work, I rely on both our germ-free animal facility and our large-animal ICU, run by MCIRCC. My counterparts at other centers are envious of the kinds of mechanistic and translational questions I can answer with these tools.

My projects tend to be quite interdisciplinary, bridging multiple clinical disciplines and scientific domains. To pull this off, I rely on close collaboration with colleagues across my division, department and university. The spirit of collaboration here is extraordinary, and I’m spoiled by constant interactions with world experts who are generous with their time and resources. It’s a phenomenal place to work, teach and care for patients.
The caliber of her research on health care policy has already allowed Renuka (Renu) Tipirneni, MD, MSc, assistant professor in the Division of General Medicine, to inform policy development at the state and national level.

Tipirneni serves on the state’s formal evaluation of its Medicaid expansion (see box on next page). Through this, she has looked at the expansion’s impact on patient access to health care services, health outcomes and workforce participation — findings which are guiding important policy decisions in Michigan and across the country.

She also recently led a survey through IHPI’s National Poll on Healthy Aging that has helped inform a national Medicare buy-in proposal for adults over 50 (page 100).

The 2018 recipient of The Grace H. Elta MD Department of Internal Medicine Early-Career Endowment Award, Tipirneni is eager to use her award to further extend her impact.

HER RESEARCH

Medicaid Expansion

“My research focuses on how health policies, particularly health insurance policies, affect low-income and other vulnerable populations,” says Tipirneni. “Right now, there are a number of modifications being proposed to Medicaid, and our group is trying to lead the way in injecting data into that policy discussion.”

One of the recent Medicaid modifications she’s been exploring is the expansion — specifically, its impact on patients’ access to primary care. Though she and others hypothesized that access would decrease as expanded demand for primary care appointments outstripped supply, she was pleased to discover that access actually improved.

Her work suggests a number of reasons for this, primarily that practices were hiring more advanced practice providers to meet the demand.

“By documenting what was happening in Michigan, we were able to help influence other states’ decisions about whether to expand,” she says.

Work Requirements

The other Medicaid modification she’s been examining is its proposed work requirements.

“The question of whether individuals should have to work as a condition of their eligibility for Medicaid has long been circulating,” says Tipirneni. “But in January 2018, the Centers for Medicare & Medicaid Services decided to promote work requirements as experiments within state Medicaid programs. It’s been a highly controversial policy topic since then.”

The controversy centers on two issues: whether there actually are significant numbers of Medicaid recipients who are able to work but aren’t doing so — impairments in their physical or mental health that affected them more than half the days of the month,” says Tipirneni.

The team also looked at enrollees’ reports of the impact that expanded Medicaid coverage was having on their health and their ability to perform at work or seek a job.

“It means so much to me that my department believes in the work I’m doing to bring rigorous research to the policy arena. It further enforces my desire to accelerate my work and make an impact, not only in this country but in the world.”

— Renu Tipirneni, MD, MSc

RESEARCH

HEALTH POLICY RESEARCH

RENU TIPIRNENI IS USING HEALTH SERVICES RESEARCH TO INFORM MEDICAID & MEDICARE POLICY

“Health policy research means so much to me that my department believes in the work I’m doing to bring rigorous research to the policy arena. It further enforces my desire to accelerate my work and make an impact, not only in this country but in the world.”

— Renu Tipirneni, MD, MSc
They found that expanded coverage led to improvements in all of these areas. Nearly half of respondents said their physical health improved in the first year or two after they enrolled in the program. Of those who were employed, more than two-thirds said having coverage helped them do a better job at work. More than a third of those who had changed jobs said their coverage helped them get a better job. And more than half of those not working said their coverage improved their ability to look for a job.

“When we looked in more detail,” she says, “we noticed that enrollees who reported health improvements were three to four times more likely to report that they were either better able to do a good job at work or better able to seek a job.”

These results suggest that the policy’s rationale is indeed open to question. “The government is saying, ‘Make people work, then they’ll be healthy,’” says Tipirneni. “Our results suggest, ‘Coverage may make people healthy, and then they can work.’”

Tipirneni’s findings have already made a sizable impact. Not only are they informing the debate in other states, they have helped shape the way Michigan structured its work requirements. The state’s final legislation included exemptions for individuals with certain health conditions or who serve as family caregivers.

The group’s data were also cited in an amicus brief submitted to inform a high-profile federal court case brought by Medicaid recipients in the state of Kentucky over the legality of the work requirements. Tipirneni suspects the case will reach the U.S. Supreme Court.

Her team is now developing the next phase of the Medicaid evaluation plan, which will examine the effects of the work-requirement implementation. “I’m very excited,” she says, “because this will help us get closer to answering the question: Does making people work make them healthier, or is it the other way around — if people are dropped from coverage and get less healthy, are they less able to work?”

**HER AWARD**

Tipirneni says she’s deeply honored by her early-career award, which she plans to use to undertake challenging, but highly valuable, multi-state studies of the work requirements and other changes in Medicaid policies. She also says she greatly admires her award’s namesake, who is internationally recognized for her work in endoscopy. “Grace Elta, MD, became a leader in her field despite the additional challenges women often face,” says Tipirneni. “She and people like her are a guiding light for my career.”

**U-M’S ROLE IN THE STATE MEDICAID EVALUATION**

In 2013, Michigan legislators approved a unique model for the expansion of Medicaid, the public health insurance program for low-income individuals, called the Healthy Michigan Plan.

It expanded eligibility for the state’s Medicaid program to previously uninsured adults with incomes up to 133 percent of the Federal Poverty Level.

The federal government requires an independent evaluation of certain components of the plan, and U-M’s Institute for Healthcare Policy & Innovation (IHPI) was selected by the Michigan Department of Health & Human Services to conduct it.

Tipirneni is among the members of IHPI who are examining the plan’s impact on the health of Michiganders and the state’s health care system.

In 2018, Tipirneni co-authored recommendations in the New England Journal of Medicine for how states could design Medicaid work requirements without creating undue risk that people with chronic illnesses would lose continuous coverage, and to help health care providers navigate their role in documenting which patients should be medically exempt from a work requirement. Co-authors include John Z. Ayanian, MD, MPP, and Susan Goold, MD, MHSA.
In October 2018, Renu Tipirneni, MD, MSc, led a survey within the Institute for Healthcare Policy & Innovation’s National Poll on Healthy Aging that was incorporated into legislation co-sponsored by U.S. Senator Debbie Stabenow (D-MI). Called the Medicare at 50 Act, it is designed to give people between the ages of 50 and 64 the option of buying into Medicare.

A press release announcing the new bill cited the poll’s findings as important justification for the proposed policy change: “Today, 27 percent of adults approaching retirement are not confident that they can afford health insurance over the next year, and more than a quarter have issues navigating health insurance options, coverage decisions and out-of-pocket costs. Many did not get the care they needed because of how much it would cost, or kept a job or delayed retirement to keep their employer-sponsored health insurance.”

Tipirneni credits IHPI’s government and media relations teams for connecting the research with the right players. “They do an incredible job disseminating the work,” she says. “Shortly afterward, Senator Stabenow’s office contacted us saying, ‘This is really timely because we are putting together a Medicare buy-in proposal for this year.’ There were questions about what the age cutoff should be and such, and they used our research to inform how they structured the bill. She actually called out our work during her press conference; we were over the moon.”

The National Poll on Health Aging surveys a nationally representative sample of adults age 50-64. Tipirneni’s module asked respondents about their current and future plans for health insurance coverage, medical care and employment. The full report is available at healthyagingpoll.org.
In October, members of the Division of Metabolism, Endocrinology & Diabetes (MEND) launched a new diabetic foot research center that will help lead the nation in learning how to identify and treat foot ulcers that put patients at risk for amputation.

The center will be part of a new Diabetic Foot Consortium, funded by the National Institute of Diabetes and Digestive and Kidney Diseases under a U01 mechanism. Composed of U-M and five collaborating institutions, the consortium is charged with validating biomarkers for diabetic foot ulcers that can predict healing outcomes. The goals are to help clinicians both identify the features of a diabetic wound that increase a patient’s risk and select appropriate treatments based on those features.

“As a consortium, we’ve already chosen a promising biomarker that we’ll study concomitantly in all six sites,” says Rodica Pop-Busui, MD, PhD, co-lead of the new center, associate chair for clinical research and professor in the MEND Division.

“We’ll enroll patients at each site and validate whether this biomarker predicts the level of risk associated with a particular type of foot complication,” says James Wrobel, DPM, center co-lead and associate professor in the MEND Division. “Over time, we’ll test other biomarkers that we think are ready for prime time. Our goal is to create an algorithm that shows us how to best treat a patient according to his or her risk profile.”

Longer term, the consortium is expected to become a mechanism for the NIH and FDA to test novel therapies or cutting-edge devices to treat diabetic foot complications.

The University of Michigan Diabetic Foot Consortium Center includes MEND investigators James Wrobel, DPM, Brian Schmidt, DPM, Crystal Holmes, DPM, and Rodica Pop-Busui, MD, PhD, together with Katherine Gallagher, MD (Vascular Surgery) and Kayvan Najarian, PhD (Computational Medicine & Bioinformatics).

“Our goal is for clinicians to be able to say, ‘This patient has this biomarker or this constellation of risk factors, and we know exactly what to do to personalize his or her treatment.’”

— Rodica Pop-Busui, MD, PhD
In 2018, MEND investigators published high-impact research demonstrating a radical improvement in diabetic limb salvage at U-M by implementing preventive care through a team approach with podiatry. Led by early-career investigator Brian Schmidt, DPM, assistant professor in the MEND Division, the research showed that integrating podiatry services into diabetes care led to a 50 percent reduction in the rate of major, nontraumatic lower limb amputations for its patients. The study, published in Current Diabetes Reviews, mined Michigan Medicine’s electronic health records for a five-year period before and after podiatry services were incorporated into routine diabetes care. The results are perfectly aligned with the goals of the Diabetic Foot Consortium and demonstrate the value to other health systems of adopting this integrated care model, which remains underutilized across the country.

MEND researchers showed that integrating podiatry services into diabetes care led to a 50 percent reduction in the rate of major, nontraumatic lower limb amputations for its patients.
GI AIMS TO IMPROVE EARLY DETECTION OF LIVER CANCER

U-M TO TEST A CUTTING-EDGE IMAGING STRATEGY WITHIN NIH-FUNDED TRANSLATIONAL LIVER CANCER CONSORTIUM

Three researchers from the Division of Gastroenterology & Hepatology (GI) are leading a translational research center that is one of five across the nation charged with improving the early detection of hepatocellular carcinoma (HCC). HCC is the most prevalent primary liver cancer in the U.S. and the second-most-common cause of cancer-related deaths worldwide.

Funded in 2018 by the National Cancer Institute, the center will begin testing a protocol aimed at identifying high-risk patients in need of cancer screening as well as two imaging advances that they hope will detect this cancer earlier and at a more treatable stage.

“Survival rates for patients with HCC remain low because most liver cancers are detected very late — when effective forms of treatment are no longer an option,” says Anna Lok, MD, DSc, co-lead of the new center, assistant dean for clinical research and the Alice Lohman Andrews Research Professor of Hepatology in the GI Division.

Detection currently relies on a combination of ultrasound, CT or MRI scans and blood testing for alpha fetoprotein, methods which don’t offer the sensitivity or specificity to definitively diagnose cancer in all cases — especially in its early stages. And because HCC can grow rapidly, testing in high-risk patients is recommended every six months, a schedule that’s difficult for many patients to maintain.

To address this, the team will evaluate a protocol that begins with identifying high-risk patients in need of screening through a new algorithm and best-practice advisory in the electronic health record.

Then, they will screen these patients using ultrasound and alpha-fetoprotein. Patients with nodules detected on ultrasound will undergo CT or MRI to confirm and characterize those nodules. Currently, roughly one-quarter of these nodules are deemed “indeterminate” because they do not have definitive characteristics of malignant or benign lesions. These patients have to undergo repeat testing until the nature of the nodules can be determined.

In this study, patients with indeterminate nodules will have CT scans further analyzed using “analytic morphomics” software. Developed at U-M, it uses a methodology to precisely measure features within routinely acquired images, like CT scans, that can better identify HCC.

According to Grace Su, MD, co-lead of the new center, associate director for the Morphomics Analysis Group and professor in the GI Division, “This added-value proposition can use computer vision and machine-learning techniques to enhance the use of already existing scans and allow us to extract features that predict HCC earlier than the human eye alone.”

The third part of the protocol will be the use of molecular imaging to visualize the biological processes that drive HCC progression. The team will use specially designed peptides to “tag” receptors that are overexpressed on the surface of HCC cells, allowing them to be detected earlier and more definitively.

“Because the use of molecular imaging is fairly unchartered territory for HCC detection, its potential use is groundbreaking,” says Thomas D. Wang, MD, PhD, co-lead of the new center and the H. Marvin Pollard Collegiate Professor of Endoscopy Research in the GI Division and the Departments of Biomedical and Mechanical Engineering. “This has the possibility to open new doors in the realm of liver cancer detection.”
One of the world’s top pain researchers, Daniel Clauw, MD, professor in the Division of Rheumatology and the Departments of Anesthesiology and Psychiatry, has changed the way we understand pain. As director of the Chronic Pain and Fatigue Research Center at U-M, he and his group have used groundbreaking mechanistic and clinical studies to help define an entirely new class of pain — what he calls “centralized pain” — and have revealed surprising insights about how best to treat it.

Recently adopted by the International Association for the Study of Pain under the term “nociplastic,” this new class of pain is one in which the central nervous system “amps up” a patient’s pain settings. This can happen as an overlay to the two traditional types of pain — the peripheral pain of, say, osteoarthritis or the neuropathic pain of a pinched nerve. But most unexpectedly, it can cause a patient to feel pain in different parts of the body even when there is no observable damage or inflammation in those locations.

“Clinicians are slowly realizing that the way they were taught about pain in medical school is wrong, which is that either there was inflammation where the person had pain, there was nerve damage — or the person was crazy,” he says.

Clauw’s group has been able to use techniques like functional MRI to visualize the amplified pain response in the brains of patients with centralized pain. Their studies reveal hyperactivity in various pain-processing regions when these patients are given even a low-grade painful stimulus. Studies like these have been instrumental in legitimizing conditions such as fibromyalgia, chronic lower back pain, interstitial cystitis and Gulf War illnesses as real, observable disorders.

Digging into the mechanisms behind this regional hyperactivity, Clauw and his colleagues have shown the pivotal roles played by neurotransmitters. “We think that one of the primary abnormalities in chronic-pain conditions is an imbalance in the levels of central nervous system neurotransmitters, such as glutamate and norepinephrine, that affect pain and sensory sensitivity,” says Clauw.

For example, a recent study showed that elevated levels of the neurotransmitter glutamate in the brain region known as the insula correlated with heightened pain perception among chronic-pain patients. Furthermore, reducing glutamate levels with the drug pregabalin also reduced patients’ pain.
SHIFTING AWAY FROM OPIOIDS

Studies like these have helped Clauw and his team tease out which treatments are best suited to which type of pain (see chart).

One of the most important insights to come out of this research is the realization that opioids are not only ineffective for most patients with chronic pain, but they can actually make centralized pain worse. “We’ve shown that in conditions like fibromyalgia, the body’s endogenous opioid system is releasing too many of its own opioids in response to chronic pain,” says Clauw, “we see why giving these patients opioids may be like throwing kerosene on a fire by making the underlying fibromyalgia worse.”

That is why Clauw is using his prominence in the field to encourage clinicians and patients to step back and identify the likely source of a patient’s pain — whether it’s peripheral, neuropathic or centrally driven — before attempting to treat it. That’s because centralized pain responds better to compounds aimed at key neurotransmitters than to those commonly used for localized pain, such as NSAIDs, opioids, surgery or injections.

Clauw says counting pain sites on a simple body map can help clinicians quickly flag patients likely to have centralized pain. This type of pain tends to be experienced in multiple areas of the body.

<table>
<thead>
<tr>
<th>TREATING BY PAIN TYPE</th>
<th>Peripheral</th>
<th>Neuropathic</th>
<th>Centralized</th>
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<td>NSAIDs</td>
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<tr>
<td>Opioids</td>
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<td>+</td>
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<tr>
<td>Surgery/ Injections</td>
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<td>Tricyclics</td>
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<td>SNRIs</td>
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SHARING WHAT HE’S LEARNED

To get out his message, Clauw uses every means at his disposal, from international conferences to health system meetings across the state to Michigan Medicine Grand Rounds. He’s hosting a summer course on managing pain in the post-opioid era. He’s written a JAMA review article that outlines the state of the art in managing fibromyalgia. And he recently appeared on “60 Minutes” to discuss not only the dangers of opioids, but the perils of restricting them too abruptly.

And for 15 years, he’s done a free, bi-weekly workshop for chronic-pain patients and their families at Domino’s Farms. Though time-intensive, he knows the impact is worth it. “I concluded a long time ago that in the place of a half-day of clinic, where I could see maybe eight patients, I can have 50 people in the room and change the way they understand pain and approach their own care,” he says.

His group’s newest release is a comprehensive self-management website for chronic-pain patients called PainGuide. “With the philanthropic support of Jack and Susan Stoltz, we’re launching a website that will be freely available to anyone in the world,” says Clauw. “We see this as the resource that every primary care physician in the U.S. will send their patients to in order to learn techniques to manage their pain.”

These techniques go beyond medications and include integrative therapies — exercise, better sleep, cognitive-behavioral therapy, acupuncture, mindfulness and yoga — which his group has shown can significantly reduce centralized pain.

He’s now working to use the evidence he’s helped amass to improve access for patients to these high-value strategies. “I’m very involved with the Health & Human Services’ Pain Task Force,” he says. “It’s coming out with sweeping recommendations that will go to the Centers for Medicare & Medicaid Services and ultimately third-party payors. I’m hopeful that reimbursement for these things is going to change rapidly.”

He also eagerly shares his insights with fellow clinicians. “Our group loves working with clinicians across Michigan Medicine,” says Clauw. “We’ve learned a lot about pain, and we enjoy helping our colleagues better understand and manage their pain patients now, before we have more effective drugs. Whether they want us to give a talk or look at their care model and suggest how to use the electronic health record to better tailor their therapies, that’s what excites us.”

Yet, of all the impact he’s been able to make in the pain field, among the most enduring, he says, has been supporting the next generation of researchers. He’s done this by helping to establish a robust clinical research infrastructure at U-M (see box) and through lots and lots of mentoring. Among Clauw’s mentees over the past 15 years, some 27 have received NIH K awards to prepare them to launch independent research careers. He is also a faculty member of the Clinical Trials Academy (page 112).

“What we’ve tried to do is be a hub, and the spokes are investigators interested in studying other types of pain,” he says. “Using that model, we’re touching everything from sickle cell disease to chronic pelvic pain to cancer pain. Our group provides core expertise in research methods and the credibility to help emerging investigators get NIH funding, and then they forge ahead to become the thought leaders in their fields.”
Among Clauw’s most gratifying leadership efforts at U-M was helping to launch its clinical and translational research enterprise. He served as the Medical School’s first assistant and then associate dean for clinical research. In 2006, with the support of U-M leadership, he founded the Michigan Institute for Clinical & Health Research (MICHR), serving as the first PI of the NIH’s $55 million Clinical and Translational Science Award that funded the new institute.

“I think one of my biggest contributions during my career at Michigan was helping to found MICHR and really turning clinical research into a legitimate scientific career here,” says Clauw. “At the time, U-M was a basic science-focused institution, and I’m so proud that we now have units like IHPI doing health services research as well as many world-class clinical and translational researchers in Michigan Medicine.”

MICHR provides training, funding and central services support to U-M investigators from schools and colleges across campus. It also maintains a registry to connect interested patients with appropriate clinical research opportunities at Michigan Medicine.

Clauw’s workshop for chronic-pain patients is available on YouTube, titled, “Chronic Pain — Is It All in Their Head?”
Lona Mody, MD, MSc, Amanda Sanford Hickey Professor in the Division of Geriatric & Palliative Medicine, has distinguished herself for her multifaceted portfolio of clinical and translational research aimed at preventing infections in health care settings, particularly long-term care facilities. As a sampling of her 2018 findings reveal, she’s using her research to challenge assumptions, shift the infection-prevention paradigm and engage an increasingly broad audience in her topic.

Among the biggest assumptions she’s challenging is the notion that health care settings have meaningful boundaries. “When I started my career, everybody was thinking in silos,” says Mody. “They were thinking hospitals are hospitals, nursing homes are nursing homes and researchers who focused on one of these settings could basically just stay in that space.”

Mody has been keen to reveal the flaw in this thinking when it comes to the transmission of pathogens — and this effort has only gained currency as health systems grow increasingly integrated. She published two major papers in Clinical Infectious Diseases that show just how connected patients are to their facilities and facilities are to each other.

By longitudinally sampling both patients and surfaces in several post-acute care settings, her team was able to determine how patients were colonized with specific multidrug-resistant organisms (MDROs), how that changed over time, and whether a facility’s surfaces reflected what was happening with its patients.

Prevailing wisdom suggests that a percentage of patients might arrive from the hospital colonized with some type of MDRO, but should leave their post-acute care facility colonized with fewer of them, thanks to infection-prevention measures and patients’ improving health. However, Mody’s team found that patients came and left with virtually the same burden of these organisms: More than 50 percent arrived from the hospital with an MDRO, and more than 50 percent were discharged to the community with one — a figure that rose to 70 percent for patients being readmitted to the hospital. Patients were also just as likely to acquire as to spontaneously decolonize from an MDRO during their stay.

These findings underscore patients’ potential to transmit these pathogens, both back to the hospital and also to community health care settings, such as ambulatory clinics and rehabilitation centers. The team also showed that a facility’s high-touch surfaces — such as bed rails, call buttons and such — lined up almost perfectly with patient-level contamination.

Though these findings might appear to point to a rather hopeless “revolving door” of pathogens, Mody instead sees opportunity.

On the one hand, there’s opportunity to help resource-strained nursing facilities use surface sampling as the basis for infection-surveillance programs, avoiding the cost and intrusiveness of patient sampling.

On the other, she sees the opportunity to exploit the inherent connectedness of health care facilities to motivate them to share information and best practices in order to break the cycle of pathogen transmission. “The buildings may be different, but the patients are the same,” she says. “In that sense we are integrated. That means we should start communicating better around our infection-prevention practices.”

Mody set out a vision for a more cooperative infection-prevention paradigm in a 2018 viewpoint article in JAMA. Co-authored with Scott Flanders, MD, vice chair for external relations & quality and professor in the Division of Hospital Medicine, and Laraine Washer, MD, professor in the Division of Infectious Diseases, it outlines actions hospitals and post-acute care facilities can undertake collaboratively to leverage the trend toward health systems integration to prevent infections.

Mody is working to realize this vision in practice, as well. “We are just starting the second of a five-year AHRQ grant that is looking at how we can link infection-prevention efforts in the hospital and post-acute care settings,” she says. To do this, she’s engaged stakeholders...
at two major health systems — Michigan Medicine and Henry Ford Health System — along with the state health department, to discuss ways to communicate better and improve quality of care.

Mody is also working to spread her message beyond the traditional sphere of fellow academics and clinicians, by reaching out directly to patients and their families. She presents at forums like the Patient and Family Council, aiming to engage participants on infection-prevention topics, such as developing research questions that matter to patients, refining consent forms and research protocols, and presenting study findings and their relevance to patients and families.

Her other key audience is young researchers, whom she is eager to support in embracing this crucial topic.

LEADERSHIP ADVICE FOR THE NEXT GENERATION OF RESEARCHERS

Not only is Lona Mody leading a vital agenda in infection-prevention research, she is also sharing what she’s learned with the research leaders of tomorrow.

“When we go to medical school, we’re not trained to recruit or retain research teams,” she says — but these skills are pivotal to a successful research program. That’s why Mody mentors young researchers on these topics and why she published a 2018 thought piece in the Journal of the American Geriatrics Society on how to build and nurture a high-performing team.

In it, she urges new investigators to be deliberate about key steps in the process that can be easy to overlook: developing mission and vision statements to guide their work; assembling the team (key roles to fill, interviewing advice, and the pros and cons of sharing staff); and how to nurture team members’ growth and cohesion (from how to cultivate and reward talent to the importance of aligning individual and organizational priorities). She also provides case-based examples of strategies to handle common leadership challenges.
James Shayman, MD, professor in the Division of Nephrology and Agnes C. and Frank D. McKay Professor of Internal Medicine, along with U-M scientist, Norm Radin, PhD, conducted work that led the development of the drug eliglustat tartrate for the treatment of Gaucher disease type 1, a rare, inherited disorder that causes build up of fat in the spleen, liver, lungs, bones and brain, and prevents the organs from functioning properly. The disease affects one in every 40,000 people.

The strategy that Shayman and Radin took, now referred to as substrate reduction, was to find inhibitors that block the formation of the compounds that accumulate in the lysosomes of patients with Gaucher disease, a class of molecules called glycolipids. Eliglustat tartrate, sold under the name Cerdelga, is the first stand-alone oral agent approved for the treatment of the disease. “I began actively working on this project in 1988, and the drug was approved by the FDA in late 2014. This gives you some idea about how long the process takes,” says Shayman. “I think most people who do this type of work understand that the time horizon for drug development is very long and that nothing occurs overnight. However, there is a lot of potentially important science that can be done along the way. Drug discovery is a long-term commitment.”

A landmark therapy for patients afflicted with Gaucher disease, Cerdelga represents the first class of chemical entities conceived and developed at U-M to achieve FDA approval.

DISCOVERIES THAT LEAD TO WIDER USES

Nine clinical trials were necessary for the eventual approval of eliglustat. Today, there are additional clinical trials underway, including for pediatric indications. “The original studies and approvals were focused on adults. But, about one-third of the patients with Gaucher disease are children,” he explains. “There are also long-term follow-up trials to look at the potential benefits for some of the extended complications of the disease, such as bone disease.”

Other areas that continue to be of interest are the use of similar investigative strategies to target more common diseases. “The enzyme we targeted with eliglustat is also a potential target for the treatment of polycystic kidney disease and for Parkinson’s disease,” says Shayman.

A new enzyme called lysosomal phospholipase A2 has been discovered by Shayman and his team. “We are trying to understand if there is a novel disease associated with the loss of function of this enzyme,” he explains. “We have spent a considerable amount of time understanding that enzyme, the genetics behind it and the cellular biology, and are interested in determining whether, in fact, there are individuals who have diseases associated with loss of function of that enzyme.”

Of those 6,000 rare diseases, we have approved therapeutics for only about 300 of those diseases. So there is a lot of important work left to be done,” says Shayman.

One way to study lysosomal storage disease is to ask if there are other diseases that have yet to be discovered or described. Shayman and his team have discovered a novel lysosomal enzyme called lysosomal phospholipase A2. “We are trying to understand if there is a novel disease associated with the loss of function of this enzyme,” he explains. “We have spent a considerable amount of time understanding that enzyme, the genetics behind it and the cellular biology, and are interested in determining whether, in fact, there are individuals who have diseases associated with loss of function of that enzyme.”
For more than 18 years, Shaomeng Wang, PhD, the Warner-Lambert/Parke-Davis Professor of Medicine at the U-M Medical School, who is a professor in the Department of Internal Medicine, and holds joint appointments in the Department of Pharmacology and the Department of Medicinal Chemistry in the College of Pharmacy, has focused on the discovery and development of new small-molecule cancer drugs. As part of his research, Wang’s laboratory has successfully developed six new anti-cancer drugs to specifically kill tumor cells while leaving normal cells unharmed.

“I came to the University of Michigan in 2001, and since that time I have co-founded five biotech startup companies with the objective to advance our discoveries into clinical development and then into the marketplace for patients,” says Wang. “Cancer is a large group of diseases that results in millions of deaths every year. Despite the advances we have made in the development of new targeted therapies and immuno-oncology drugs, many cancer patients do not respond to current treatments. As such, there is a critical need to develop more effective and safer cancer medicines.”

Wang has published more than 300 papers in peer-reviewed scientific journals. His work has led to more than 70 new invention disclosures resulting in 50 allowed US patents, hundreds of international patents and 10 license agreements.

Wang explains that one of the challenges of human cancer is that cancer cells refuse to die. “In a healthy organism, normal cells are removed through a process known as programmed cell death or apoptosis,” he explains. “But in cancer cells, the apoptosis pathways are defective, allowing cancer cells to prosper and rendering them resistant to conventional therapy. So, targeting these defective pathways and reinstating the process of apoptosis in cancer cells has been one area of our research in the last 20 years.”

Currently, Wang and his research team are developing seven new drugs:

**DEBIO-1143 (SM-406)**
- For the treatment of head and neck cancer and non-small-cell lung carcinoma
- Stage of development: Phase I/II clinical trials
- Drug development was initiated in 2003 in collaboration with Debiopharma

**APG-115 (AA-115)**
- For the treatment of acute leukemia and solid tumors
- Stage of development: Phase I/II clinical trials
- Drug development was initiated in 2004 in collaboration with Ascentage Pharma Group

**APG-1387 (SM-1387)**
- For the treatment of solid tumors and Hepatitis B infection
- Stage of development: Phase I/II clinical trials
- Drug development was initiated in 2003 in collaboration with Ascentage Pharma Group

**APG-1252**
- For the treatment of lung cancers and other solid tumors
- Stage of development: Phase I/II clinical trials
- Drug development was initiated in 2004 in collaboration with Ascentage Pharma Group

**APG-2575**
- For the treatment of leukemia
- Stage of development: Phase I clinical trials
- Drug development was initiated in 2004 in collaboration with Ascentage Pharma Group

**APG-2449**
- For the treatment of lung cancer
- Stage of development: Phase I clinical trials
- Drug development was initiated in 2010

**UBX-1967**
- For the treatment of ophthalmologic diseases and conditions
- Stage of development: entering Phase I clinical trials in late 2019
- Drug development was initiated in 2004 in collaboration with Unity Biotechnology

**BASIC SCIENCE LEADS TO PRACTICAL APPLICATIONS**
**SHAOMENG WANG, PHD, IS DEDICATED TO THE DESIGN AND DISCOVERY OF ANTICANCER DRUGS**
As discussed on page 12, the Department of Internal Medicine has created the infrastructure to help the next generation of clinical investigators flourish.

The new Clinical Trials Academy aims to teach participants how to ask meaningful questions about the impact of medical innovation on human health — and to design the cutting-edge trials capable of answering them.

The academy meets formally once a month for six months for a half-day of lectures and mentored group work, along with mentored small-group meetings outside of class.

The first session launched in January 2018 with 10 participants from four departments and five internal medicine divisions.

Faculty mentors and lecturers brought expertise in trial design, statistics and regulatory affairs, and included seven senior faculty from internal medicine.

“The faculty feedback on our proposals was invaluable and helped us hone our trial designs and specific aims into a more polished form. I was able to identify potential weaknesses and remedy them immediately.”

– Malika Gupta, MD
<table>
<thead>
<tr>
<th>PARTICIPANT</th>
<th>DEPARTMENT/DIVISION</th>
<th>RESEARCH</th>
<th>OUTCOME</th>
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<tbody>
<tr>
<td>Cagri Besirli, MD, PhD</td>
<td>Ophthalmology</td>
<td>Rapid, Automated, Precision Intravitreal Delivery Device (RAPIDD): A Multi-center, Prospective, Randomized, Masked Clinical Trial</td>
<td>In negotiation with device company for investigator-initiated trial</td>
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<tr>
<td>Malika Gupta, MD</td>
<td>Allergy &amp; Clinical Immunology</td>
<td>Pragmatic Clinical Trial to Assess the Role of a Psychological Intervention to Reduce Caretaker Anxiety in Food Allergy</td>
<td>Plans to submit to BCBS for Physician Investigator Research Grant</td>
</tr>
<tr>
<td>Scott Hummel, MD, MS</td>
<td>Cardiovascular Medicine</td>
<td>Geriatric Out-of-hospital Randomized Meal Trial in Heart Failure-2 (GOURMET-HF-2)</td>
<td>Submitted an R01 to NHLBI as a multi-site clinical trial</td>
</tr>
<tr>
<td>Michelle Kim, MD</td>
<td>Radiation Oncology</td>
<td>A Phase II Study of Multiparametric MR-Guided High Dose Radiotherapy with Concurrent Temozolomide in Patients with Newly Diagnosed Glioblastoma</td>
<td>Submitted as an R01 and to the American Brain Tumor Association</td>
</tr>
<tr>
<td>Monica Konerman, MD</td>
<td>Gastroenterology &amp; Hepatology</td>
<td>Pragmatic Clinical Trial of a Tailored, Adaptive Lifestyle Intervention Program for Non-Alcoholic Fatty Liver Disease</td>
<td>Received foundation funding; submitted for MICHR KL2 and plans to submit for K23</td>
</tr>
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<td>Kara Mizokami-Stout, MD</td>
<td>Metabolism, Endocrinology &amp; Diabetes</td>
<td>Use of Continuous Glucose Monitoring as a Diabetes Prevention Strategy</td>
<td>Plans to submit for MICHR pilot grant</td>
</tr>
<tr>
<td>Neehar Parikh, MD, MS</td>
<td>Gastroenterology &amp; Hepatology</td>
<td>Transarterial Chemoembolization (TACE) vs Transarterial Radioembolization (TARE) for the Treatment of Hepatocellular Carcinoma: A Multicenter Randomized Phase 2 Trial</td>
<td>Submitting an R01 to the NCI Early Stage Clinical Trials Program</td>
</tr>
<tr>
<td>Erin Perrone, MD</td>
<td>Surgery</td>
<td>Fecal Endoluminal Tracheal Occlusion (FETO)</td>
<td>Submitted an investigational device exemption to the FDA</td>
</tr>
<tr>
<td>Kristen Pettit, MD</td>
<td>Hematology &amp; Oncology</td>
<td>Phase 1 Study of MEK Inhibitor Trametinib in Combination with Ruxolitinib in Patients with Myelofibrosis</td>
<td>Submitted a letter of intent to industry and awarded Cures Within Reach Repurposing Grant</td>
</tr>
<tr>
<td>Christine Ye, MD</td>
<td>Hematology &amp; Oncology</td>
<td>Phase 2 Study with Minimal Residual Disease (MRD) Driven Adaptive Strategy in Treatment for Newly Diagnosed Multiple Myeloma with Upfront Daratumumab-based Therapy</td>
<td>Awarded $1 million by Janssen Pharmaceuticals for investigator-initiated trial</td>
</tr>
</tbody>
</table>
I am a biomedical engineer and I work with electrical stimulation therapies for chronic pain management. I enrolled in the Clinical Trials Academy to learn how to design and conduct successful clinical trials of these therapies. In the short term, I’m interested in conducting clinical trials to improve our scientific understanding of current FDA-approved technologies.

“But in the long term, I plan to conduct first-in-man clinical trials of novel devices to dramatically improve the lives of patients suffering from chronic pain.”

“The academy has been amazing. We’re hearing from world-renowned investigators at U-M who have done landmark clinical trials, and we’re learning about advanced trial designs and statistical methods, and how to navigate the challenging regulatory landscape.”

— Scott Lempka, PhD
NEW JI RESEARCH PROJECTS

Four internal medicine-led research projects were funded in 2018 through the Joint Institute for Translational and Clinical Research, a Michigan Medicine partnership with the Peking University Health Science Center (PKUHSC) in China. They include:

THERAPEUTIC IMPLICATIONS OF NATURAL KILLER CELL IMMUNE SURVEILLANCE IN LUNG CANCER

Venkateshwar Keshamouni, PhD, associate professor in the Division of Pulmonary & Critical Care Medicine, is partnering with PKUHSC colleague Jun Wang, MD, PhD, on a proof-of-principle study that they hope will pave the way for a potential phase I/II study and ultimately expand the pool of lung-cancer patients helped by immune therapy. The project will test a number of questions — first, whether boosting natural killer (NK) cell functions can control metastasis in non-small cell lung cancer. It will also explore whether the epithelial-mesenchymal transition signature predicts anti-tumor efficacy of NK cell therapy and response to checkpoint blockade therapy.

RAPID IDENTIFICATION OF PATHOGENS IN VENTILATOR-ASSOCIATED PNEUMONIA USING REAL-TIME METAGENOMICS AND REAL-TIME PCR

Robert Dickson, MD, assistant professor in the Division of Pulmonary & Critical Care Medicine, and his PKUHSC partner, Ning Shen, MD, aim to help speed up the clinical identification and targeted treatment of pathogens in ventilator-associated pneumonia using novel, real-time molecular technologies. They will develop a protocol and pipeline to rapidly identify respiratory pathogens in four hours via real-time metagenomics. They will also develop a protocol and determine reference ranges to rapidly quantify respiratory pathogens in two hours using a novel ultrasensitive PCR platform.

β-ADRENERGIC RECEPTOR ACTIVATION IN CARDIAC INJURY AND ATHEROSCLEROTIC PLAQUE STABILITY: ROLE OF NADPH OXIDASE 4 (NOX4)

Marschall Runge, MD, PhD, executive vice president for medical affairs and CEO of Michigan Medicine, Medical School dean, and professor in the Division of Cardiovascular Medicine, is partnering with Youyi Zhang, MD, PhD, of PKUHSC to explore the pathophysiological mechanisms through which stress initiates the development and progression of cardiovascular disease. Their project will elucidate the molecular signaling pathways that regulate the transformation of stress responses into cardiovascular events in people with atherosclerotic burden using mouse models of oxidative stress available in the Runge laboratory. The study will establish the role of NOX4 in these cardiovascular events and potentially identify strategies to prevent them.

UNDERSTANDING THE HETEROGENEITY IN THE RISK OF DIABETES COMPLICATIONS IN CHINA AND THE U.S.

Rodica Pop-Busui, MD, PhD, associate chair for clinical research and professor in the Division of Metabolism, Endocrinology & Diabetes, and PKUHSC collaborator, Lixia Zhang, MD, MPH, hope to shed light on why different populations have different risks for chronic complications in diabetes, independent of their glucose control. They will explore whether populations from different ethnic origins and regions express specific phenotypes of diabetes and its complications. Their goal is to use this information to identify mechanism-based therapies that allow for the personalized treatment of diabetes complications.
2018 RESEARCH FUNDING

- **$200M** total research funding awarded for FY18
- **1,039** total submissions
- **848** competitive submissions
- **2,994** total research publications for FY17 (Last available data)

FY18 RESEARCH FUNDING BROKEN DOWN BY TYPE

- **$10M** nonprofit
- **$114M** federal
- **$780K** state/local
- **$74M** industry
- **$750K** other
FY18 NIH GRANTS TOTAL: 192

39 K-GRANTS
104 R-GRANTS
22 U-GRANTS
12 T-GRANTS
8 F-GRANTS

NOTABLE RESEARCH AWARDS

MARTIN MYERS JR, MD
NIH P30 – $8.7 M (4 years)
Michigan Diabetes Research Center
This award is now in its 41st year
The mission of the Michigan Diabetes Research Center is to promote new discoveries and enhance scientific progress through the support of cutting-edge basic and clinical research by its highly interactive research base. The investigators that make up the MDRC research base perform ground-breaking research in five broad areas relevant to diabetes: Cellular Aspects of Diabetes and Metabolism; Integrative Aspects of Diabetes and Metabolism; Islet Biology; Diabetic Complications; and Clinical Research in Diabetes and Metabolism.

THEODORE IWASHYNA, MD
NIH K12 – $3.1 M (5 years)
Training to Advance Care Through Implementation Science in Cardiac And Lung Illnesses (TACTICAL)
Training to Advance Care Through Implementation Science in Cardiac And Lung Illnesses (TACTICAL) is a training program to dramatically accelerate the pace of implementation science research — and thereby effective delivery of care to patients, beginning with a focus on critically ill patients in the ICU. This postdoctoral training program supports five scholars for three years each.

JOHN AYANIAN, MD, MPH
State of Michigan/HHS Centers for Medicare and Medicaid Services – $1.2 M (1 year)
Healthy Michigan Plan
An interdisciplinary team of researchers from the Institute for Healthcare Policy & Innovation has partnered with the Michigan Department of Health and Human Services to conduct the evaluation of Michigan’s Medicaid expansion, known as the Healthy Michigan Plan.
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We gratefully acknowledge the role of many members of the Department of Internal Medicine and colleagues in the Medical School and across U-M for their contributions to this report. Please note that due to space constraints, our emphasis is on the internal medicine leadership involved in various projects. However, one of U-M’s key strengths is its collaborative spirit; we recognize and appreciate the role of innumerable collaborators in making possible the progress highlighted in these stories. Finally, it is important to note that many members of the Department of Internal Medicine have important affiliations with other U-M centers, institutes, departments, divisions and schools, as well as with the VA Ann Arbor Healthcare System that immeasurably enrich their educational, clinical and research roles.