INTERNAL MEDICINE

2017 ANNUAL REPORT

CLINICAL EXCELLENCE

Allergy and Clinical Immunology
Cardiovascular Medicine
Gastroenterology and Hepatology
General Medicine
Genetic Medicine
Geriatric and Palliative Medicine
Hematology and Oncology
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Hospital Medicine
Infectious Diseases
Metabolism, Endocrinology & Diabetes
Nephrology
Pulmonary & Critical Care Medicine
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During 2017, the Bicentennial of the University of Michigan, the Department of Internal Medicine had a fantastic year. With the size and scope of our department, the many accolades of our faculty and staff are too numerous to mention, but I do want to highlight a few of our major achievements.

This was the 25th consecutive year the hospitals and health centers of Michigan Medicine were nationally recognized by U.S. News and World Report for strong across-the-board performance. Four internal medicine specialty areas were ranked in the top 10 in the country: Pulmonology (#6, 2-way-tie), Geriatrics (#7), Gastroenterology and GI surgery (#9), and Cardiology and heart surgery (#10).

Also receiving impressive rankings: Cancer (#12, 3-way-tie), Rheumatology (#12), Nephrology (#13) and Diabetes and Endocrinology (#17).

In spring 2017, USNWR also ranked the U-M Medical School 5th in the nation for training primary care physicians, 6th for training internal medicine physicians and 8th in geriatrics training. The U-M Medical School also was 9th in the nation for research-based medical schools in its “Best Graduate Schools” ranking.

Our U-M Medical School graduates continue to be rated highly by the directors of residency programs across the country with the fourth highest score in the country from all residency directors and the third highest score from primary care residency directors.

CLINICAL EXCELLENCE

The theme of this year’s report is “Clinical Excellence.” The thirteen stars featured throughout the design represent the tremendous impact each of our divisions makes every day in this area. Clinical care is at the core of everything we do and the approach to clinical medicine is rapidly evolving. Currently, Michigan Medicine is the only health system serving patients from every county in the state. We continue to expand our reach with the development of a physical presence in other areas of the state (page 47). We’re transforming care through clinical research efforts (page 81) and increasing and ensuring quality care through several different initiatives (page 96). The end result is clinical care unlike any other (page 61).

OUR BICENTENNIAL CELEBRATION

We celebrated the University’s Bicentennial in the department on September 29, 2017, with former Chair Bill Kelley as the Grand Rounds speaker, and reminiscing history of the
department with talks from Joel Howell, Powel Kazanjian, John Carethers, Gil Omenn, and Carol Kaufman, plus looking to the future with talks from Tony Denton, David Spahlinger, Brahmajee Nallamothu, and David Ginsburg; multiple former chief medical residents attended the event (page 27).

NEW LEADERS AND TRANSITIONS

Vineet Chopra, MBBS, MSc, was named the inaugural chief of the Division of Hospital Medicine

Vikas Parekh, MD, was named associate chief clinical officer for medical programs

Scott Flanders, MD, was named vice chair for External Relations for the department

We just hired a new chief for the the Division of Molecular Medicine and Genetics. The division will now be called the Division of Genetic Medicine. The focus of the division will expand to include translational genetics and we will be revamping the training programs.

Goutham Narla, MD, PhD, will become the next chief for the Division of Molecular Medicine & Genetics within the Department of Internal Medicine. The division will modify its name to the Division of Genetic Medicine as of July 1, 2018.

Narla will replace Eric Fearon, MD, who has served as division chief since 2010. I want to personally thank Eric for his role and commitment to our department, particularly doubling up with his most recent role as director of the Comprehensive Cancer Center.

DIVISION MILESTONES

The Division of Infectious Diseases celebrated its 50th anniversary in 2017.

On July 1, 2017, our first new division was created: the Division of Hospital Medicine (page 29).

THE HEART OF EVERYTHING WE DO

The University of Michigan Department of Internal Medicine provides some of the best care possible in the state of Michigan and the nation. As you will see in the many stories reflected in this report, we are setting the standard for innovation, satisfaction, quality and safety in patient care — the heart and soul of clinical excellence.

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Our volume of off-site ambulatory care and on-site specialty care visits increased during 2017 while our other services remained steady. Michigan Medicine’s outpatient facilities in Ann Arbor, Livonia and Brighton are performing well and our recently-opened center in Northville is already being used to capacity. There are plans to create a Northville Health Center II at this site in order to meet the growing demand for our services. As Michigan Medicine makes steady progress toward its 2025 strategic vision to be a source of high-quality care for 4 million people, new facilities and care models are being developed to help us meet patient care needs in all areas.

EXPANDING OUR REACH
Our West Ann Arbor Health Center opened in November 2017. This new, 75,000-square-foot health facility offers primary care and dozens of specialties, including more than half of our department’s subspecialties.

The Brighton Center for Specialty care is expected to open in fall 2018. The new building will be close to U-M’s current Brighton Health Center. It is expected to house more than 40 University of Michigan specialty services to children and adults.

Our East 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.

An inpatient tower expansion has officially been scheduled for 2023. It will add 155 beds to University Hospital and convert 110 semi-private rooms to private rooms.

TRANSFORMING CARE
Providing clinical excellence also involves implementing innovative models of care that offer patients the right care in the right place at the right time. We are strategically thinking about offering duplicate services in several locations in order to provide “one-stop” shopping for our patients. Internal medicine faculty are also leading initiatives, such as telehealth services (page 58) that make internal medicine’s expertise easier for patients to access locally and across the state, and new Ambulatory Diagnostic and Treatment Units (page 56) that are providing much-needed care between clinic visits and the emergency room.

Through its statewide partnerships, Michigan Medicine is finding ways to support every hospital and health system allowing more care to remain local, while facilitating transfers.
to U-M for high-complexity, high-risk patients (page 47). Scott Flanders, MD, was named vice chair for external relations to represent internal medicine’s expanding roles within this service expansion. One example highlighted in this report is an effort to help Metro Health build its capacity in subspecialty gastroenterology care for patients in the Grand Rapids area (page 53).

**CLINICAL LEADERSHIP**

Other faculty taking on new clinical leadership roles in 2017 included:

**Vikas Parekh**, MD, was named associate chief clinical officer for medical services. He will be providing leadership in process improvement for our inpatient units.

**John I. Allen**, MD, MBA, was named associate medical director of ambulatory care services for the University of Michigan Medical Group.

**MAKING EXCELLENCE ACCESSIBLE**

Ranked No. 1 in Michigan and No. 6 in the country, Michigan Medicine’s adult hospitals are recognized among the best in the nation by U.S. News and World Report. While clinical excellence has always been our goal, finding the best way to provide it needs to evolve and change over time. As the Department of Internal Medicine continues to grow and expand its reach, we’re building partnerships, testing new technologies and finding new and better ways to make that excellence available to more patients in more locations across our state.

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### HOSPITAL ADMISSIONS

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### GROSS PROFESSIONAL CHARGES (in thousands)

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**Related sections:**
- Service Expansion, page 47
- Patient Care, page 61
The total number of Department of Internal Medicine faculty remained steady in 2017. The chart to the right breaks down our faculty growth trends by year and by faculty type.

**FACULTY PROMOTIONS**

Our department handled 58 faculty promotions during 2017. Congratulations to these faculty members on their new status and achievements.

**HONORS**

Internal medicine faculty are regularly recognized nationally for their contributions to the field of medicine. Some examples from the past year include:

- **John Carethers**, MD, was named the C. Richard Boland Distinguished University Professor.
- **Lona Mody**, MD, and **Meilan Han**, MD, were elected into the American Society for Clinical Investigation.
- **Sanjay Saint**, MD, MPH, **Michele Heisler**, MD, and **Richard Auchus**, MD, were inducted into the Association of American Physicians.
- **Juanita Merchant**, MD, was elected to the American Academy of Arts & Sciences.
- **Eve Kerr**, MD, was elected to the National Academy of Medicine.
- **Richard Saad**, MD, MS, has been elected as the new American College of Gastroenterology (ACG) Society of Michigan Governor.

**DIVERSITY, EQUITY & INCLUSION**

During 2017, our department continued to work with Michigan Medicine’s Diversity Network to recognize, respect, foster and maximize the strengths and differences among patients/families, staff, faculty, house officers, students and the community at large.

Our department is currently in the process of developing a new associate chair of diversity, equity and Inclusion position.

**CLINICAL EXCELLENCE**

Internal medicine inducted 10 new members into our department’s Clinical Excellence Society in 2017. The society was created to honor those faculty members who demonstrate a particularly high level of expertise and devotion to providing clinical care. The society is actively developing programs to enhance the ability of all faculty members to deliver exceptional clinical care. One of its subcommittees is currently evaluating physician wellness throughout the department and making recommendations to avoid burnout (page 78).
The U-M Medical School broadened its criteria for scholarly activities for clinical track faculty this past year. This will substantially increase faculty promotions overall and improve faculty satisfaction. New activities now being considered include publishing online, book chapters, national forums, leadership committees, notable contributions to the field and quality improvement efforts.

Departmental faculty currently hold more than 80 endowed professorships. New endowed professorships inaugurated in 2017 included:

- Jeffrey B. Halter Collegiate Professorship in Geriatric and Palliative Care Medicine — Neil B. Alexander, MD
- Marylou Kennedy Research Professorship of Thoracic Oncology — Shirish M. Gadgeel, MD
- Galen B. Toews Collegiate Professorship in Pulmonary & Critical Care Medicine — Bethany B. Moore, MD

As the growth of our department continues to focus on meeting the needs of patients throughout the state of Michigan, we continue to increase our emphasis on clinical service, opportunities for education, scholarly activity and career advancement. We are creating the type of environment that not only cultivates clinical excellence in everything we do, but ensures it.
The VA Ann Arbor Healthcare System (VAAAHS) continued to experience steady outpatient and inpatient activity in 2017. Our Ann Arbor campus handled 480,678 outpatient visits and 3,149 inpatient admissions. 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.

WELCOMING VETERANS

The VAAAHS is also constantly striving to be more welcoming and inviting to veterans and their families. We are expanding clinic space and reception in the process of building a new Veteran Welcome Center that will provide a one-stop-shop where all patient administrative needs are located in one, easily accessible location.

FACULTY APPOINTMENTS

During 2017, several faculty have recently taken on new leadership roles:

Ulus Atasoy, MD, was recruited and named section chief of the new VA Section of Allergy & Immunology.

Christine Basmajian, PhD, was appointed the deputy associate chief of staff for research at the VA Ann Arbor Healthcare System.

Scott Hummel, MD, was named interim section chief of Cardiology at the VA to replace former Chief Hitinder Gurm, MD, who was named associate chief clinical officer for cardiovascular programs at the Frankel Cardiovascular Center.

Craig Jaffe, MD, was named associate chief of staff for education at the VA.

Richard Weitzel, MD, was named acting VA chief of staff after Eric Young, MD, retired from the VA.

ON THE NATIONAL LEVEL

Some of our former faculty members moved on to serve veterans on the national level with the Department of Veteran Affairs in Washington, D.C. in 2017. This is a great reflection on the caliber of faculty and care at the VAAAHS. We look forward to collaborating with them in their new roles:

Monica Lypson, MD, MHPE, professor of internal medicine and professor of learning health sciences, was recently selected as the new director of Medical and Dental Education for the Office of Academic Affiliations.
Leo Greenstone, MD, formerly the associate chief of staff for ambulatory care at VAAAHS is now filling that same role with the Veteran’s Health Administration Office of Community Care.

NOTABLE AWARDS & RECOGNITION

During 2017, VA faculty members were making an impact on patient care, education, and research in many different ways. These are just a few highlights:

**Jeff Curtis, MD,** was awarded the Roger Grekin Research Award from the VA Research Service. The award, which honors the legacy of long-time VA clinician, researcher and leader Roger Grekin, recognizes an outstanding VAAAHS clinical researcher who contributes to the VA research mission through excellence in clinical care, research, mentorship and leadership.

**Eve Kerr, MD, MPH,** Louis Newburgh Research Professor of Internal Medicine and Director of the Health Services Research and Development Center for Clinical Management Research at VA Ann Arbor Healthcare System in Michigan, received the 2016 Under Secretary’s Award for Outstanding Achievement in Health Services Research.

**RESEARCH HIGHLIGHTS**

Nithya Ramnath, MBBS, an associate professor from the Division of Hematology and Oncology, received a VA Merit Award to evaluate the role of Vitamin D metabolism in lung adenocarcinoma. She is exploring markers that may predict its efficacy both in the secondary prevention setting as well as an adjunct to chemotherapy.

Ackbar Waljee, MD, an associate professor from the Division of Gastroenterology and Hepatology, published a paper in BMJ highlighting the potential risks of steroid prescriptions. His study found that people taking the pills were more likely to break a bone, have a potentially dangerous blood clot or suffer a life-threatening bout of sepsis in the months after their treatment, compared with similar adults who didn’t use corticosteroids.

**THE VA OF THE FUTURE**

As we look to the future of the VAAAHS, we are developing closer partnerships with community providers in order to provide veterans with superb care no matter where they live — Flint, Jackson, Toledo or Ann Arbor. Regular travel can be challenging for many patients depending on their age, health status, weather conditions or even access to reliable transportation. We also continue to explore expanding telehealth options such as eConsults, video visits and other patient engagement tools to help our patients receive medical advice and maintain their heath without having to come in for a clinic visit. Our veterans have served our country well. Those of us who now have the privilege to care for veterans remain determined to find new and better ways to meet their health care needs.

The VA Ann Arbor Hospital
Basic and Translational Research Programs

BEN MARGOLIS, MD
Associate Chair for Basic and Translational Research

During 2017, Michigan Medicine remained a national leader in biomedical research, with a portfolio of $515M in funding awards from federal, industry, non-profit, local and other sources. With a 2.5% market share of National Institutes of Health funding, research at Michigan remains a high priority and fundamental to advancing medicine and health care. The Department of Internal Medicine plays a key role in leading these efforts through our extensive range of research and faculty expertise while U-M continues to develop new initiatives and expand research space in support of these efforts.

FACULTY LEADERSHIP
Two internal medicine faculty members were named to major research leadership positions in 2017.

Bishr Omary, MD, the H. Marvin Pollard Professor of Gastroenterology, was named the first chief scientific officer and executive vice dean of scientific affairs at Michigan Medicine in May 2017. He is working closely with key stakeholders to develop and implement a robust strategy to foster excellence in biomedical research and clinical translation to improve disease prevention and treatment, in addition to promoting fundamental basic science research. He is also facilitating the formation of new strategic partnerships across the Medical School and main university campus, and support and advocate for existing partnerships.

Diabetes and obesity researcher Charles Burant, MD, PhD, was named the new director of the A. Alfred Taubman Medical Research Institute at Michigan Medicine, the only organization of its kind created expressly to support physicians who also perform research in the quest for new treatments and cures. He is a professor in the Division of Metabolism, Endocrinology & Diabetes.

PRECISION HEALTH
The University of Michigan also launched a new initiative in 2017 to harness campus-wide research aimed at finding personalized solutions to improve the health and wellness of individuals and communities. Precision Health at the University of Michigan is bringing together researchers from across the university to facilitate this new and exciting type of research. It is focused on three core areas:

Discovery: Facilitating basic science breakthroughs in biology, genetics, engineering, machine learning, and social sciences to impact healthcare.

Treatment: Translating research into treatment and prevention
strategies to test them in the real world.

Implementation: Sharing validated treatments and prevention tools to the communities U-M serves across the state and world.

A large amount of precision-related research is already occurring throughout the university, including expertise in precision health for cancer, mental health and metabolic disease, among other areas.

RESEARCH SPACE EXPANSION

Even with our North Campus Research Complex (NCRC), a bustling part of the medical campus with laboratories, offices and event spaces, U-M has struggled to provide enough facilities to support the rapidly growing demand for research space.

It was welcome news to hear that the last two empty buildings on the NCRC site, which was once occupied by a pharmaceutical research group, will take on new life thanks to a $78.5M renovation project. The U-M Medical School plans to create more than 50 research laboratories for faculty and their teams and spaces for them to connect with one another to fuel discoveries. Not surprisingly, our department will be the largest user of this research space.

TRANSFORMING CLINICAL EXCELLENCE

With this expanded leadership, support and resources our faculty will be able to conduct and collaborate on more and better research focused on transforming the future of clinical excellence of internal medicine at Michigan and beyond.

The U-M Medical School plans to create more than 50 research laboratories for faculty and their teams and spaces for them to connect with one another to fuel discoveries.
In last year’s report, I outlined the department’s vision to build Michigan Medicine’s clinical research portfolio to the same level of national and international recognition as that of our basic research colleagues. We have the talent and expertise; our focus has been providing the tools needed by our researchers — especially those early in their careers — to become leaders in every area of clinical research, including large multinational trials.

I’m delighted to report that we’ve made significant progress toward this vision. In only a year, we’ve developed two key initiatives — the Clinical Trials Academy and Early-Career Faculty/Investigator Forum — which aim to develop our early-career clinical investigators into a body of flourishing and accomplished researchers. These initiatives are designed to complement training by the Michigan Institute for Clinical & Health Research (MICHR) and services offered by the Medical School’s Clinical Trials Support Units to achieve Michigan Medicine’s goal of transforming the clinical trials enterprise.

CLINICAL TRIALS ACADEMY

Our preparation in 2017 bore fruit this January as we welcomed the inaugural class of our new Clinical Trials Academy (page 82). The academy is designed to be the clinical-trial counterpart of the Medical School’s highly successful R01 Boot Camp, which has resulted in a substantial increase in federal funding for attendees.

The Clinical Trials Academy taps the expertise of our leading trialists and statisticians to guide participants through the key steps of successful clinical trial design: identifying cutting-edge basic research that could be translated into the clinical arena; forming strong hypotheses; developing the most rigorous, practical protocols and analysis plans; collaborating with investigators with complementary expertise; and securing funding and working successfully with federal, foundation and industry partners.

“We invited our most experienced clinical researchers to be part of our Clinical Trials Academy, and every one of them said yes. That speaks volumes about the level of mentorship in our department and institution, and the commitment for the next generation to succeed.”

— Rodica Pop-Busui, MD, PhD
The academy meets formally once a month for seven months, for two hours of lectures and two-and-a-half hours of hands-on mentored group work. In addition, faculty mentors meet outside of class with student pairs for additional guided work. Participants’ final projects are a fully designed clinical trial that is ready for submission to the NIH, to a pharmaceutical company as an investigator-initiated trial, or to foundations or organizations such as the diabetes, heart or lung associations and various cancer societies.

EARLY-CAREER FACULTY/INVESTIGATOR FORUM

The next new initiative creates the infrastructure to achieve two important goals: 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. Called the Early-Career Faculty/Investigator Forum, it includes both in-person networking and online resources.

The forum hosted two luncheons in 2017, providing members the opportunity to interact with each other and with senior administrators, including Department Chair John Carethers, MD, who enthusiastically supports this work. We want members to know that we value their work, are eager to hear their voices and support them in building careers in clinical research.

We’ve also developed a website and online interactive tool that provide key resources for forum members. They feature funding opportunities; news and policy changes; highlights of the department’s leading early-career researchers; and discussion boards that allow users to identify project collaborators, scan members’ recent publications, and share tips and questions in the clinical research space.

We hope this platform will help members learn from each other and connect around common disease states to increasingly bring to trial discoveries made by our talented colleagues at the bench.

INTEGRATING CLINICAL RESEARCH INTO CARE

In addition to these two new initiatives, we continue to make progress on our goal to fully integrate clinical research into clinical care. There are more research rooms incorporated into clinics across our local network; we’ve identified new space in Taubman; and the new Brighton location was designed with dedicated research space in mind. We aim to continue building the infrastructure to be able to recruit Michigan Medicine patients into clinical studies, no matter where they are seen. This is what it will take to make Michigan Medicine competitive for major, multi-center trials and to accelerate bench-to-bedside discovery across internal medicine.

“The new forum is really helpful because I trained as a basic scientist, so I don’t intuitively know all the answers to my clinical research questions. It’s an excellent opportunity to get guidance and to connect with potential role models, mentors and collaborators.”

— Michelle Kahlenberg, MD, PhD
Early-Career Faculty/Investigator Forum Member
At our core, we treat, discover and educate so that we can improve the lives of our patients. In 2017, our work focused on improving our patients’ access to our providers; further building on our relationships with our patients and with our colleagues by enhancing the knowledge and awareness of diversity, equity and inclusion for our faculty and staff; and strategic planning initiatives to ensure everyone in the department is traveling in the same direction to achieve our united goals.

**MAKING OUR CARE MORE ACCESSIBLE**

Last year, we began work on a new patient access initiative where the focus was to identify opportunities to lessen the wait times for our patients. The goals of the project are to:

- Increase access to convenient and timely high quality care.
- Ensure an ideal practice environment for providers and care team members.
- Provide clinical and administrative leaders with the tools and information needed to measure and manage our performance.
- Create a foundation for continued improvement and optimization of patient access.

Each of the department’s divisions completed an analysis and developed plans focused on ensuring optimal provider templates, increased use of our electronic health record functionality and use of management reports to evaluate our success with this initiative. As a high priority for the department, as well as Michigan Medicine as a whole, the work reflects our commitment to the community to deliver timely access to services that we, as leaders in our fields, are uniquely qualified to provide.

**DIVERSITY, EQUITY & INCLUSION**

Our ongoing commitment to diversity, equity and inclusion (DE&I) continued in 2017. All faculty and staff began taking part in mandatory training to examine how unconscious bias can affect perception, decisions and interactions. In addition, our employees who are involved in faculty recruitment initiatives were required to participate in a workshop which teaches recruitment strategies and tactics to improve diversity. This important topic will continue to be a central focus and part of all of our discussions, decisions and initiatives going forward.

**LEADERSHIP STRATEGIC PLANNING RETREAT**

Department leadership held an all-day retreat to communicate and
provide clarity around Michigan Medicine’s priorities and how the Department of Internal Medicine will support these goals. Each division identified initiatives that aligned with the department’s overall vision. Regular communications occur regarding each unit’s progress with their initiatives and annual reviews will be held to maintain focus on the priority areas.

3RD ANNUAL SERVICE AND EXCELLENCE CELEBRATION

We celebrated the 3rd 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. We applaud the 2017 award winners for the outstanding service they provide to our department.

Administrative Excellence Award
David Karpenko, Division of Cardiovascular Medicine
Lisa Miller, Graduate Medical Education
Theresa Nester, Division of Gastroenterology and Hepatology
Elizabeth Spranger, Performance Improvement
Cheryl Sweetland, Division of General Medicine
Sharon Walker, Division of Nephrology

Clinical Excellence Award
Joy Diponio, Division of Nephrology
Martha Hubler, Division of Allergy and Clinical Immunology
Aleksandar Tomas, Division of Pulmonary & Critical Care Medicine

Research Excellence Award
Marilyn Bartow, Division of General Medicine
Judy Carrillo, Sponsored Research and Pre-Award
Katherine Oravecz-Wilson, Division of Hematology and Oncology

NEW TEAM MEMBERS

In 2017 we welcomed four new division administrators to the department — Carrie Brown, Division of Pulmonary & Critical Care Medicine; Giselle Ciorciari, Division of Nephrology; Jennifer Hawkins, Division of Infectious Diseases; and Samuel Olushola, Division of Metabolism, Endocrinology & Diabetes.

DIVISION ADMINISTRATORS

Left to right (seated): Kendra Brown (Director of Clinical Affairs), Jolena Nollar (Director of Administrative Operations), Musty Habhab (Chief Administrative Officer), Eric Mullen (Director of Finance)
Left to right (standing): Dorothy Schroeder (Hematology and Oncology and Human Genetics), Hillary Gallagher (Allergy and Clinical Immunology), Jennifer Hawkins (Infectious Diseases), Gary Smith (Rheumatology), Olushola Samuel (Metabolism, Endocrinology & Diabetes), Giselle Ciorciari (Nephrology), Jeff Cole (Gastroenterology and Hepatology), Carrie Brown (Pulmonary & Critical Care Medicine), Robert Keast (Cardiovascular Medicine), Kim Rize (General Medicine), Marisa Rodriguez (Hospital Medicine)
Not pictured: Stephanie Galica (Geriatric and Palliative Medicine)
In May 2017, 174 University of Michigan Medical School graduates filed into Hill Auditorium and left ready to enter the evolving world of health care, as new physicians. About 30 percent of this class remained in Michigan for residency, working in hospitals in Ann Arbor, the metro Detroit area, Lansing and Grand Rapids. Forty-five percent of these graduates plan to enter a field that can lead to a career in primary care.

U-M continues to rank highly among residency program directors — senior doctors at teaching hospitals nationwide who interview and select graduating medical students to enter their programs. Nearly 99 percent of the U-M medical students entering the national match process matched to a residency spot in this intensely competitive environment, far above the national average. Twenty-two percent of this class were matched to residency slots at Michigan Medicine.

The graduation ceremony featured remarks from Dean Marschall S. Runge, MD, PhD, and a keynote address by Francis Collins, MD, PhD, former U-M Department of Internal Medicine faculty member and current director of the National Institutes of Health. As NIH director, Collins oversees the work of the largest institutional supporter of biomedical research in the world, spanning the spectrum from basic to clinical research.

BEGINNING THE MEDICAL SCHOOL JOURNEY

In July 2017, the U-M Medical School welcomed its 171st class of medical students. All 177 newly minted medical students were presented with crisp white coats and shiny stethoscopes at the White Coat Ceremony. The keynote speaker for the event was John Del Valle, MD, the director of our internal medicine residency program.

Nearly 99 percent of the U-M medical students entering the national match process matched to a residency spot in this intensely competitive environment, far above the national average.
The class was selected from a pool of nearly 7,000 applicants, according to Steven Gay, MD, MS, assistant dean for admissions for the medical school, the highest number of applications the school has ever seen.

In an effort to develop the next generation of clinical excellence leaders, this class will be immersed in the clinical care world of Michigan Medicine from the very beginning. They’ll also develop an understanding of the immense importance of teamwork in the clinical setting by engaging in interprofessional education with students enrolled in U-M’s other health professions schools, including nursing, dentistry, pharmacy, public health, kinesiology and social work.

In addition, as the first class with a capstone project graduation requirement, they will receive enhanced training in leadership and have the opportunity to demonstrate their impact in medicine through one of eight Paths of Excellence — interdisciplinary scholarly concentrations that allow students to gain additional skills and experiences not covered by the standard curriculum.

**TRANSITIONS**

Curricular transformations are necessary, but can cause many challenges. Our current medical school curriculum transformation included shortening the preclinical curriculum from 19 months to 11 months. If this transition had occurred between one year and the next, an overlap of two cohorts of clerkship students would have occurred. This bulge would have overwhelmed our educational clinical capacity. We were able to avoid this by implementing an innovative educational strategy to completely avoid the bulge. For three consecutive years, all clerkships were shortened by 25 percent, reducing the clerkship period from 48 weeks to 36 weeks; but maintaining 85 percent of the curriculum. This resulted in no overlap in clerkship cohorts for the duration of the transition to the new curricular model. The 25 percent reduction clerkship duration resulted in minimal changes in clerkship outcomes. Student performance on clerkship exams stayed relatively stable. Students handled the rapid paced shortened clerkships quite well. Their perceptions of clerkship quality, stress and well-being, and performance on an end-of-clerkship year multistation clinical competency assessment also stayed stable.

**Related section:**
Education, page 111
During our 2017 recruitment, the Department of Internal Medicine Residency Program received more than 2,904 applications; of which, approximately 514 medicine and medicine-pediatrics candidates were interviewed with our faculty and program leadership from October 2016 through January 2017.

The Internal Medicine Residency Program welcomed its incoming intern class of 60 individuals in June 2017. The class included eight graduates of U-M Medical School along with other top tier medical schools. Of this group, 46 percent are newly elected members of the Alpha Omega Alpha Honor Medical Society and 18 individuals have additional advanced degrees.

Eight of the incoming interns will be with the program for one preliminary year of training before joining the Neurology Residency Program and eight are members of the combined Medicine-Pediatrics Program, directed by Michael Lukela, MD.

CHIEF MEDICAL RESIDENTS

Annually, the Department of Internal Medicine and Medicine-Pediatrics Residency Programs select new Chief Medical Residents (CMRs) in their respective programs. The CMRs are chosen by the leadership for each program based on their outstanding performance during residency, endorsement by their peers and their strong commitment to their respective programs.

This year, the CMRs for internal medicine are Phoebe Cheng, MD, Daniel T. Cronin, MD, Kathryn L. Levy, MD and Garth W. Strohbehn, MD. Zachary Haupt, MD, is the VA Quality Improvement CMR. In the Medicine-Pediatrics Program, the CMR is Marie Pfarr, MD.

CMRs coordinate many of the clinical and educational opportunities for our medical residents while building their skills in education and leadership. Each is assigned to a different administrative area on a monthly rotating basis and will have the opportunity during the course of the year to direct the ambulatory and inpatient programs at the University Hospital and the VA Hospital.

PROGRAM UPDATES

Kevin Flaherty, MD, MS, FCCP, joined us this year as associate program director. While Thomas Sisson, MD, formerly an associate program director, is now the director of our Physician Scientist Training Program. They are replacing Subramaniam Pennathur, MD, who had filled both of these roles for many years.
This year’s report provides updates on our Teaching to Teach curriculum, primary care track — which currently has seven residents — and a new podiatry fellowship (page 112). These are great examples of the breadth and depth of unique educational experiences available in the Department of Internal Medicine.

Most of 2017 was spent developing a second Clinical Simulation Center site even larger than the first. The new facility in the Medical Science Building II has mock adult, pediatric and obstetric hospital rooms complete with equipment that displays realistic data (page 114).

When it comes to working with “real” patients, our residents not only experience the unique patient care within a state-of-the-art tertiary care center like the University Hospital, but will also spend time in the VA Hospital which complements the clinical experience tremendously. To further enhance the ambulatory experience of our trainees, the Department of Internal Medicine has also developed a series of primary care sites throughout Ann Arbor and the adjoining communities (page 47), which contributes greatly to the clinical excellence development for our residents.

DEPARTMENT OF INTERNAL MEDICINE RESIDENCY PROGRAM LEADERSHIP TEAM

Back Row, Left to Right: Michael P. Lukela, MD, Program Director, Medicine-Pediatrics, Adam S. Tremblay, MD, Associate Program Director, Kristin Collier, MD, Assistant Program Director, John Del Valle, MD, Program Director, Senior Associate Chair, Graduate Medical Education, Thomas Sisson, MD, Director, Physician Scientist Training Program, Kevin Flaherty, MD, MS, FCCP, Associate Program Director

Front Row, Left to Right: Namita Sachdev, MD, Associate Program Director, Medicine-Pediatrics, Sara Hartley, MD, Associate Program Director, Rachel Perlman, MD, Associate Program Director, Jennifer Lukela, MD, Assistant Program Director
My role this year has expanded to include both quality and innovation and external relations, and there is significant progress to report on each.

While each role is distinct, they are designed to be mutually reinforcing. Our Quality & Innovation (Q&I) Program is aimed specifically at patients cared for by the Department of Internal Medicine. Our external relations efforts aim to ensure that this focus on quality is at the forefront as the University of Michigan Health System formalizes relationships with new health systems, expanding its footprint across the state.

We are now at a point where our QI projects are maturing, and we are poised to begin moving the needle on clinical outcomes. For example, the Peri-Endoscopy Antithrombotics Project (page 96) has been rolled out across the health system and is now gathering outcome data on patient care and service delivery. There are several other large-scale projects currently underway, and we expect we will have a growing body of knowledge and outcomes to share as these projects complete their one- to two-year life cycles.

Another aspect of our program’s maturation is that we are supporting increasingly complex quality projects that cross multiple departments and affect broad populations of patients at Michigan Medicine. Nearly every project involves multiple specialties within internal medicine, as well as disciplines such as nursing, social work,
pharmacy, pathology and others. And importantly, we are now routinely engaging our patient and family representatives in our improvement efforts.

**Resident Education**

Over the last two years, we have developed a collaborative partnership with the residency program around QI education. Our team partners with faculty advisors to provide consistent content and support during second-year residents’ month-long QI projects, and we are seeing results. For example, one resident group piloted an intervention to reduce unnecessary orders for inpatient complete blood counts, or CBCs (page 100). It was so promising that it has been taken up by the Michigan Program on Value Enhancement (MPROVE) for further development and is now being evaluated through a stepwise rollout to the health system.

**Quality Dashboards**

In an effort to help our divisions more readily monitor key quality metrics, we’ve begun developing quality performance dashboards, with each division selecting an initial target condition. We recently developed dashboards for the Division of Pulmonary & Critical Care Medicine on COPD and the Division of Infectious Diseases on HIV. Upcoming development will focus on the Divisions of Gastroenterology and Hepatology, Hematology and Oncology, Nephrology and Rheumatology. We are eager to expand to additional divisions and conditions.

**New Faculty QI Award**

This year, we also introduced the first annual Faculty Quality Improvement Award. The award provides 10-percent salary support for one year, $5,000 in funding and dedicated support from our team. Our first recipient is Rajan Ravikumar, MD, instructor in the Division of Allergy & Clinical Immunology (right), whose multi-disciplinary project aims to improve the appropriate use of antibiotics in hospitalized patients. His team includes Tejal Ghandi, MD, associate professor in the Division of Infectious Diseases, David Bozaan, MD, clinical lecturer in the Division of Hospital Medicine, and representatives from pharmacy, nursing and Health Information and Technology Services (HITS). They will evaluate the impact of a penicillin skin-testing protocol designed to help separate out the significant number of patients who report an allergy to penicillin but don’t have a true IgE-mediated
reaction to it. The goal is for more patients be safely treated with first-line antibiotics.

**External Relations**

Finally, on the external relations front, our department has taken a leading role in efforts to create a clinically integrated network of health systems across the state. Our goal is to take the best of what each partner has to offer to provide consistent, high-quality, patient-centered care under the University of Michigan Health System’s expanding banner.

One example is with Metro Health, our affiliate in the Grand Rapids area, where a key need was local access to subspecialty GI care. Under the leadership of Michelle Anderson, MD, from the Division of Gastroenterology and Hepatology, we’ve helped bring interventional endoscopy as well as care for liver disease and inflammatory bowel disease to Metro Health’s patients (page 53).

The same is true at MidMichigan Health, our partner in central Michigan. Our Division of Hematology and Oncology participates in joint tumor boards for MidMichigan’s patients. Our Division of Cardiovascular Medicine has helped develop an advanced heart failure clinic and a transcatheter aortic valve replacement (TAVR) program at MidMichigan under Monica Colvin, MD, and Stan Chetcuti, MD, respectively. Our Division of Gastroenterology and Hepatology has set up a liver clinic under Neehar Parikh, MD, and Pratima Sharma, MD, MS. In addition, both systems’ hospitalists have participated in exchanges, sharing best practices, guidelines and QI approaches.

Through work like this, we continue to establish the Department of Internal Medicine as a leader in quality — within Michigan Medicine, throughout the state and across the globe.

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**Team Activity 2017**

- **12** COMPLETED PROJECTS
- **12** ACTIVE PROJECTS
- **27** CONSULTING/AD HOC REQUESTS
- **12** RESIDENT PROJECTS
- **2** DASHBOARDS CREATED
- **4** BEING DEVELOPED
- **70+** DATA REQUESTS

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**Related articles:**
- Faculty QI Project: Peri-Endoscopy Antithrombotics, page 96
- Resident QI Project: Daily CBCs, page 100
- Metro Health GI Service Expansion, page 53

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Our QI scholarship helps bring the lessons we’ve learned to health systems around the globe. Learn more at [medicine.umich.edu/dept/intmed/patient-care/quality-innovation](http://medicine.umich.edu/dept/intmed/patient-care/quality-innovation).
2017 Internal Medicine Awards

PAUL DE KRUIF LIFETIME ACHIEVEMENT AWARD
David Fox, MD

CHAIRMAN’S AWARD FOR OUTSTANDING SERVICE TO THE DEPARTMENT
Powel Kazanjian, MD, PhD

DEPARTMENT OF INTERNAL MEDICINE IMPACT AWARD
Rafina Khateeb, MD

JEROME W. CONN AWARD FOR EXCELLENCE IN RESEARCH BY A JUNIOR FACULTY MEMBER
Megan Haymart, MD

2017 Dean’s Awards

DISTINGUISHED FACULTY LECTURESHP AWARD IN BIOMEDICAL RESEARCH
Peter R. Arvan, MD, PhD

CLINICAL AND HEALTH SERVICES RESEARCH AWARD
Daniel J. Clauw, MD
M.E. Michele Heisler, MD, MPA

COMMUNITY SERVICE AWARD
Vladimir M. Ognenovski, MD

LIFETIME ACHIEVEMENT IN MEDICAL EDUCATION AWARD
Michael J. Shea, MD

LIFETIME ACHIEVEMENT AWARD IN CLINICAL CARE
Richard H. Simon, MD

KAISER PERMANENTE EXCELLENCE IN TEACHING (PRE-CLINICAL) AWARD
Jennifer N. Stojan, MD

INNOVATION AND COMMERCIALIZATION AWARD
Shaomeng Wang, PhD
Division Chiefs
Seated (left to right): David Fox, MD (Rheumatology); Chung Owyang, MD (Gastroenterology and Hepatology); Laurence McMahon, MD, MPH (General Medicine); and Powel Kazanjian, MD (Infectious Diseases).
Standing (left to right): Pavan Reddy, MD (Hematology and Oncology); Vineet Chopra, MD, MSc (Hospital Medicine); Raymond Yung, MB, CHB (Geriatric and Palliative Medicine); John Carethers, MD (Chair of Internal Medicine); Goutham Narla, MD, PhD (Genetic Medicine); Peter Arvan, MD, PhD (Metabolism, Endocrinology & Diabetes); Subramaniam Pennathur, MBBS (Nephrology); and James Baldwin, MD (Allergy and Clinical Immunology).
Missing from photo: Theodore Standiford, MD (Pulmonary & Critical Care Medicine) and David Pinsky, MD (Cardiovascular Medicine).
Associate Chairs
Seated (left to right): John Del Valle, MD (Graduate Medical Education); Rodica Pop-Busui, MD (Clinical Research); Timothy Laing, MD (Clinical Programs) and Benjamin Margolis, MD (Basic and Translational Research).
Standing (left to right): Cyril Grum, MD (Undergraduate Medical Education); Scott Flanders, MD (Quality & Innovation and External Relations); John Carethers, MD (Chair of Internal Medicine}; Masada (Mesty) Habhab (Chief Administrative Officer); Sanjay Saint, MD, MPH (Veterans Affairs); and Richard Simon, MD (Faculty Affairs).
Chief Medical Residents
Left to right: Daniel T. Cronin, MD; Phoebe Cheng, MD; Garth W. Strohbehn, MD; and Kathryn L. Levy.
Bicentennial Dinner

September 29, 2017
University of Michigan Museum of Art

Current and former department chairs at the Internal Medicine Bicentennial Dinner (left to right): David Humes, John Carethers, William Kelley, Tachi Yamada and John Del Valle.

Guests at the 2017 Internal Medicine Bicentennial Dinner were entertained by Richard Kogan, MD, an award-winning concert pianist and clinical professor of psychiatry at Weill Cornell Medical College.
The Division of Hospital Medicine was launched in July 2017 as the Department of Internal Medicine’s 13th division and the first addition in more than 40 years. Under the leadership of Division Chief and Associate Professor Vineet Chopra, MD, MSc, it’s off to an auspicious start — with even more ambitious goals ahead.

Home to more than 120 faculty and growing rapidly, the division currently cares for more than half of Michigan Medicine’s hospitalized medical patients. It also staffs 80 percent of all Medical School inpatient medicine teaching teams and has secured some $8 million in extramural research funding — making it one of the best-funded hospital medicine divisions in the nation. Its members include past leadership of the Society of Hospital Medicine, researchers who have transformed patient care around the world with evidence-driven clinical guidelines and educators who have, literally, written the book on teaching inpatient medicine.

This may seem remarkable for such a young division, but it was wholly by design, says Laurence McMahon, Jr., MD, MPH, professor and chief of the Division of General Medicine, which formerly housed the department’s hospital medicine program. “The plan at U-M was to build the Division of Hospital Medicine around the traditional core of research, patient care and teaching,” he says. “We didn’t want to launch a new division until we had that balance. We already had strong hospital-based clinicians and educators, but we spent the last 10 years building a critical mass of hospitalist investigators, as well.”

This balance is, in many ways, what distinguishes U-M’s division from others across the country, many of which formed earlier in the hospitalist movement.

First coined in 1996, the term “hospitalist” described a new type of specialist focused on the general medical care of hospitalized patients. The specialty was born of a desire to help both physicians and health care systems better manage the care of patients across the clinic and hospital settings.

This new class of provider went from being valuable to indispensable in academic medical centers after the 2003 reductions in residents’ work hours. “Because of residents’ duty-hour restrictions, there was a systemwide need for qualified medical providers to be in the hospital 24 hours a day — to be that continuous link for a patient.
from admission to discharge,” says Chopra. “Hospitalists were also needed to provide consistency in training to residents, who were now caring for patients in a more interrupted manner.”

In response to these forces, hospital medicine continued to grow and has become the fastest growing subspecialty in internal medicine. There are currently more than 50,000 board certified hospitalists in the U.S.

Chopra says the field is also growing because of its inherent advantages. For one, it is never monotonous. Hospitalists treat a range of patients and conditions, from 19- to 100-year-olds with virtually every type of acute and chronic ailment.

“It also allows physicians to remain generalists on the one hand, but also to self-direct their clinical skills in areas that interest them,” says Chopra. “For example, there are now hospitalists across the nation who focus on ICU care, neurology, hematology or obstetrics.” The new division itself offers specialty services in areas such as hematologic malignancies, perioperative consultation, and renal and bone marrow transplant.

In addition, the research frontier is wide open. “Hospitalists make decisions about patient care on a minute-to-minute basis — which antibiotic to use, which test or treatment is better for a given condition, when to discharge a patient — yet the evidence to guide those decisions is often limited,” says Chopra. “We do things based on what has always been done. But there is so much opportunity in this field — to bring scholarship to it, to look at our accepted practices with a critical lens, and to generate evidence that ultimately guides and shapes our practice. The opportunity to effect change and improve patient outcomes in this field is virtually unlimited.”

**THE CURRENT FOOTPRINT**

U-M’s own hospital medicine effort is nearly 20 years old. It began functioning as a program in 2003 under the direction of Scott Flanders, MD, past president of the Society of Hospital Medicine and now the Department of Internal Medicine’s vice chair for external relations & quality. Since that time, the program-turned-division grew its footprint along every dimension of the Medical School’s tripartite mission.

**CLINICAL CARE**

The division’s clinical reach is constantly expanding. Under the direction of associate professor and clinical service chief Robert Chang, MD, the division’s service lines span the University Hospital, C.S. Mott Children’s Hospital, Von Voigtlander Women’s Hospital and Ann Arbor VA Health System, located less than two miles from U-M’s main campus.

The division’s flagship attending service is the Medicine Faculty Hospital (MFH) Service at University Hospital. MFH attendings provide direct care to patients, with teaching duties focused on medical students. The more than 75 hospitalists on this service provide complex medical care 24 hours a day, seven days a week on general medicine wards. They also handle emergency room admissions and rapid response calls, and supervise residents responding to cardiac arrests in the hospital.

This service is led by Assistant Professors Rafina Khateeb, MD, MBA, MFH director and director of clinical strategy for the Division of Hospital Medicine, and Megan Mack, MD, assistant MFH director.

The division also supports the Internal Medicine Resident Teaching Services. Divisional faculty serve as attendings on the Department of Internal Medicine’s six inpatient general
In addition to caring for complex medical patients on general wards, a subset of faculty also treat specialty populations through services run by the Division of Hospital Medicine.

The Medical Short Stay Unit serves some 8,000 complex medical patients a year who require a day or two of hospital care (page 41). Led by Assistant Professors Denge Ward, MD, and David Paje, MD, MPH, it operates at two locations — University Hospital and the A. Alfred Taubman Health Care Center.

The Medicine Hematology Physician Assistant (MHP) Service provides multidisciplinary care to patients with hematologic cancers, including consolidation, re-induction or clinical trial chemotherapies; treatment for complications; and end-of-life care (page 44). The MHP Service is directed by Assistant Professor Julieann Grant, MD, PhD.

A Medical Consultation Service offers inpatient general medicine consults to patients on specialty services as well as co-management of high-risk orthopedic surgery patients. In addition, a Preoperative Clinic offers risk assessment and reduction strategies for medically complex patients undergoing major surgeries (page 45). Both services are directed by Associate Professor Paul Grant, MD.

A Renal Transplant Team offers multidisciplinary care anchored by a hospitalist and transplant nephrologist targeting the unique needs of patients with kidney transplants. It is directed by Assistant Professor Staci Blackburn, MD.

Members of the Division of Hospital Medicine also provide care at the VA Ann Arbor Healthcare System (VAAAHS). They are active on house officer services and the Blue Medicine direct-care service. Care is multidisciplinary, and there is significant emphasis on quality improvement and innovation. This service is run by Assistant Professor Nathan Houchens, MD, and Sanjay Saint, MD, MPH, chief of medicine at the VAAAHS, the George Dock Professor of Internal Medicine and the new division’s senior associate division chief.

RESEARCH

U-M is distinguished by having a core of highly prolific, nationally recognized researchers in the field of hospital medicine.

Research in this arena began building steam more than a decade ago under Professor Scott Flanders, MD, then-director of the hospitalist program and now vice chair for external relations & quality. His vision was to build a core of hospitalists at U-M trained to rigorously examine clinical evidence and use it to guide improvements in quality of care and patient safety.

To do this, he began tapping resources that would grow into the basis of a hospital medicine research-development pipeline. These included: training through the Robert Wood Johnson Clinical Scholars Program (now the National Clinician Scholars Program); experience through the VAAAHS’ Patient Safety Enhancement Program and its Center for Clinical Management Research; and, more recently, U-M’s Institute for Healthcare Policy & Innovation; as well as mentorship from senior health services researchers in the Division of General Medicine.

Flanders also engaged interested faculty in a statewide quality effort he directed, the Michigan Hospital Medicine Safety...
Consortium. This Blue Cross and Blue Shield of Michigan Collaborative Quality Initiative involves some 50 Michigan hospitals in improving quality of care for hospitalized medical patients at risk for adverse events.

Thanks to these efforts, the new division already boasts deep research expertise in patient safety and the prevention of hospital-acquired complications (see box at right). In addition, investigators in the Division of Hospital Medicine are addressing topics such as improving end-of-life care, appropriate use of inpatient nebulizers, the impact of early mobilization on severe sepsis, hospitalist-oncologist communication, geriatric/palliative care interprofessional rounding and hospital efficiency.

**SHM-RECOGNIZED RESEARCHERS**

Division members have been recognized by the Society of Hospital Medicine for the caliber of their research.

**Sanjay Saint | CAUTI**

Saint’s research ranges from hand hygiene to clinical problem solving to reducing catheter-associated urinary tract infection (CAUTI) — one of the most common and costly hospital infections in the world. His work has had worldwide impact through the development of best practices for infection control, known as the “bladder bundle.” These strategies focus on preventing CAUTI by guiding appropriate use and emphasizing continual assessment and catheter removal as soon as possible.

**Vineet Chopra | CLABSI**

Chopra’s signature research is on peripherally inserted central catheters (PICCs) and associated complications including central line-associated bloodstream infections (CLABSI). Though useful for extended intravenous therapies, PICCs carry risks such as blood clots and CLABSI. Chopra has led an international, multi-specialty effort to develop appropriateness criteria for PICCs. The resulting guidance, called MAGIC, is being adopted worldwide. Early work from his group and others shows how the use of MAGIC can reduce complications from PICCs.

**Valerie Vaughn | Antimicrobial Stewardship**

Assistant Professor Valerie Vaughn, MD, MSc, is examining the role hospitalists can play in antimicrobial stewardship. Vaughn found that antibiotic use is often better managed in the hospital than at discharge: Over half of patients who leave the hospital with antibiotics will leave with pills they don’t need. She plans to combat the urge to overuse antibiotics at discharge by drawing on lessons from social psychology and behavioral economics.

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**In 2017, Vaughn was awarded “best research presentation by a trainee” by the Society of Hospital Medicine.**

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**Saint and Chopra have both won the Society of Hospital Medicine’s highest research honor, the Award of Excellence.**
Hospitalists add a lot of value to medical education. They see such a broad range of diseases and patients that they tend to be great at helping students work through differential diagnoses and learn how to care for patients — from those who are not too sick to the extremely sick and dying."

— Jennifer Stojan, MD, MHPE
Director, Doctoring Course

Jennifer Stojan (right) guides a medical student through a simulated patient exam. Photo: Doug Coombe.
patient perspective and bring real-life dimension to what might otherwise be abstract topics.

Stojan says the course’s effectiveness is enhanced not only by its format, where learning builds week to week, but also by its faculty. She was able to hand-pick some of the best teachers from across the Medical School. Now in its third year, the course has played an important role in helping prepare students for the earlier clinical experiences they undertake as part of the new curriculum.

The new division’s largest footprint is in graduate medical education. All residents rotate through two inpatient experiences staffed by members of the Division of Hospital Medicine. The first is a traditional general medicine ward service. During their three years of training, residents spend approximately five months on this service, with their time split between U-M hospitals and the VAAHS.

There are four internal medicine teams on this service; each includes an attending, senior resident, two interns and medical students in the third or fourth year. Hospital medicine faculty staff 80 percent of these teams, engaging in bedside discussions and small-group lectures on diagnostic challenges and medical decision-making.

The other two teams — the Medicine Newburgh A & B services — are staffed exclusively by members of the Division of Hospital Medicine. They provide a more intensive inpatient teaching experience, with direct contact between an attending and two senior residents. All residents spend one month on a Newburgh service.

Hospital medicine faculty support resident training in other ways as well. They provide mentorship for residents’ second-year patient safety/quality improvement projects on hospital medicine-related topics (page 105), and they regularly present at venues such as senior morning report and resident noon conferences.

And for residents considering a career in hospital medicine, divisional faculty provide mentorship during their research block and lead electives where trainees work one-on-one with a hospitalist managing medically complex patients in the Preoperative Clinic & Medical Consultation Service (page 98).

**THE VISION**

As its new chief, Vineet Chopra has big plans for the division that groomed him to be the accomplished clinician-educator-investigator he is now. In particular, he wants the division to be a place where top talent is drawn and finds a place to flourish.

“I’ve had a great journey, and now I want to make the opportunities I’ve benefited from available to others who have the same energy and passion I did, but need leadership, guidance and a structure to follow,” he says. “We’ve spent the last several months examining our leadership structure and faculty pipeline. We want to be sure we’re training our future stars and keeping our clinicians who do such great work happy so they see this as a sustainable career. We are making sure we’re reinvesting into our group to build talent and create a sense of belonging that goes beyond a five-year arc.”

For Chopra, this boils down to recruitment and what he calls re-recruitment.

**RECRUITMENT**

Recruitment to the Division of Hospital Medicine is all about identifying physicians who are “eager, committed and purpose-driven to provide the best care...
they can, but also have additional aspirations,” says Chopra. “That’s why they come to Michigan — they want to be quality leaders, outstanding educators or the next big researcher in hospital medicine.”

Chopra and his team are committed to attracting the right candidates and providing them with the resources they need to reach their goals.

The first step is connecting with potential applicants and clarifying what U-M expects and has to offer. And they have to do this at scale; the new division recruits up to 20 new faculty per year.

The outreach portion has been re-envisioned for the next generation of applicants by Assistant Professor Rafina Khateeb, MD, MBA, the division’s director of clinical strategy. She’s worked to improve the division’s online presence, engaging social media and streamlining the connection process so candidates have insightful, productive encounters with the division before they even come in for a visit.

From here, the key is ensuring the interview process is effective at bringing in new faculty whose aspirations dovetail with the division’s culture and operations.

To facilitate alignment, the team has restructured the roles of new hires and been explicit about this during recruitment. “One of the things we heard from faculty is that the nighttime role significantly impacts the long-term viability of the career,” says Chang. “So, we needed to structure and recruit to this role in a way that would be attractive and sustainable over time.”

The division is doing this by recruiting new faculty to a nighttime-intensive role for the first year that shifts rapidly over time to a daytime-dominant role. They explain the trajectory in the interview process, as well as the many resources available to new faculty, such as the hospitalist fellowship, a novel faculty development program called JETPACK, and deep involvement with various types of quality and operational improvement programs. Interviewees have responded positively to this transparency and the balance they’ll be working toward.

**RE-RECRUITMENT**

The other side of maintaining a first-rate faculty is re-recruitment — retaining top talent by constantly adding value to their careers. Hospital work is intense and demanding, so it’s essential to provide elements of long-term job satisfaction, such as well-run clinical operations and opportunities for faculty to grow as a clinicians, educators, researchers and quality leaders.

The foundation of everything, says Chopra, is exceptional clinical care. The division is playing a substantial role in coordinating care across U-M’s various inpatient settings. The goal is to
LEADERSHIP STRUCTURE REFLECTS CULTURE

U-M’s collaborative culture is mirrored in the division’s relatively flat management structure emphasizing teamwork and joint decision-making. Hospital leadership is also highly collaborative, with shared leadership among physician, nursing and administrative partners. Parekh and his fellow ACCOs each have counterparts from these disciplines. This structure cascades through various levels of the hospital.
The strength of the DOCTOR program is providing our teachers with real-time assessments in a collegial, constructive and goal-directed way. By enhancing our faculty’s impact and appeal to learners, this program will help them become world-class medical educators.”
— Satyen Nichani, MD
Education Committee Lead, Division of Hospital Medicine

Parekh and his counterparts are heavily focused on avoiding unnecessary emergency room visits and hospital admissions. He sees telehealth and the new Ambulatory Diagnostic and Treatment Units as promising avenues for the former. For the latter, he sees great potential in stronger standard pathways. “We’re trying to standardize how we assess patients,” says Parekh. “For example, with chest pain, we’re incorporating new technologies for laboratory testing that allow us to be quicker and more precise in deciding which patients need to be admitted and which can go home. We also plan to test these interventions — to determine if they actually do use fewer resources, avoid unnecessary stays or reduce length of stay.”

Having members of the division addressing issues of capacity and value, across services and with each other, enhances both the quality and operational stability of U-M hospital services, ultimately making it an even better place for their colleagues to work.

Developing master teachers

Another goal for the division is to support the development of master clinician-educators. Though hospital medicine faculty have some of the highest teaching scores in the Medical School, the vision is for U-M’s hospitalists to both view themselves and be recognized as among the best in the country. To achieve this, members of the division are launching the Direct Observations of Clinical Teaching On Rounds, or DOCTOR, program.

The program grew out of qualitative research led by senior hospitalist Sanjay Saint. “Dr. Saint traveled the country to study a dozen of our best medical teachers — faculty who won teaching awards and were nominated by their peers as among the very best,” says Chopra. “His goal was to see if he could not only measure what makes them unique, but figure out how to teach it.”

Saint and coauthor Molly Harrod, PhD, documented their findings in a new book, “Teaching Inpatient Medicine.” Published in 2017 by Oxford University Press, it documents numerous lessons, such as using humor judiciously, giving constructive feedback, the value of sharing one’s own mistakes and instilling a habit of second thought. “It’s basically a guide for how to be a better teacher,” says Chopra.

The DOCTOR program builds on Saint’s observational process and findings, adapting them for use within the division.

The program works by pairing a participating teacher with an observer who shadows him or her on rounds, using a structured checklist to record key relationship-based and communication skills. The pair...
GOOD DOCTORS SIT

Saint says patients prefer when physicians sit in a chair to speak with them. “Studies show that patients perceive that we spend more time with them if we’re seated than if we’re standing, even if the actual time spent is the same.” He ensured that every room in the VAAAHS has a chair for health care workers to sit in.

And for learners: Do faculty use learners’ names? Do they keep teaching fresh but digestible, with a key teaching point on each patient each day? Do they use a facilitative style of teaching rather than a lecture-oriented one?

In many ways, says Houchens, these skills are common sense. The problem is that they’re easy to let fall by the wayside in busy, high-stakes environments like hospitals.

While the program’s primary goal is to help faculty become stronger teachers, Houchens and Heidemann believe it will translate into better faculty work satisfaction and patient satisfaction as well.

The DOCTOR program was launched in January 2018 on teaching teams at both U-M and the VAAAHS.

Research

Another way to foster faculty development is through a robust research environment. Chopra envisions the new division becoming an epicenter of hospital medicine research, where investigators flourish and clinicians continually adopt and disseminate evidence-based approaches to improving care.

He plans to create this environment by expanding his core of investigators, supporting a new fellow each year on one of two dedicated research tracks in hospital medicine: the research track or quality improvement scholar track. Both fellowships pair rigorous methodological training through the National Clinician Scholars Program with mentorship from senior investigators in hospital medicine.

Chopra also sees growing the division’s research portfolio, building on traditional strengths in patient safety/avoiding hospital-acquired complications with newer areas such as antimicrobial stewardship, opioid stewardship, end-of-life care, diagnostic errors and health care value.

There is also interest in boosting research on medical education. Sanjay Saint sees potential for creating learning laboratories in the new division. “We did this at the VA,” says Saint. “We took one of our resident teams and turned it into a behavioral laboratory, where we implemented changes — such as a different approach to rounding or having learners take more ownership of patient care — then evaluated learners’ satisfaction and how they did on their shelf exams.”

Doing something similar on Hospital Medicine’s resident services, he says, could generate the evidence needed to continually improve the experience for Michigan Medicine learners.

International partnerships

A newer area that the division is eager to grow is its international partnerships. It currently has relationships with institutions in India, Australia, Japan and several...
In addition to their international partnerships, faculty in the U-M Division of Hospital Medicine have a long history of statewide service. U-M serves as the coordinating center for the Michigan Hospital Medicine Safety Consortium, and U-M hospitalists partner with colleagues across the state to share best practices, guidelines and quality improvement approaches. The division sees this increasing as U-M’s statewide network continues to grow.

In Japan, hospital medicine faculty are part of a U-M team that is helping the country gear up for the 2020 Tokyo Olympics by addressing the issue of antimicrobial resistance. Because this problem is the overprescription of antibiotics in the hospital, the U-M team is helping their collaborators to identify which patients actually have infections requiring antibiotics. They’re also putting in place an intervention being piloted at U-M to reduce these infections — and the associated antibiotic use. The team includes Sanjay Saint, Scott Flanders, Valerie Vaughn, as well as Assistant Research Scientist and epidemiologist Todd Greene, PhD, MPH, in the Division of Hospital Medicine, and Assistant Professor Payal Patel, MD, MPH, in the Division of Infectious Diseases.

In Italy, U-M hospitalists are collaborating with faculty at the University of Florence to study physician attire. They are exploring how clothing choices — from business suits to casual wear to white coats to scrubs — affect patient trust.

In Switzerland, divisional faculty are teaming up with the World Health Organization to reduce catheter-associated urinary tract infections. By adopting the “bladder bundle” developed at U-M, 500 hospitals in the U.S. reduced CAUTIs by more than 30 percent on their medical and surgical units. Together, U-M and WHO hope to expand this intervention worldwide.

And in India, Chopra and his team are working with multiple medical centers through Global REACH to help prevent hospital-acquired complications and improve decisions regarding antibiotic practice. These efforts have led to several presentations at national meetings in the U.S. and India, with plans to focus on joint research in this realm.

Overall, it’s an ambitious agenda: providing seamless, well-coordinated hospital care; developing a cadre of master educators; building a portfolio of robust, game-changing research and supporting others in doing this work — throughout Michigan and around the globe. But many at U-M think the distinctive character of the new division makes these goals eminently reachable.

“What makes this division unique nationally is the integration of research into the clinical and educational missions,” says Laurence McMahon. “Most divisions of hospital medicine were formed to meet a clinical need and didn’t have a plan to create a research infrastructure. We had a planned evolution where we recruited and created a critical mass of world-class investigators. The contributions our faculty have made in how we think about education and care delivery are all shaped by this research focus. I think this has already made this new division one of the top in the country.”
Placing the units under internal medicine physicians was important because we specialize in dealing with the medical complexities and comorbidities that these patients have.”

— Denege Ward, MD
MSSU Medical Director

The Medical Short Stay Unit

When the Medical Short Stay Unit (MSSU) was launched in 2015 under internal medicine’s purview, the goal was ambitious — to serve a large volume of complex hospitalized patients with efficiency and high throughput, while still achieving high-touch, high-quality care.

Under the leadership of Denege Ward, MD, MSSU medical director and assistant professor in the Division of Hospital Medicine, the unit has hit its mark. This is all thanks to a dedicated team and a carefully developed model that provides key operational supports.

MSSU CREATION

U-M’s MSSU took its current form in response to the Centers for Medicare & Medicaid Services’ two-midnight rule. “The new ruling changed what was considered ‘observation status’ in a hospital from less than 23 hours to less than two midnights,” says Ward. “This changed the kind of patients in observation status — from those with a simpler diagnosis to those who were more medically complex.”

To address this change, in 2015, the 18-bed adult observation unit at the A. Alfred Taubman Health Care Center, which had been run by the Emergency Medicine Department, was converted to an MSSU run by internal medicine. It was paired with a new 22-bed sister unit at University Hospital. Both would have hospitalist attendings and were designed to treat patients requiring a day or two of hospital care who would otherwise be admitted to the general medicine inpatient services.

“Placing the units under internal medicine physicians was important because we specialize in dealing with the medical complexities and comorbidities that these patients have,” Ward says.

KEY ELEMENTS OF THE MODEL

The model has been a success in achieving what could be perceived as potentially incompatible goals — high turnover and high touch/high quality. This is because of a number of key elements that Ward and her team of physicians, project managers, advanced practice providers (APPs), nurses and environmental services specialists developed to address patient care.

One of the most important is the organization of the care team. The core MSSU provider model includes an attending physician for supervision and support, and

MSSU BY THE NUMBERS

2 UNITS
BLUE (UNIVERSITY HOSPITAL): 22 BEDS
MAIZE (TAUBMAN): 18 BEDS

8,000 ADMISSIONS/YEAR

87% PATIENTS DIAGNOSED AND RELEASED IN < 2 MIDNIGHTS

87% PATIENTS VALUE MSSU ROUNding MODEL

99.5% PATIENTS CODE- OR RRT-FREE
APPs — physician assistants or nurse practitioners — as the primary care providers. There are two APPs during the day, each caring for half the unit’s patients, and one overnight. It’s this model, says Ward, that enhances both efficiency and quality. Care is collaborative, and there is always someone to step in when one person is overtasked.

Another signature feature of the MSSU is the use of structured interdisciplinary bedside rounds (SIBRs), developed at Emory University. Early each day, a care team rounds at the patient’s bedside to summarize his or her status, review a quality and safety checklist, and coordinate plans for care and discharge. The discussion includes the patient, physician/APP team, bedside nurse, care manager, social worker and the patient’s family. The rounds are designed to be efficient, with structured input from each team member, but they also provide an opportunity to ensure everyone is on the same page and that questions or concerns are addressed on the spot, or, if needed, prioritized during a provider’s subsequent visit.

Patient surveys have revealed increased satisfaction with the SIBR model, with 87 percent reporting that this rounding method helped clarify their understanding of their care. It also has other benefits. “Some people assume that when they’re in an observation unit, it’s not the same as being an inpatient, or they have concerns about being taken care of by an advanced practice provider,” says Ward. “But once they experience the MSSU and our interdisciplinary rounds, they are impressed. They realize their providers are great, and their care is of high quality because of their caregivers’ teamwork.”

SIBRs have also improved provider satisfaction by enhancing team cohesion and communication — qualities that are further reinforced by working in the physical proximity of a closed unit. These traits are also reflected in relationships with and among the MSSU leadership team, as well as with other disciplines, such as emergency medicine and various consulting specialties.

The rounding model has also supported the culture of quality and safety. These topics are part of each SIBR, so they are always front and center. In addition, MSSU teams meet twice daily for quality huddles as part of Michigan Medicine’s MPLAN initiative; managers also meet monthly on quality improvement topics. They focus on key metrics and the development of supportive clinical guidelines. Current efforts include syncope (fainting), atrial fibrillation and chest pain.

The result is that despite being the busiest general medicine service in the hospital, with approximately 8,000 admissions a year, they have successfully discharged 87 percent of...
their patients in less than two midnights — and 99.5 percent of patients have been free of codes or rapid response events.

Ward also attributes this success to a robust model for triage and admissions. They’ve developed strong guidelines to ensure they’re accepting appropriate patients while directing those who need specialized care — such as lung or heart transplant patients or those with unstable angina — to appropriate services.

They’ve also teased apart the admissions and care functions to strengthen both. “In our admissions model, an attending and an APP admit team do admissions for the majority of the day,” says Ward. “This has allowed them to perfect the quality of the history and physical, which is the keystone of patient care. It has also offloaded admissions from the units so they can concentrate on taking care of patients, making sure they’re getting appropriate follow-up and discharging those who are ready.”

LOOKING AHEAD

Ward has announced that she is retiring after more than 20 years of service to U-M. In June 2018, she will hand the MSSU medical directorship to its associate director, David Paje, MD, MPH, assistant professor in the Division of Hospital Medicine.

Looking ahead, Paje hopes to further improve patient care by engaging his team in developing clinical guidelines and standard pathways for conditions commonly seen in the MSSU.

He would also like to develop an internal medicine fellowship for APPs and enable more residents and medical students with an interest in hospital medicine to gain experience in the MSSU. “A lot of hospitalization for medical patients is in short stay settings, so this is valuable training,” says Paje. “The MSSU provides rich opportunities to learn about rational decision-making, clinical efficiency and interdisciplinary collaboration. I’d like to expand the educational opportunities we currently provide to allow more learners to gain insight from our model.”

Ward and Paje also believe others can gain insight from the MSSU, such as institutions now joining the U-M Health System’s statewide network. They are happy to serve as a model for services working to achieve both high efficiency and high quality.
In 2010, Michigan Medicine launched a unique model to care for patients with hematologic cancers. Called the Medicine Hematology PA (MHP) Service, it engages general hospital medicine attendings and physician assistants (PAs) as the primary inpatient caregivers in consultation with patients’ Michigan Medicine hematologists.

The service treats patients with leukemias, lymphomas, multiple myelomas and similar diagnoses, providing consolidation and reinduction chemotherapies, treatment of complications, clinical trial therapies and end-of-life care. It is run out of the C.S. Mott Children’s Hospital and directed by Julieann Grant, MD, PhD, assistant professor in the Division of Hospital Medicine.

Care on the MHP Service is multidisciplinary; the team includes hospitalists, PAs, clinical pharmacists, a clinical assistant, social worker, nutritionist and care manager. They work closely with Associate Professor Dale Bixby, MD, PhD, in the Division of Hematology and Oncology, who serves as MHP’s hematology liaison.

Though relatively rare for subspecialty care to be delivered by general medicine hospitalists, the model has significant advantages, says Grant. “Having the service under hospital medicine has been good for patients because most of their complications are general medicine problems — things like acute kidney injury, sepsis, heart-failure exacerbation, pneumonia or atrial fibrillation with rapid ventricular response,” she says. “That’s right in our wheelhouse.”

Hospitalists also bring a focus on smooth transitions of care. Grant’s team emphasizes strong communication among the care team, their patients, and their hematologists and outpatient support staff.

This model of repeat care by a small, dedicated team with a blend of general medicine and subspecialty expertise has been highly valued by patients and providers alike. “There’s great provider satisfaction because we work consistently with the same team of all-stars who’ve developed expertise in an area that we’re all passionate about.”

From the patients’ perspective, there’s comfort in coming back to the same place in the hospital with the same small group of caregivers. “Our patients have scary diagnoses, sometimes with poor prognoses, and they find it reassuring to have caregivers who know them,” says Grant. “Between multiple cycles of chemotherapy and complications, patients might be admitted to our service 10 times over a period of months. We have a memory that goes beyond the current admission, and that really helps.”

Patients and providers are so positive about the service that Grant’s only real problem is demand. There are more people interested in working on and being treated by the service than she can accommodate.

“With more referrals from outpatient hematologists, more lines of chemotherapy available, more clinical trials and more chemotherapies appropriate for older patients, demand for our service keeps growing,” she says. To meet it, her team is exploring whether certain regimens can be safely delivered in an outpatient infusion-center setting. They’re also keen to explore the feasibility of an additional MHP team. Because patients who use the service once generally want to stay with it, she’s hopeful they can find ways to continue making this possible.
Preoperative Clinic & Medical Consultation Service

HOSPITALISTS MAKE SURGERIES AND OTHER INPATIENT CARE SAFER FOR HIGH-RISK PATIENTS

Two services offered by the Division of Hospital Medicine and directed by Associate Professor Paul Grant, MD, are designed to make surgeries and other inpatient care as safe as possible for patients with multiple chronic health conditions.

The first is the Preoperative Clinic, which is staffed by a hospitalist and open every weekday afternoon. It’s a small, niche clinic that complements the work of Michigan Medicine’s main Preoperative Clinic at Domino’s Farms, focusing specifically on patients with multiple chronic conditions undergoing major surgeries.

“The classic example of a patient we’d see would be an elderly man with a history of hypertension, diabetes and chronic kidney disease who has developed head and neck cancer requiring a very large surgical resection and reconstruction,” says Grant. “The otolaryngology surgeon would send him to us to ensure it is as safe as possible to move forward with a potentially life-saving surgery.”

The clinic does a comprehensive evaluation of patients — a history and physical, medication review, and functional capacity assessment — ordering additional tests as needed. They then risk-stratify patients, particularly with respect to cardiac and pulmonary risks for surgery, before determining if they can reduce those risks, often by modifying patients’ medications or conferring with anesthesiology.

“Surgeons at Michigan Medicine are increasingly operating on an older and sicker patient population,” says Grant. “We get referrals from across the state from surgeons who are not comfortable operating on these very sick patients. Because of this, our surgeons value having a hospitalist with expertise in perioperative medicine ensure that their patients’ comorbidities are really being optimized before surgery.”

The second service is the Medical Consultation Service, which includes both inpatient medical consults and surgical co-management. It is staffed by a hospitalist 24 hours a day and spans Michigan Medicine’s four inpatient facilities. Consults are available to surgical, psychiatric, peripartum, and physical medicine and rehabilitation patients with comorbidities that would be better managed with input from a hospitalist.

“The service also co-manages all hip-fracture patients and high-risk patients undergoing elective hip and knee replacements. “In our co-management model, orthopedic surgery addresses the surgical issues — the procedure itself and the post-operative surgical site management — and we attend to the patient’s comorbidities — the underlying heart disease, diabetes, hypertension and so on.”

Though it requires strong communication and clear role definition, it’s been well worth the effort, says Grant. The service has enhanced patient care, strengthened relationships between the medical and surgical teams, and streamlined emergency room triage.

“Previously, ER doctors would often be stuck not knowing if a hip-fracture patient, for example, should be admitted to a medicine service because they had multiple medical problems or to the orthopedic surgery service because they would ultimately need surgery,” he says. “Our co-management model has standardized this process and really helped with workflow.”

Grant sees demand for these services growing as the U-M Health System expands its statewide network, and more high-risk patients are referred to Michigan Medicine. He’s delighted to be leveraging the expertise of his hospitalist colleagues to make the patient experience as safe as possible.

Resident Training Opportunities

Residents can elect to rotate through the Preoperative Clinic or Medical Consultation Service for one-on-one training with a hospitalist.

“We think these are great opportunities for our residents,” says Grant. “It’s been shown nationally that internal medicine residents wish they had a stronger educational base in perioperative medicine, and our services provide this.”
SERVICE EXPANSION
Michigan Medicine’s Service Expansion: The Vision
NEW LOCAL FACILITIES AND STATEWIDE PARTNERSHIPS IMPROVE ACCESS, SUPPORT TRIPARTITE MISSION

Michigan Medicine is making steady progress toward its 2025 strategic vision to be a source of high-quality, high-value care for 4 million people. This includes providing comprehensive care to 400,000 patients locally as well as remote or referral care for another 3.5 million across the state. As of the close of 2017, Michigan Medicine was already covering 233,000 patients locally and is nearly halfway toward its statewide goal of 3.5 million influenced lives through collaborations with strategic affiliates across Michigan. These numbers are poised to grow as new facilities and partnerships come online in the years ahead.

The expansion is being driven by many factors, including the decades-long trend toward health care consolidation. But first and foremost are the desires to offer high-quality, high-value care and to support the tripartite mission, says 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.

TOWARD ACCESS & QUALITY
There are several elements of quality that are shaping the expansion, and a critical one is access. “A key element in improving care is reducing the time from when people have symptoms to when they have a treatment plan,” says Spahlinger. “Right now, our wait times can be more than four weeks for an initial appointment in some of the subspecialties. Our aim is to get this down to less than two weeks—because timely care is better quality care.”

Access is also an issue on the inpatient side, where Michigan Medicine is constrained by both hospital beds and surgical hours. To address this, leaders are planning new facilities, like a new inpatient tower at University Hospital, scheduled to be completed by 2023, which will enhance capacity by approximately 155 beds, accommodate more complex, high-acuity patients and create all private rooms on the medical-surgical units. Michigan Medicine is also partnering with hospitals locally, such as St. Joseph Mercy Ann Arbor and Chelsea, so that Michigan Medicine physicians can treat lower-acuity patients at these community sites.

Another element of quality is the seamless coordination of multidisciplinary care. “We’re setting up our new local facilities to provide both primary care and the specialty services that fit the needs of the local populations,” says John Allen, MD, MBA, associate medical director for the University of Michigan Medical Group and professor in the Division of Gastroenterology and Hepatology. “We’re trying to offer not only superb services, but services that are cross-linked and co-located in a way that makes sense for patients.”

This means a one-stop shop approach for various conditions. Digestive disease services, for example, would include access to not only gastroenterologists, but colorectal and general surgeons, imaging services, nutritionists and psycho-social services. Similar multidisciplinary services would be available for musculoskeletal care, obesity and...
metabolic health, cardiovascular care, cancer care, women’s care and other areas. Patients would visit a single clinic space and see a coordinated, unified front, regardless of the providers’ home departments or divisions.

Of course, high-quality care at an academic medical center also means state-of-the-art care with cutting-edge technology. New facilities and spaces are being designed to accommodate services such as minimally invasive surgery, telehealth, advanced imaging, robotic surgery, and precision health with advanced genome and tumor analysis, among others.

TRIPARTITE MISSION-PLUS

Also shaping the new facilities and partnerships is a commitment to Michigan Medicine’s three-part mission — excellent clinical care, education and research. There’s also an additional element at play — building clinical capacity across the state.

Excellent clinical care features all the quality elements above, along with a push toward innovative models of care that offer patients the right care in the right place at the right time. Internal medicine faculty are leading the implementation of several initiatives, such as telehealth services (page 58) that make Michigan Medicine’s expertise easier for patients to access locally and across the state, and new Ambulatory Diagnostic and Treatment Units (page 56) that fill a much-needed niche between clinic visits and the emergency room.

Michigan Medicine’s educational mission is also a key driver of the service expansion. “The number of people in our referral pattern — 4 million — came from a very careful analysis of the patient base we would need to train our physicians in every discipline,” says Allen. This provides sufficient catchment area for even highly advanced, low-incidence procedures, such as organ transplants and pediatric neurosurgery.

The new spaces are also being designed around the research mission. There are dedicated clinical research spaces in the new clinics, including areas for sample processing. The goals are to help researchers more easily recruit patients and allow patients to access clinical trials and cutting-edge treatments directly through their local clinic.

On top of the three traditional prongs of its mission, Michigan Medicine is becoming deeply involved in capacity-building across its growing network of partner institutions. Importantly, it’s an effort that works both ways. “We are trying to provide the state of Michigan with the best of what each partner has to offer so that we enhance care close to where patients are,” says Allen.

The goal is to support every hospital and health system in the network so that more care can remain local, while facilitating transfers to U-M for high-complexity, high-risk patients.

Internal medicine faculty are leading a number of these endeavors. One example is an effort to help Metro Health build its capacity in subspecialty gastroenterology care for patients in the Grand Rapids area (page 53).

Through efforts like this, says Scott Flanders, MD, vice chair for external relations & quality and professor in the Division of Hospital Medicine, Michigan Medicine and the Department of Internal Medicine are helping to build a clinically integrated statewide network that is positioned to offer consistent high-quality, patient-centered care under the University of Michigan Health System’s expanding banner.

“We are trying to provide the state of Michigan with the best of what each partner has to offer so that we enhance care close to where patients are.” — John Allen, MD, MBA

Associate Medical Director, U-M Medical Group
Michigan Medicine Facilities Plan

The following Michigan Medicine outpatient health centers and new University Hospital inpatient tower are scheduled to come online between 2017 and 2031.

WEST ANN ARBOR HEALTH CENTER
Opened November 2017
The West Ann Arbor Health Center was recently relocated and reopened on Parkland Plaza, just south of Jackson Road. This 75,000-square-foot facility has 86 exam rooms, four Ambulatory Diagnostic and Treatment Unit (ADTU) rooms, 12 infusion bays and radiology services. It offers primary care and dozens of specialties, including more than half of the Department of Internal Medicine subspecialties.

BRIGHTON CENTER FOR SPECIALTY CARE
Opening Fall 2018
In Brighton, a nearly 300,000-square-foot health center is being built south of Challis Road on 32 acres owned by Michigan Medicine, near U-M’s current Brighton Health Center. It is expected to house more than 40 specialty services for children and adults, such as specialty endoscopy services, surgical services and an ADTU.

EAST MEDICAL CAMPUS PHASED EXPANSION 2021–2031
Michigan Medicine is preparing for the expansion of its East Medical Campus, with several construction phases over the next decade. The first phase is designed to move high-volume and routine ambulatory services to this location to meet patient needs while freeing capacity on the main medical campus for specialty clinics aligned around complex care. Phase one will include comprehensive musculoskeletal care, including rheumatology, as well as dermatology, otolaryngology and key diagnostic and treatment services.
INPATIENT TOWER

Scheduled 2023

A new inpatient tower will add approximately 155 beds to the University Hospital and allow the movement of 110 existing beds from the hospital’s semi-private units to create all private rooms on the medical-surgical units, enhancing access to complex care. The programs of emphasis in the new tower will include clinical neurosciences and cardiovascular disciplines, including 23 surgical and interventional radiology suites.

NORTHVILLE HEALTH CENTER II

Opening TBD

Michigan Medicine is beginning its planning process for the expansion of patient care in Northville with a new, approximately 100,000- to 150,000-square-foot facility. Northville II is expected to complement care provided at the current Northville Health Center, providing an array of health services to the region. The estimated opening date is to be determined.
The University of Michigan Health System is forging a variety of partnerships with health systems across the state to build a network with the capacity to deliver high-quality care to 4 million patients. These partnerships combine the strengths of strong community-based hospitals and clinics with those of an academic medical center — particularly complex tertiary care as well as quaternary care services, such as organ transplant, highly specialized pediatric care and cancer clinical trials.

During 2017, three of these partnerships were being further developed with support from Internal Medicine faculty.

**METRO HEALTH**

Metro Health has joined the U-M Health System through an affiliation agreement. The relationship allows the U-M Health System to extend its reach in the west of the state and is helping Metro Health expand its primary and specialty care, as well as its use of complex medical technology. Michelle Anderson, MD, and four of her colleagues in the Division of Gastroenterology and Hepatology have launched a successful effort to help Metro Health bring advanced GI care to its patients (page 53).

**MIDMICHIGAN HEALTH**

In 2017, Michigan Medicine and MidMichigan Health extended their affiliation agreement for a new 20-year term. This partnership extends the U-M Health System’s reach to the north and provides MidMichigan with support for specialty care from Michigan Medicine. Faculty from the Department of Internal Medicine currently participate in joint tumor boards for MidMichigan’s patients and have helped develop an advanced heart failure clinic, a transaortic valve replacement (TAVR) program and a liver clinic at MidMichigan. In addition, both systems’ hospitalists have participated in exchanges, sharing best practices, guidelines and quality improvement approaches.

**TRINITY HEALTH MICHIGAN**

Michigan Medicine has a master affiliation agreement with Trinity Health Michigan, which owns and operates the Mercy Health and Saint Joseph Mercy Health System (SJMHs). Two local hospitals in SJMHs — St. Joseph Mercy Ann Arbor and Chelsea — are now poised to enhance Michigan Medicine’s capacity by allowing its physicians to see patients and perform procedures at their sites. Rafina Khateeb, MD, MBA, from the Division of Hospital Medicine, is leading an effort to explore and develop a model whereby Michigan Medicine hospitalists see patients on a designated floor of St. Joseph Mercy Ann Arbor hospital. John Allen, MD, MBA, from the Division of Gastroenterology and Hepatology, is on the leadership team that is partnering with St. Joseph Mercy Chelsea to expand the surgical procedures and services Michigan Medicine physicians offer at this site through a new joint venture. The goals are to make Michigan Medicine physicians available to more patients, enhance care for these patients in a community-based hospital setting and free up capacity at U-M hospitals.
Internal Medicine Builds GI Capacity at Metro Health

Faculty from the Department of Internal Medicine have taken a leading role in the effort to enhance care at the growing number of hospitals under the University of Michigan Health System banner. At Metro Health, a partnership with the Division of Gastroenterology (GI) and Hepatology has helped transform services characterized by long wait times and no subspecialty care to one where next-day appointments are available for general GI, and patients can get subspecialty care locally for advanced liver disease, inflammatory bowel disease (IBD) and advanced endoscopic procedures.

“This work is a shining example of what we’re trying to do with our clinical partnerships across the state,” says Scott Flanders, MD, vice chair for external relations & quality and professor in the Division of Hospital Medicine. “We’re building relationships and helping to create the infrastructure that allows patients throughout Michigan to be cared for locally, but in the University of Michigan way.”

Leading this effort at Metro is Michelle Anderson, MD, MSc, associate professor in the Division of Gastroenterology and Hepatology, whose team has helped build a flourishing program in less than a year.

Anderson shared the steps she and her colleagues took in building the partnership with Metro, which is now serving as a model for other specialties.

IDENTIFYING NEEDS
It started with a needs assessment — but also a philosophy, says Anderson. “Early in the affiliation, delegates from U-M met with a team from Metro to learn about their strengths, areas for improvement, program development needs and where we could help. We went in with the mindset that nothing is perfect at either institution, and we could learn from each other to find the best ways of doing things.”

Just as critical was engaging multidisciplinary expertise. The team looped in nurses, physicians and hospital leadership at both institutions to tap these varying perspectives.

The partners’ initial discussions revealed three critical needs: subspecialty GI care, primary GI care and GI management. To tackle these, they used a hybrid model — direct hiring for the latter two areas and a team of...
The Metro Health system includes the 208-bed Metro Health Hospital and physician offices throughout the Grand Rapids area.

Traveling U-M subspecialists for the former. The idea was to ramp up subspecialty capacity quickly, building program infrastructure and meeting pent-up demand, with the longer-term goal of hiring Metro subspecialists who could step into well-developed programs.

**THE TRAVELING U-M TEAM**

“Metro really wanted to develop some subspecialty programs that we have here at U-M,” says Anderson, “especially in liver disease, IBD and advanced interventional endoscopy procedures like ERCP and endoscopic ultrasound. Their goal was to keep care local so patients wouldn’t have to drive all the way to Ann Arbor to get the care they needed.”

So, Division Chief Chung Owyang, MD, the H. Marvin Pollard Professor of Internal Medicine, identified five members of his division that could provide this care. The team began providing services in August 2017, each spending one day a week at Metro performing procedures and seeing patients in clinic.

For interventional endoscopy, the team included Anderson along with Assistant Professors Ryan Law, DO, and Allison Schulman, MD, MPH. Until their arrival, there was only one provider in the Grand Rapids area doing endoscopic ultrasound, which meant patients generally had to wait months to be seen or drive to Ann Arbor. “This procedure is frequently used for cancer staging, so patients were understandably anxious and wanted to be seen and evaluated in a timely fashion,” says Anderson.

The team helped Metro acquire the necessary equipment, establish workflows, set up rooms and train pathologists. They also tapped U-M infection control experts to ensure the equipment was being handled and cleaned properly, and adopted key Michigan Medicine quality metrics.

For inflammatory bowel disease, the physician tapped for the team was Assistant Professor Jami Kinnucan, MD. She established an IBD clinic at Metro and conducted valuable trainings.

“IBD is a serious lifelong condition for which there is no cure,” says Anderson. “Medical management is really complicated; the medicines have serious side effects, and there are very specific patient qualities that make one medicine better than another. Dr. Kinnucan has done in-services to...
train staff and has given the very first CME-accredited grand rounds at Metro Hospital on IBD.

Clinical Assistant Professor Lisa Glass, MD, has done similar things in hepatology. She has developed a clinic for patients with advanced liver disease, which provides complex medication management to patients who are progressing to liver failure. Glass has also partnered with Metro’s tumor board to provide multidisciplinary care for patients with hepatomas — tumors in the liver that frequently develop in advanced disease.

In addition, the team has enhanced patient education by bringing to Metro U-M-developed materials designed to explain patients’ diagnoses and care options.

Anderson is delighted that their work not only has helped enrich patient and provider education, but has reduced wait times for endoscopy and subspecialty clinical services at Metro from months to just one to two weeks.

BUILDING INTERNAL CAPACITY

The other key aspect of the program’s success has been strategic hiring at Metro. Metro now has four in-house general gastroenterologists, enough to offer next-day appointments when needed. Going forward, they aim to bring on at least one interventional endoscopist, one hepatologist, an IBD specialist and an esophagologist and motility expert.

To attract these physicians, the team set up robust programs, and Metro hired a new GI manager, GI office manager and endoscopy manager. All have deep backgrounds and experience, and are addressing key issues, such as equity, group scheduling and quality improvement.

A model for others

Anderson says she is thrilled with the progress Metro has made and is grateful for the support of her department chair, division chief and GI colleagues who’ve dedicated so much time, energy and expertise to this work. While she’s proud of the improvements in patient access and quality of care, she’s also gratified that her team’s work is serving as a model for others.

“As other specialties began partnering with our affiliates, they began to ask how we undertook this process,” she says. “It’s exciting that our work may be extended to other programs.”

Vice Chair Flanders agrees. “This team built a wonderful program in very short order,” he says. “They worked through issues in medical records, equipment, training, quality of care, patient flow, scheduling, advertising and communication. This work is a tour de force that we want to emulate in other specialties in the years to come.”

“They worked through issues in medical records, equipment, training, quality of care, patient flow, scheduling, advertising and communication. This work is a tour de force that we want to emulate in other specialties in the years to come.”
— Scott Flanders, MD, Vice Chair for External Relations & Quality
ADTUs: A High-Value Niche Between the Clinic and the ER

A new outpatient service model at Michigan Medicine is creating a coveted win-win for both patients and providers — enhancing care for patients too sick for a clinic visit but not sick enough for the emergency room, while freeing up providers in both of these settings. It’s called the Ambulatory Diagnostic and Treatment Unit, or ADTU, and it’s been developed under the leadership of Eric S. White, MD, MS, ADTU medical director and professor in the Division of Pulmonary & Critical Care Medicine.

Launched in 2016, there are now three such units at Michigan Medicine — in Taubman, Northville and West Ann Arbor, with another scheduled to open at the new Brighton facility in fall 2018. Each has four permanent beds and is open during standard clinic hours.

Patients appropriate for the ADTU are those with a prescribed set of acute conditions or flare-ups of chronic conditions that can be diagnosed and treated in roughly two to six hours. These are things like migraine, an asthma exacerbation, a lupus flare, cellulitis, pneumonia, gastroenteritis or a suspected kidney stone or deep vein thrombosis. Patients can be referred by any Michigan Medicine provider, secure a same-day appointment and receive the care they need — all in a private room without the unpredictability and waiting of the ER.

“ERs are invaluable,” says White, “but they don’t represent the right care at the right time for all patients. Plus, they’re stretched to capacity. ADTUs can take cases off their hands and improve the patient experience. For example, patients with migraines were routinely sent to the ER. They’d often wait hours in a loud, bright waiting area because there were true emergencies ahead of them. Now, they can come to us, receive a care protocol that we developed with the migraine clinic, relax in a private room, then go home in a few hours.”

AN EVOLVING MODEL

This is true for an increasing number of conditions. When the ADTUs first launched, White says, they were deliberately conservative in the cases and care they were willing to handle. Treatments were also largely protocolized, with implementation by the units’ advanced practice providers.

But White is a critical care physician; he is comfortable caring for people who are very ill. So he has pushed the model. “The traditional response to really sick patients is: Send them to the ER; we can’t handle that,” he says. “But I say: Absolutely we can handle it — we know how to do it, and we don’t need to be in a hospital to do it.” The key is accepting patients who are appropriate and stable: ADTUs won’t take patients with unstable
Service Expansion

chest pain, altered mental status or other high-risk conditions.

As ADTUs have treated more patients and as referring physicians have seen how well their patients do, demand for new services and the units’ willingness to provide them has grown. They’ve now moved beyond the heavy protocol phase. “Our nurse practitioners and physician assistants are really strong clinically, so we realized they should be evaluating patients and coming up with more individualized care plans — that’s what they’re taught,” White says.

One example of this expanded care is IV diuretics for heart-failure patients. “We now see patients who are doing home diuretic therapy with monitoring through a telehealth program,” says White. “If their weight goes up and they’re moving into heart failure, we can bring them here for IV diuretics instead of sending them to the ER.”

The same is true for thoracentesis and paracentesis — treatments to remove fluid buildup in the chest and abdomen, respectively. ADTUs can now handle these cases, freeing up space in the ER or, for scheduled procedures, the Medical Procedures Unit.

Unique Advantages

There are a number of other advantages to the ADTU model. Among the most important is the internal medicine-oriented perspective providers bring to patient care, says 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. “A lot of patients that we’re diverting to these units have multiple chronic conditions and have functional concerns that we’re aware of because we see them on a regular basis,” he says. “At the ADTU, we look at them from this perspective, whereas typically an ER physician doesn’t know these patients, and their training is more focused on understanding and treating acute illness and injury.”

Because the units are small, they can also offer a high-touch approach to continuity of care. “We try to be an extension of the clinics,” says White. “Every time we see a patient, we send a note to the referring physician. They can call us or we can call them to ask if they want any follow-up labs and when they want to see their patient back in the clinic.”

ADTUs can also be cost-effective — for health systems and patients. “There is evidence from around the country that these units lead to fewer hospitalizations and less intensive use of high-cost services, like CT and MRI,” says Spahlinger. And for patients, an ADTU visit is only an office-visit copay.

Finally, because the ADTUs are only open during clinic hours, they receive expedited imaging. They also have priority in hospital admissions, even over the ER.

Results & New Directions

Of course, the ADTUs’ goal is to keep patients out of the hospital, and according to the data, they’re doing good work. Of the 1,000-plus patients who’ve used the ADTUs, 80 percent have been released the same day, and 90 percent have avoided the ER.

Going forward, White says he hopes to maintain this record of success while continuing to strategically expand services. One area that has been recently rolled out is the eVisit. ADTUs don’t have the capacity — and are explicitly not designed — for direct walk-in access like an urgent care. But they are providing direct patient access through the eVisit system. White’s team already does approximately 10 eVisits per day for adult patients with a Michigan Medicine primary care physician. Importantly, of the 450 eVisits they’ve completed so far, not a single patient has gone to the clinic or emergency department within one week of the encounter.

Looking ahead, White says he’s exploring whether ADTU patients can be safely referred to them directly from the ER. “There are important legal ramifications to this,” says White, “so we’re considering what’s appropriate. Currently, patients who are seen in the ER for an initial therapy may be scheduled at the ADTU the following day if additional care is needed. We’re looking to see if we can expand this model.”

The vision, says White, is to allow clinics to take care of clinic-type problems, the ER to focus on serious problems, and for ADTUs to fill the middle ground, so that each setting can do what it was designed for.

Eric S. White, MD, MS

Of the 1,000-plus patients who’ve used the ADTUs, 80 percent have been released the same day, and 90 percent have avoided the ER.

For detailed information on ADTU services and conditions treated, Michigan Medicine providers can visit med.umich.edu/i/acs/adtu/
The Vision for Telehealth: Virtual First

EXPANDING MICHIGAN MEDICINE’S REACH LOCALLY AND THROUGHOUT THE STATE

An important way through which Michigan Medicine is working to meet its service-expansion goals is the use of telehealth services. This effort is being led by Lawrence An, MD, associate professor in the Division of General Medicine, who was named medical director of Michigan Medicine’s Telehealth Program in 2017.

His team’s vision is a grand one: to move Michigan Medicine toward a “virtual first” model. This means patients and providers routinely considering virtual care before scheduling an in-person appointment. This is what it will take, he says, for Michigan Medicine to deliver high-value care to 4 million people across a statewide network.

An acknowledges that this change in mindset represents a major cultural shift in health care, so his team is proceeding methodically. He envisions moving from the current state, which he describes as “many successful demonstration projects,” to a platform-based approach with a robust technical and workflow infrastructure, to a scaling of telehealth services across Michigan Medicine as it progresses toward virtual first. As a benchmark, he envisions 15 percent of care being virtual in the next 10 years.

In approaching this vision, his team’s first step was to prioritize. “We didn’t want to chase the next shiny thing,” says An. “Instead, we wanted to develop specific criteria to assess the alignment of various telehealth services with Michigan Medicine’s strategic goals.”

These include things like the potential impact on quality of care, operational and clinical feasibility, IT infrastructure requirements and economic implications.

In doing this work, his team interviewed more than 60 stakeholders across Michigan Medicine, reviewed what other national leaders were doing and conducted a local market analysis.

The result was a set of services prioritized for deployment: ambulatory eVisits, video visits, remote patient engagement and partner telespecialty consults. Each has defined initial use cases that will realize immediate benefits and help demonstrate the services’ value to patients, providers and the health system.

**AMBULATORY eVISITS**

Patients can already access eVisits through the MyUofMHealth.org patient portal. They answer a series of questions about their symptoms and receive a response from a health care provider in less than 24 hours. The service is currently available to all adult patients with a Michigan Medicine primary care physician for routine conditions such as red eye, diarrhea, painful urination and flu-like symptoms.

So far, of the 600 eVisits that have been completed, 80 percent of patients were able to get the care they needed without a clinic visit. This is particularly valuable for the flu, which the team quickly added to its list of eVisit conditions for this season’s outbreak. “It’s really important when people have the flu that they get evaluated quickly,” says An. “And from the health care side, if we can do that without having people come in and cough on other patients or their health care team, it’s a win-win.”

Looking ahead, An plans to extend eVisits to pediatric patients and to add subspecialty care. He’d also like to integrate streamlined testing into the service for things like bladder infections and strep throat through mini clinic visits or pharmacy partnerships.

**VIDEO VISITS**

An’s team is working to deploy two types of video visits: scheduled and on-demand. Scheduled video visits are already available at Michigan
Remote patient engagement involves using interactive voice response, text messaging and web-based or mobile apps to engage patients in self-care, helping to extend care between clinic visits. Engagement tools can help patients monitor progress toward health goals — for example, virtual coaching on diabetic glucose control — or educate them about their care plan to avoid readmission and other low-value encounters.

The Center for Health Communications Research, which An co-directs, has helped a number of U-M groups develop these tools. Another one recently developed at U-M is the Michigan Surgical & Health Optimization Program, or MSHOP. The brainchild of surgeons Michael Englesbe, MD, and Stewart Wang, MD, PhD, the tool helps optimize patients’ health before surgery to improve outcomes and reduce hospital stays.

Remote patient engagement

Remote patient engagement involves using interactive voice response, text messaging and web-based or mobile apps to engage patients in self-care, helping to extend care between clinic visits. Engagement tools can help patients monitor progress toward health goals — for example, virtual coaching on diabetic glucose control — or educate them about their care plan to avoid readmission and other low-value encounters.

To date, An says it’s too early to know to what extent telehealth services will replace office visits, freeing up capacity at existing facilities, and to what extent they will expand access to care by those who otherwise might not seek it. But both situations are wins in his book, and he’s looking forward to making them increasingly commonplace.

“There’s tremendous opportunity for Michigan Medicine to lead in the telehealth space by doing the research needed to establish best practices.”
— Lawrence An, MD
Telehealth Medical Director
Every year, the Inflammatory Bowel Disease Program serves thousands of patients throughout Michigan, its neighboring states and across the country suffering from inflammatory bowel disease (IBD), a disorder characterized by chronic inflammation of the gastrointestinal tract. On average, the Program cares for upwards of 12,000 visits per year, across approximately 4,000 unique patients.

Two of the most common types of IBD — Crohn’s disease and ulcerative colitis — present complex challenges requiring specialty expertise and an integrative approach to care. “We deliver state-of-the-art, comprehensive care for every patient we see. For those with challenges where a conventional solution does not exist, we strive to find answers tailored specifically to that individual’s needs,” says assistant professor Ryan Stidham, MD, MS, Division of Gastroenterology and Hepatology. “That solution could come via the expertise of our team of 15 IBD specialists, broad clinical trials’ portfolio, nationally recognized behavioral health services and other research programs that are a product of Michigan Medicine.”

CLINICAL ADVANCES
The program prides itself on creating innovation in delivery-of-care, and predicting an individual patient’s future course. “We’re developing predictive technologies and tools, using input from our patients, that receive national exposure — many influencing care across the United States,” says Stidham. “Few other programs bring this level of innovation in care delivery and disease management within the IBD space.”

Telemedicine Program
The IBD program has established a telemedicine arm to conduct video visits for patients at a distance (page 58). “Our telemedicine services allow patients to remain close to home and use the MyUofMHealth App to set up a video meeting with their provider,” says Stidham. “In cases where a patient is seeking consultation to discuss symptoms, review their response and experience on a new treatment, the video visits are very efficient. Beyond the obvious conveniences, this approach reduces barriers to care, including travel costs for patients, time away from work and distance constraints — all while receiving expert subspecialty care.”

Ambulatory Diagnostic and Treatment Unit
The program has established the Ambulatory Diagnostic and Treatment Unit (ADTU) to help patients address urgent needs without resorting to emergency department or inpatient hospital care. “Often IBD patients who are experiencing a flare can be improved and stabilized with a few tests and IV fluids, steroids or antibiotics,” says Stidham. “However, these tests and treatments are not available at home and typically are only available in a
NOVEL METHODS OF PATIENT EDUCATION

IBD School
To help patients and their families better understand Crohn's disease and ulcerative colitis, associate professor Peter Higgins, MD, director of the IBD program, has created a series of short, educational videos specifically for patients with IBD — called the IBD School. The goal is to help patients understand the disease, and make more informed decisions that will improve their health and wellbeing.

Patient-to-Patient (P2P) Education
Now in its third year, the program’s patient-to-patient annual conference provides IBD patients who have become knowledgeable about their disease teach fellow patients about facets of IBD, such as how to handle an ostomy, dietary concerns or work conflicts. “This is a really innovative format where patients themselves have taken on the role as teachers, as opposed to health care providers giving lectures to patients,” says Stidham. “The P2P program has been a great success and inspires community between patients and providers; it’s been a successful addition to our educational programs.”
Obesity is associated with a whole host of co-morbid health conditions, including metabolic syndrome, type 2 diabetes, hypertension, cardiovascular disease and cancers.

More than one-third of Americans are obese, and it is projected that this number will increase by more than 50 percent as of 2030. “In parallel with this prevalence is the burgeoning epidemic of diabetes. As a person’s body mass index rises above 25, so does their risk of type 2 diabetes,” says associate professor Amy Rothberg, MD, PhD, director of the U-M Weight Management and Obesity Program. “The lines are virtually superimposable. Obesity is associated with a whole host of co-morbid health conditions, including metabolic syndrome, type 2 diabetes, hypertension, cardiovascular disease and cancers. The Weight Management Program, which is part of the Division of Metabolism, Endocrinology & Diabetes (MEND), is housed at Domino’s Farms and utilizes a comprehensive, evidence-based approach to help patients with obesity. “What sets our program apart is that it provides a prescriptive, two-year clinical program, on top of which we have layered a research component in which real world patients may participate,” says Rothberg. “We collaborate with over 10 investigators at any one time who utilize our cohort of patients, the neuro-biopsychosocial data, or both. We learn from our patients, not just about biology and behavior, but about delivery and practice of obesity medicine, and, obviously, they learn from our data.” Since its launch in 2010, the program has enrolled more than 2,000 patients.

RESTING ENERGY EXPENDITURE

In addition to assisting patients in attaining a healthy diet, and providing guidance in increasing physical activity, the program provides the option to undergo a battery of other tests to more fully characterize patients’ health and weight status, such as a measurement of resting energy expenditure, which correlates with the number of calories a person is burning at rest. “This is important information for the patient, and our team,” says Rothberg. “We can tailor the patient’s diet to match their energy needs. If the patient goes from losing to gaining weight, that number is likely to change and we will inform them of that change.”

PAIN SYNDROMES

In recent studies, Rothberg and Andrew Schrepf, PhD, U-M Department of Anesthesiology, have turned their focus to the connection between chronic pain and obesity. Their investigations indicate that, under caloric restriction with resultant weight loss, bodily pain improves to a degree beyond that expected from using pain medications. “In others words, caloric restriction might produce better outcomes than pain medications for some fibromyalgia patients,” says Rothberg.

REPRODUCTIVE, MATERNAL AND FETAL OUTCOMES

The program also focuses on a range of challenges related to reproductive, maternal and fetal outcomes in connection with obesity. “For example, we help women who are having difficulties conceiving (based on their weight) to reduce weight, which makes it easier for them to conceive – or to be more receptive to medications.
One in six dollars is spent on obesity and obesity-related care.

“Not only does obesity increase health care expenditures, but it increases indirect costs (cost to society) such as increased rate of premature death, absenteeism, and presenteeism,” says Rothberg. “Take for example our military, in that about 15,000 recruits fail their physicals every year just because they are overweight and unfit. This has ramifications to our national security and also costs to the taxpayer. There are still other more personal costs. Those living with obesity are confronted by bias and stigma affecting both their work and social life contributing to higher rates of social isolation and depression and to marked reductions in quality of life.”
Patients hospitalized due to a critical illness or following major surgery are at an increased risk of developing hyperglycemia, an elevated level of glucose in the bloodstream often associated with diabetes. “About 30 percent of patients have hyperglycemia when they come to the hospital, and these are patients with and without diabetes,” says Roma Gianchandani, MD, an associate professor from the Division of Metabolism, Endocrinology & Diabetes. “The major cause of hyperglycemia in this population is the release of stress hormones, inflammatory enzymes, medications, sepsis and hypothermia, all of which worsen insulin resistance.”

Established in 2004, the Michigan Medicine Hospital Intensive Insulin Program manages diabetes and hyperglycemia for inpatients. It serves more than 700 patients per year who are in the hospital due to cardiac surgery, vascular thoracic surgery, heart failure and cystic fibrosis. “We have well-established protocols and algorithms which can help improve blood sugars in varied situations. Although hyperglycemia in critically ill patients is a serious risk factor for inpatient morbidity and mortality, it is a correctable one,” says Gianchandani. “Over the last decade there has been accumulating literature about worsening outcomes for patients hospitalized with hyperglycemia and hypoglycemia. Therefore, it is important to work in a safe and effective zone of glucose management and avoid both conditions. Recent studies looking at post-surgical morbidity have found that glucose control and treatment after surgery predicts mortality in both cardiac surgery and non-cardiac surgery for patients with and without diabetes. That said, we cannot ignore the non-diabetes population with hyperglycemia.”

The program is staffed with faculty who are experts in diabetes care, an advanced practice provider (APP) team trained in glucose management and endocrine trainees. This combined force allows the team to provide 24/7 coverage to manage an array of patients — from hyperglycemic and high-dose insulin-resistant to complex insulin pump and post-transplant steroid regimens. The APP team is available for patient care, writing orders and patient education through the workday. Rotating faculty conduct rounds on patients and support the service, but also have other roles, including outpatient clinics, research and administration. Together, the group has a wide footprint.

“We are an important piece of the big picture, since hyperglycemia is a modifiable risk factor which is known to improve outcomes if addressed,” says Gianchandani. “Our program has demonstrated significant reduction in morbidity, hospital length-of-stay and post-discharge emergency room visits.”

Diabetes is a complex disease, and hospitalization is an opportune time to improve blood glucose management, address barriers and provide education. When patients go home, their clinical conditions can change, and they do best if well educated in blood glucose management. To address these challenges, the Program has established a post-discharge clinic that follows up closely with patients via telephone after discharge.

As innovation in diabetes technology gains momentum, more insulin pumps and sensors are finding their place in the hospital. To adapt, Gianchandani and her team are investigating a computerized glucose control algorithm program that will help guide insulin dosing for insulin drips. They have created a working model and are hopeful that it will be implemented in the hospital system within the next year.
To reach out to all hospital areas, the Inpatient Diabetes Management Guideline Committee was established last year. Led by the Division of Metabolism, Endocrinology & Diabetes, the multi-disciplinary team consists of faculty from internal medicine, surgery, anesthesia, pharmacy, nursing, nutrition and ob-gyn, working to develop guidelines for blood glucose management hospital-wide. The majority of the algorithms are based on protocols of the Hospital Intensive Insulin Program, meshed with current national guidelines and best practices. Since insulin is one of the most error-prone medicines in the hospital, it is the hope that these guidelines will reduce insulin errors, improve glucose levels and patient outcomes.

Last fall, Michigan Medicine’s glucose control program was benchmarked by the Society of Hospital Medicine and was one of the top performers, especially in the critical care areas.

“We are an important piece of the big picture, since hyperglycemia is a modifiable risk factor which is known to improve outcomes if addressed.”

— Roma Gianchandani, MD
Allergen Immunotherapy

THE DIVISION OF ALLERGY AND CLINICAL IMMUNOLOGY HOUSES A STATE-OF-THE-ART ALLERGEN EXTRACT PRODUCTION LABORATORY

Over 26 million Americans suffer from seasonal allergies caused by environmental triggers such as pollens (grasses, trees and weeds), mold spores, pet dander and dust mites. The most common inhalant allergens affect the body when they interact with the eyes, nose, throat and lungs.

“To treat inhalant allergies, patients are given a series of injections with gradually increasing doses of extract made from the allergens that they are allergic to. This is known as allergen immunotherapy,” says Marc McMorris, MD, an associate professor from the Division of Allergy and Clinical Immunology. “Allergen immunotherapy, either injection, or more recently sublingual, is the only therapy we have to offer that can actually alter the immune system. Everything else is just symptomatic treatment — such as antihistamines and a variety of over-the-counter products — but allergen immunotherapy for inhaled allergies modulates an individual’s immune system and down-regulates their abnormal responses to normal environments.”

In 2007, after a period of rapid growth, the Division saw the need to create a separate state-of-the-art laboratory for sterile compounding, known as the Allergy Extract Laboratory. The Laboratory is housed in the Allergy Specialty Clinic and Food Allergy Clinic located at Domino’s Farms. “We’ve seen a tremendous increase in allergy shots provided over the years. Last year, we administered over 65,000 shots to more than 1,500 patients across our four facilities,” says McMorris.

“COMPOUNDING — LAMINAR FLOW BIOLOGICAL SAFETY CABINET

All allergen extracts produced at the Laboratory are compounded in what is known as a Laminar Flow Biological Safety Cabinet (BSC).

“This safety cabinet allows us to create allergen immunotherapy in a safe and sterile environment. Effectiveness and safety is a priority,” says Kiela Samuels, PharmD. “The BSC is the same type of equipment used to make intravenous (IV) medications, ensuring sterile and stable conditions.”

The laboratory purchases raw materials, both individual pollens and pollen mixes, from Stallergenes Greer, a biopharmaceutical company specializing in the diagnosis and treatment of allergies. “Our custom allergy extract mixes are made solely for Michigan Medicine, based upon prior research,” says Samuels. “As determined by allergy skin testing, we are provided a prescription, after which my staff and I compound customized extracts for each patient.”

It is important to mention that the mixing of allergen extracts is considered sterile compounding, and is, therefore, held to USP 797 compounding guidelines. “As a laboratory, we adhere to strict guidelines to be certain we are providing the safest, most effective, advanced therapy,” says McMorris.

OUTCOMES

Approximately 80 percent of patients receiving allergen immunotherapy for inhalant allergies, administered in both sublingual and subcutaneous forms, experience a reduction of symptoms, less need for medications and improved quality of life. “Being able to provide allergen immunotherapy can change the course of the disease,” says Samuels. “It is a means of modifying the disease process over time.”
LABELING STANDARDS

As the laboratory continues to expand, the team maintains a keen focus on national standards for labeling of allergen extracts wherein a patient’s name and the contents of that allergy extract is clearly stated. “We maintain very precise labeling, so patients and providers know exactly what an extract contains,” says McMorris. “We set the bar very high on many fronts. Recently, the laboratory earned a certificate of distinction for medication compounding from the Joint Commission on Hospital Accreditation. This is a distinction that separates us from others.”

“To treat inhalant allergies, patients are given a series of injections with gradually increasing doses of extract made from the allergens to which they are allergic. This is known as allergen immunotherapy.”
— Marc McMorris, MD

A leader in the diagnosis and treatment of allergic and immunologic conditions, the Division of Allergy and Clinical Immunology provides care for drug allergies and reactions, chronic sinusitis and nasal polyposis, asthma, nasal allergy, hives, allergic dermatitis, eczema, food allergies, immune deficiencies, occupational allergies, mastocytosis, hereditary angioedema and other complex disorders of the immune system. With more than 40 faculty, fellows and staff, the division currently operates four clinic locations in Ann Arbor to diagnose and treat allergic and immunologic conditions.
In 2012, Michigan Medicine launched the Adult Palliative Medicine Program as a unique collaboration among the Departments of Internal Medicine, Family Medicine and the University Hospital. The program was built on a strong interdisciplinary foundation established over the preceding decade, and now brings together palliative medicine specialists from across Michigan Medicine, to serve as a major center for palliative medicine expertise.

“Palliative medicine focuses on patient and caregiver needs from the diagnosis of serious illness through end of life, seeking to relieve symptoms and stresses, and maximize quality of life,” says Phillip Rodgers, MD, director of clinical programs for the Adult Palliative Medicine Program, Division of Geriatric and Palliative Medicine. “Our team of specialists is comprised of physicians, advanced practice nurses, social workers, spiritual care providers and clinical pharmacists, who work shoulder-to-shoulder with providers throughout Michigan Medicine to serve patients and their families. We are intentionally structured as an interdisciplinary team, which allows us to care holistically for every patient, every day.”

Physicians can come to specialize in palliative medicine from one of ten primary specialties, including: internal medicine, family medicine, pediatrics, emergency medicine, surgery, radiology/radiation oncology, cardiology, pulmonology, critical care and nephrology,” says Rodgers. “All of this allows us to maximize the impact of our work on the quality of care our patients and families receive.”

Palliative medicine is most effective when integrated with curative care in a way that prioritizes what matters most to individual patients. “High quality palliative care allows patients to live as well as they can for as long as they can,” says Rodgers. “This includes helping individuals survive — and even thrive — during treatment, and to continue maximizing quality of life once treatment has done all that it can do.”

The Adult Palliative Medicine Program has its administrative home in the Division of Geriatric and Palliative Medicine, and is the academic hub to 35 clinical and research faculty, including 17 with dual certification in both hospital medicine, oncology, cardiology, pulmonology, critical care and nephrology,” says Rodgers. “All of this allows us to maximize the impact of our work on the quality of care our patients and families receive.”

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— Phillip Rodgers, MD
geriatric and palliative medicine. Each year, the program provides care to upwards of 2,000 patients. It also has a robust presence in the Veterans Affairs Ann Arbor Healthcare System. “The majority of hospitals in the United States with over 50 beds typically have palliative care programs, but we believe that the breadth and scope of our services is what sets us apart,” says Rodgers.

Expanding the reach of the program, physicians provide services to community-based hospices and home-based palliative care programs, primarily through Arbor Hospice and Hospice of Michigan, which are key partners. In June 2016, the University Hospital also opened its first ever inpatient palliative care beds, to provide intensive symptom management and support for patients with serious illness whose needs cannot be met outside the hospital.

RESEARCH AND POLICY
The program seeks to create an institutional home for interprofessional investigators to network, collaborate and advance research and policy focused on improving the care of patients living with serious illness. “We have a growing number of research and policy activities, including clinical trials focusing on symptom management, clinical decision-making, and value-based care delivery,” says Rodgers. “Our hope is that this innovative work will lead to better interventions to enhance quality of life for patients and families, and sustainable models of care delivery for the growing number of Americans living with serious illness.”

CHALLENGES AHEAD
Given enormous growth, challenges remain in the relatively new specialty of palliative care. One hurdle is in building awareness of what the program can provide, not only to patients and families, but among colleagues at Michigan Medicine. “We are in a dynamic state of understanding how best to add value across the care spectrum — from hospital care to outpatient services to care delivered where patients live. We have much more to learn, as our specialty and our program develop.”

Added to this is a shortage of health care providers in the workforce specializing in palliative medicine. “We have a growing team, but the need for high-quality palliative care exceeds our ability to meet it,” says Rodgers. “We have a robust set of interdisciplinary palliative care educational programs, including established fellowships for both adult and pediatric-focused physicians, an advanced practice nursing fellowship launching this year, and plans to integrate social work, pharmacy and spiritual care advanced training in the near future. Our goal is to create the interdisciplinary palliative care clinicians, teachers, leaders and innovators who will shape the future of the field.”

PARTICIPATION IN THE PALLIATIVE CARE QUALITY NETWORK
Continually striving to establish benchmarks for high quality palliative care everywhere, the U-M Adult Palliative Medicine Program is one of the largest in the country participating in a nationwide quality consortium called the Palliative Care Quality Network, a continuous learning collaborative committed to improving the quality of palliative care services provided to patients and their families.
The Adult Assisted Ventilation Clinic, jointly staffed by the Division of Pulmonary & Critical Care Medicine, and the Departments of Neurology and Physical Medicine and Rehabilitation, at the University of Michigan, provides comprehensive and integrative care for a complex patient population using portable ventilators to assist with breathing. "Ventilator support is utilized in a wide range of conditions, such as muscular dystrophy, spinal cord injury, severe cerebral palsy, ALS and end-stage lung disease," says professor Theodore Standiford, MD, chief of the Division of Pulmonary & Critical Care Medicine.

Since its launch in 2009, the clinic has grown exponentially, caring for over 850 patients. "It is now the largest and most comprehensive program caring for adult patients with chronic respiratory failure in the country. For years, there was not a program such as this caring for these patients in Michigan and throughout the region," says Standiford. "We provide care to a group of patients that would otherwise not be able to access this level of expertise."

None of this would have been possible without the vision and implementation of Robert Sitrin, MD, the clinic’s first medical director who pioneered the program to care for patients whose medical needs were not being addressed. Although Sitrin retired in 2016, he is still an integral member of the program. "A nationally recognized bench scientist, Dr. Sitrin followed his passion for chronic respiratory failure to create a program that stands as a benchmark for others," says Standiford.

The clinic utilizes a multidisciplinary approach to evaluation and care and is wide-reaching in scope. "We have providers from neurology who have specific interest in neuromuscular diseases, including but not limited to ALS, muscular dystrophy and spinal cord injury. We also have faculty from physical medicine and rehabilitation who are specifically interested in spinal cord injury and respiratory complications of spinal cord injury," says Standiford. "Our pulmonary providers have an interest in chronic respiratory failure, new modes of non-invasive mechanical ventilation, and in addressing complications that are related to tracheostomies and chronic respiratory failure."

The program also houses a dedicated respiratory therapist, an RN and two nurse practitioners. In April 2018, the clinic introduced new leadership, with the addition of Philip Choi, MD, MA. Choi joins Michigan Medicine as a clinical assistant professor of internal medicine and will assume the medical director leadership role from interim director Helena Schotland, MD. "Dr. Choi comes to the U-M from Duke University where he led the program to evaluate and treat patients with chronic respiratory failure due to ALS," says Standiford. "Dr. Choi brings the knowledge and experience necessary to oversee the continued maturation of this innovative program. With his recruitment, the clinic remains in good hands."

NEW MODES OF NON-INVASIVE MECHANICAL VENTILATION

The clinic provides expertise in innovative modes of non-invasive mechanical ventilation, including average volume-assured pressure support (avaPs) technology. "This mode of mechanical ventilation allows for targeted volumes or ventilation to be delivered, providing more control of breathing, and is particularly useful for patients with periodic hypoventilation," says Standiford.

"We provide care to a group of patients that would otherwise not be able to access this level of expertise."
— Theodore Standiford, MD
IN-PATIENT CONSULTATION

The clinic also provides in-patient consultation for patients with chronic respiratory failure who require hospitalization, most of whom are on the 8D intermediate care unit. "We assist with the in-patient management and transportation of these patients as they are discharged from the hospital," says Standiford. "Not only do we assist with hospitalized patients, but we are also instrumental in addressing complications that occur in these patients. An example would be a patient who has a spinal cord injury that has medical issues related to chronic respiratory failure, or even unrelated to chronic respiratory failure. It’s hard for primary care physicians to care for these patients because of their unfamiliarity with the respiratory failure care plan. We are able to provide care for these patients in their homes and prevent them from having to be hospitalized."

A ventilator is a machine that assists with breathing. For people who require ventilatory support, whether part- or full-time, portable ventilators can be life-sustaining and allow patients to receive long-term care in their homes. There are two types of ventilatory support: invasive and noninvasive. Invasive support means the ventilator is connected to a tube placed from an opening in the neck into the trachea (created by tracheostomy). Noninvasive support means the ventilator is connected to a mask that covers the nose, nose and mouth, or entire face.
The Transplant Infectious Disease Service

ADVANCING PREVENTION, RECOGNITION AND TREATMENT OF COMPLEX INFECTIONS IN ORGAN TRANSPLANTATION PATIENTS

The Transplant Infectious Disease Service works closely with the Transplant Center, and other medical specialists at Michigan Medicine, in providing expert clinical care to prevent and treat infectious complications related to organ transplantation. “We also collaborate with the Bone Marrow Transplant program, where more than 200 adult stem cell (bone marrow) transplants are performed annually,” says professor Daniel Kaul, MD, director of the service who leads a team of four faculty members from the Division of Infectious Diseases. “Additionally, we provide consultation to patients referred by physicians throughout the state of Michigan.”

Michigan Medicine’s Transplant Center performs more than 300 transplants annually, including the heart, kidney, pancreas, liver and lungs. It is the largest in the state of Michigan, as well as one of the largest in the nation. “Patients need to take medications to prevent rejection of their transplanted organ or graft versus host disease,” says Kaul. “This can suppress the immune system and makes organ and bone marrow transplant recipients susceptible to a range of serious infections.”

ADVANCES IN CLINICAL CARE FOR ORGAN TRANSPLANTATION PATIENTS

Clinical research is an important component in the care of transplant patients at Michigan Medicine. The Transplant Infectious Disease Service is currently conducting multiple clinical studies designed to improve the understanding of complex infections associated with organ transplantation. “We are looking at therapies for post-transplant infectious complications, such as cytomegalovirus, norovirus and fungal infections; developing clinical protocols to manage such challenges in this population,” says Kaul.

Cytomegalovirus

Kaul and his team are currently investigating new drugs for the prevention and treatment of cytomegalovirus (CMV), the most common and serious viral infection that can occur after transplantation, which in some cases is resistant to currently available licensed drugs. “While there are drugs that may prevent this infection, drug-resistant infection does occur and currently approved drugs can be very toxic,” says Kaul. “Many transplant recipients cannot tolerate these drugs because of side effects, especially kidney failure. This can be a large problem in lung transplantation, in particular, but can also be seen in any other transplant, including the kidneys, liver and heart. Our team is looking at a new oral drug that works against resistant CMV, which appears to have limited side effects, and could be a life-saving option for patients.”

Norovirus

The team has also turned their focus to the norovirus infection, which causes severe bouts of vomiting and diarrhea. “In healthy people, this usually passes within a day or two. But, in transplant patients, the norovirus can cause chronic diarrhea that can last for months,” says Kaul. “There is no known treatment for this infection, and since the market is small, pharmaceutical companies aren’t likely to invest in developing a treatment.”
To remedy this, U-M is participating in a clinical trial of an already licensed drug that shows promise treating the norovirus infection in transplant recipients, which is sponsored by the National Institute of Allergy and Infectious Diseases. “This infection is the second most common cause of diarrhea in transplant patients hospitalized with diarrhea, so there is a significant need for an effective treatment for these patients,” says Kaul.

Vaccine preventable infections

The service is also working with transplant programs to ensure that they are protecting recipients, and potential recipients, from vaccine preventable infections, such as pneumococcal pneumonia and shingles. “This is particularly important with the new shingles vaccine. The old vaccine could not be given to transplant recipients because it was a live vaccine, but the new version is not, so it can be administered to immuno-suppressed individuals,” says Kaul. “And, while its precise role after transplantation is undetermined, we’ve been working both locally and with other groups interested in this question to try to determine the best role for this vaccine. This is important in that shingles can disseminate in immune-suppressed people and spread throughout the body, which can cause severe disease in locations such as the central nervous system.”

“We are looking at therapies for post-transplant infectious complications, such as cytomegalovirus, norovirus and fungal infections; and developing clinical protocols to manage complications in this population.”

— Daniel Kaul, MD

OPIOID EPIDEMIC

With the ongoing opioid epidemic, there has been a marked increase in the number of organ donors who die from drug overdose. “Today, up to 25 percent of organ donors die of opioid overdose. It used to be just two or three percent, but now it’s up to one in four, or even higher,” says Kaul. “When we have that situation, there is always a concern that these donors might have recently acquired HIV or Hepatitis C, as it can be acquired through IV drug use. If acquired very recently (say a week or so), the tests we perform on donors could be negative and, as a result, we could inadvertently transmit HIV or Hepatitis C to a patient from a donor. The question is, how do you resolve that — the fear of these infections being transmitted vs. the benefit of potential transplant recipients accepting organs from these increased-risk donors. We think that answer is informed consent, combined with robust education of recipients, so that they can make the best decisions for themselves regarding whether or not to accept these organs.”
Comprehensive Cardiovascular Disease Prevention Program

FOCUSING ON EARLY DETECTION AND INTERVENTION WITH EVIDENCE-BASED STRATEGIES

Cardiovascular disease, a group of disorders of the heart and blood vessels, accounts for approximately 800,000 deaths in the United States every year. The most common of these include heart attack, heart failure, stroke and heart valve disease, often resulting from smoking, high cholesterol, hypertension and diabetes, each of which can be prevented and treated effectively.

“Preventive cardiology focuses on early detection of cardiovascular disease, identifying people at risk, and providing and optimizing therapeutic interventions with lifestyle modifications and medications as necessary,” says Melvyn Rubenfire, MD, director of preventive cardiology in the Division of Cardiovascular Medicine. “A major part of our effort is to focus on preventing recurrent events in men and women who have had a recent heart attack, coronary angioplasty, bypass or heart valve surgery, and heart failure including persons prior to and after heart transplant and those who have an implanted left ventricular assist device.

The cardiac rehabilitation program assists the cardiologist and primary care physicians by enhancing patient education, and compliance with lifestyle changes, including nutrition therapy and exercise, stress reduction and evidence-based medications.”

The Division of Cardiovascular Medicine has one of the most comprehensive preventive cardiology programs in the country. “While rehabilitation programs are found in most hospitals in the United States, having a comprehensive program is not,” says Rubenfire. “We have physicians in various, but related, specialties caring for patients under one roof — which enhances novel program development, sharing of staff and equipment, and most importantly sharing expert knowledge in both the clinic and joint conferences. Specialists come from a range of disciplines, including cardiology, lipids, vascular medicine, obesity/diabetes, kidney disease and hypertension. Very few institutions have an umbrella called preventive cardiology under which faculty from each of these areas resides.”

ENHANCED EXTERNAL COUNTER PULSATION

A unique treatment, called Enhanced External Counter Pulsation (EECP), is available for patients with angina or heart pain...
not treatable by conventional means, including medication, coronary angioplasty and bypass surgery. "EECP is a non-invasive treatment to improve the quality of life of patients with cardiac chest pain. Most patients who undergo the therapy improve their ability to be physically active, with a decrease in the frequency and intensity of angina and need for nitroglycerin during usual daily activity and under emotional stress," says Rubenfire.

MetFit
The Metabolic Fitness (MetFit) program was designed for patients with pre-diabetes, most of whom are overweight or obese, have hypertension, low HDL cholesterol and increased triglycerides. People with three of the five factors, known together as metabolic syndrome, have a marked increase in risk of heart attack, heart failure, stroke and diabetes and its complications. "During the past 10 years, hundreds of patients in groups of 15-20 have met weekly for six months in the cardiac rehabilitation suite to experience 45 minutes of supervised exercise and 45 minutes of education regarding healthy lifestyle, including healthy eating, exercise and recognition and reduction of stress and anxiety," says Rubenfire. “The results have been very rewarding for the great majority of participants, particularly those who can make the change from bad habits to good choices.”

ALTERNATIVE MODELS OF CARE
For the past 15 years, the program has stressed alternatives to the conventional medical model. "In cardiac rehabilitation and the metabolic fitness program we perform psychological tests of stress, depression and anxiety with the intention of identifying patients who might also need help from behaviorists, social workers, psychologists and psychiatrists,” says Rubenfire. “Since the mid-1990s, our team has taught mindfulness meditation to interested patients in the clinic and cardiac rehabilitation, and also offers yoga classes.”

NOVEL APPROACHES TO LOWERING CHOLESTEROL
Rubenfire and his team continue to conduct research on the novel approaches to lowering cholesterol and other lipids. "We have been studying innovative therapies that reduce cholesterol by 70-80 percent over that achieved by statins,” says Rubenfire. “At this time, there are very few patients with elevated cholesterol who we can’t help.”

"Preventive cardiology focuses on early detection of cardiovascular disease, identifying people at risk, and providing and optimizing therapeutic interventions with lifestyle modifications and medications as necessary.”
— Melvyn Rubenfire, MD

CLINICAL TRIALS
The program’s clinical research includes novel approaches to assess risk of heart attack, the impact of psychosocial factors, and new drugs for lipid disorders and hypertension. In the past year, they have conducted more than seven clinical studies in the areas of air pollution and cardiovascular disease, metabolism, lipids, hypertension, pre-diabetes and the metabolic syndrome, and cardiac rehabilitation. The team also designed and organized a joint Ontario/Michigan study of the use, cost and effectiveness of cardiac rehabilitation that has been approved by institutional authorities and will begin soon.
Physician Well-being

Recognizing that physicians can best care for their patients when they take time to care for themselves.

Physician burnout has been variously described as a feeling of being exhausted, detached and even ineffective on the job. And it’s more common than the public thinks. A nationwide survey* recently revealed that 42 percent of doctors suffer severely from this malady, and another 15 percent report having at least some of the symptoms.

Concerned about what its own faculty might be experiencing, the administration of the Department of Internal Medicine has embraced the study of physician well-being in a meaningful way. Leading the charge has been its Clinical Excellence Society (CES), headed in 2016-2017 by William Chey, MD.

The society was established to recognize clinicians who deliver exemplary service to their patients and colleagues. “But we also have a mission to serve as a thought group, providing advice on clinical excellence to the department,” noted Chey. In the case of burnout, that is exactly what CES did.

In 2017, Chey asked Michael Lukela, MD, to form a committee to study the issue. “In our first year,” said Lukela, “we reviewed the literature on this subject, talked to colleagues at peer institutions and conducted a survey of our clinicians to discover what challenges they were experiencing.” The results of the survey were compelling.

Respondents described a variety of factors that contributed to negative feelings about their livelihood, including an elevated sense of pressure to do more with fewer resources. But the most common responses were reserved for survey questions about workload. For example, Lukela noted, “Seventy-two percent reported working more than 50 hours a week, with 15 percent working more than 70.” Some of the extra hours were spent in educational activities, such as engaging with student groups or mentoring junior faculty members — part and parcel of being a physician in an academic setting. But a much-mentioned stressor was the need to keep up with “digital paperwork”: that is, Michigan Medicine’s electronic medical record system. (See related article on page 79.)

Often, the physicians reported taking work home — a situation that can negatively impact family life. Even more concerning was a statistic about working while on vacation — an activity that 75 percent admitted they did to get caught up. “Many doctors don’t even take vacations anymore,” said Chey. “From a wellness perspective, that’s both undesirable and unsustainable.”

Working too many hours, with no break — to, in the words of management consultant Stephen Covey, “sharpen the saw” — inevitably leads to burnout. And burned-out physicians are susceptible to higher rates of depression, divorce and disease. They may also, unwittingly, compromise the care they deliver to patients — an outcome that no one wants to see.

To combat this, the CES committee has moved swiftly from the research phase into planning. The first step was to summarize its survey findings and make initial recommendations to the department chair. Next to come will be a presentation to Internal Medicine’s division chiefs, who will in turn share the information with their direct reports — and solicit additional suggestions for action. With this collective input, Lukela explained, “We [the committee, other interested society members and clinical faculty] will develop a detailed roadmap to create and support a culture of wellness.”

Added Chey, “I’m proud that the Clinical Excellence Society has taken a leadership role in this endeavor, and I hope our efforts continue to grow, protecting patient safety and promoting physician satisfaction within Internal Medicine for years to come.”

MiChart Mastery

HELPING PHYSICIANS FOCUS ON WHAT MATTERS MOST TO THEIR PRACTICE

The results of the Clinical Excellence Society’s 2017 survey of Internal Medicine physicians were insightful in many ways. But Raf Rizk, MD, focused on one statistic in particular: that 62 percent of respondents were neutral or against the idea that MiChart, Michigan Medicine’s electronic medical record (EMR) system, improves patient care.

Rizk has a vested interest in this discussion. In addition to being a gastroenterologist, he’s also a bit of a technophile with a passion for helping his fellow faculty members embrace a system that — with a modicum of mastery — can give them and the institution the efficiency they need while enhancing the patient experience. Using EMRs can also enable physicians to carve out more “me time and we [family] time” — and reduce the likelihood of burnout.

What sometimes stands in the way of this scenario is how doctors view the complexity of MiChart. “It’s not as intuitive as we would like,” he noted, “and some think it takes too long to learn.” To allay these concerns, Rizk points out that, in addition to a basic level of operational knowledge, there’s only a subset of must-know tools — tailored to each specialty — that users must possess. “So they can just focus on mastering what matters most for their practice,” Rizk added.

In parallel with MiChart training initiatives, Rizk — who has 20 years of experience working with electronic medical records — has created a series of web-based micro-tutorial videos that help physicians learn some of the most common and important EMR features. He has also partnered with the Office of Clinical Informatics and Health Information and Technology Services to help develop resources for hands-on, one-on-one, small-group training. “Ideally,” he added, “physicians will be provided with protected time to take advantage of the broad range of resources being offered.”

Of course, comprehensive MiChart training is essential for professionals in all parts of the clinical process. Rizk explains: “As a team, the physician, nurses, medical assistants and support staff — they must all understand the system enough to input information, read others’ contributions and be confident that what’s there is complete and correct.”

Taking a team approach to creating and maintaining patient records and learning the specific tools that can optimize the process: This multi-pronged approach can free up time for more positive patient interactions. And that in turn can lead to higher levels of physician satisfaction. “We all went into this field to care for patients with compassion and to excel in our calling,” Rizk said. “If we can overcome the distractions of the EMR user experience, I think we can get back to achieving our primary goals.”
Our goal is to create such a strong body of clinical investigators that we will be at the forefront of all the major multi-center international trials.”
— Rodica Pop-Busui, MD, PhD
Co-Director, Clinical Trials Academy

As discussed on page 12, the Department of Internal Medicine made important progress in 2017 toward creating the infrastructure to help the next generation of clinical investigators realize early and sustained success. Among the new initiatives is the Clinical Trials Academy, which teaches early-career investigators how to design state-of-the-art trials for interventions ranging from new drugs and devices to lifestyle changes. Designed to parallel the effective R01 Boot Camp, the academy was originally aimed at internal medicine faculty, but interest was so widespread, the developers opened it up across the Medical School.

The academy launched in January with 10 participants from four departments and five internal medicine divisions. Faculty mentors and lecturers bring expertise in clinical trial design and implementation, statistical analysis and regulatory affairs, and include seven senior faculty from internal medicine.
MICHR Grant Renews Support for Clinical Research

In 2017, the Michigan Institute for Clinical & Health Research (MICHR) received a five-year, $58 million grant to continue its support of clinical and translational research at U-M. The funding is from the NIH's Clinical and Translational Science Award Program. A valuable complement to the Department of Internal Medicine's own clinical research initiatives, 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.

Seven internal medicine faculty received MICHR research grants for 2017. Five received translational research pilot grants: Borko Nojkov, MD, and Shanti Eswaran, MD (GI); Mohammad Amin, MD, and David Fox, MD (Rheum); and Benjamin Singer, MD, PhD (PCCM). Two received MICHR KL2 grants for early-career researchers: Elliot Tapper, MD, and Allen Lee, MD (GI).

The Department of Internal Medicine is providing MICHR with $1.25 million in cost-share funding over five years to support pilot and KL2 grants.

More at michr.umich.edu.
Early-Career Forum Highlights Successful Clinical Researchers

Among the goals of the department’s new Early-Career Faculty/Investigator Forum (page 82) is to bring attention to promising early-career investigators, both to raise their profile and to foster connections among U-M researchers with complementary expertise.

Two early-career researchers were highlighted by the forum in 2017. Both have already made enormous progress in their respective research areas, and the department sees the potential for significant clinical impact from their work in the years to come.

MICHELLE KAHLENBERG
Averting Lupus Flares

Michelle Kahlenberg, MD, PhD, an assistant professor in the Division of Rheumatology, has been working to reveal the “switch” that turns on disease flares in patients with systemic and cutaneous lupus. Her lab covers the full translational spectrum from basic to clinical research, which is allowing her to identify key mechanisms involved in lupus flares and to test potential treatments.

BASIC RESEARCH FINDINGS
Kahlenberg discovered through her basic research that the switch she was looking for might be found in the skin. She showed that irritating the skin of mice with lupus induced inflammation in their kidneys. She began searching the skin of lupus patients to see why this was so.

Her lab has since identified a critical pathway in the skin called interferon kappa that is overactive in patients with lupus. They’ve shown that dysregulation of this pathway contributes to excessive inflammation and cell death in lupus skin after exposure to UV light.

Kahlenberg believes this is a key link between the skin and systemic flares. “The higher levels of interferon kappa we see in the skin of lupus patients causes the top layer of skin cells, the keratinocytes, to die at a much higher rate than those of healthy controls,” she says. “This is important because lupus patients don’t get rid of dead cell material very well. When you have too much of this material lying around, it can be taken up and presented to T cells and B cells, and stimulate an immune response. We think this is an important link to stimulate autoimmunity in lupus.”

Her lab has found that not only do patients with lupus make too much interferon kappa, their cells also react abnormally to it compared to those of healthy controls. In collaboration with Johann Gudjonsson, MD, PhD, associate professor of dermatology; Alex Lam Tsoi, PhD, a research assistant professor of dermatology; and Celine Berthier, PhD, an assistant research scientist in the Division of Nephrology, they’ve used bioinformatics to identify 52 genes that are dysregulated in the skin cells of lupus patients when exposed to interferon kappa.

Systemic lupus erythematosus is an autoimmune disease that can cause inflammation in the skin, joints, kidneys, brain and the tissue lining the lungs and heart. Kahlenberg is showing how UV light can trigger systemic disease activity and is working to develop targeted treatments to interrupt this process.
Using follow-up experiments, her team believes they’ve identified a master regulator of these disturbed genes. 

IMPLICATIONS FOR TREATMENT 

These insights have presented her team with some tantalizing targets. They’re now collaborating with the U-M Center for the Discovery of New Medicines to develop screening assays to identify novel compounds that can block interferon kappa. “Ideally, we’d like to see this pathway developed as a target for the prevention of skin flares and possibly systemic flares,” says Kahlenberg. “One of the great things about interferon kappa is that it’s very specific to the skin. We know of only three cell populations that make it, so there may not be a lot of off-target side effects from blocking this pathway.”

She also hopes that the molecule her team has recently identified as a master regulator of the 52 dysregulated genes may represent another high-value target. In addition, her team is putting together a clinical trial that she hopes to launch this summer. Her lab had found previously that the skin of lupus patients is highly colonized by *Staphylococcus aureus* — a bacterium that produces toxins which drive inflammation. One of her postdocs, Sirisha Sirobhushanam, PhD, showed that interferons, like interferon kappa, enhance the ability of this bacterium to bind to skin cells.

While targeting interferon kappa is a promising avenue, the lab is also exploring the value of treating the bacteria directly. “We’ll be looking for patients with active rashes and treating them with topical antibiotics for a week,” says Kahlenberg. “By comparing biopsies before and after, we’ll determine whether just getting rid of the staph on the skin can change the inflammatory profile in the rash. It’s a proof of concept that could be extended into larger trials if successful.”

Her goal is to develop precision treatments that target the initiators of lupus inflammation so that patients who develop the disease won’t actually get sick.

SARA SABERI
Testing Exercise in Hypertrophic Cardiomyopathy

In March 2017, Sara Saberi, MD, a clinical assistant professor in the Division of Cardiovascular Medicine, published the results of her first clinical trial in *JAMA*. The topic: whether patients with hypertrophic cardiomyopathy (HCM) could exercise safely to improve their fitness.

Hypertrophic cardiomyopathy is the most common inherited heart condition, affecting 1 out of 500 people. It causes thickening of the heart muscle, impeding the heart’s ability to fill or pump blood. While many individuals with HCM have no symptoms, others have shortness of breath, chest pain, palpitations, lightheadedness or fainting. Still others have a high risk of developing dangerous abnormal heart rhythms, or arrhythmias, which can lead to sudden cardiac arrest.
It’s a question of intense controversy in the medical community and one that profoundly affects her patients. After basketball stars Hank Gathers and Reggie Lewis died on the court from the disorder in the early ’90s, says Saberi, the role of exercise in HCM became a high-profile public issue. What she saw in her practice was the legacy of these tragedies — patients afraid to exercise for fear of triggering a deadly arrhythmia, then suffering the results of a sedentary lifestyle — obesity, high blood pressure, diabetes and depression.

“I distinctly remember seeing a patient in clinic, who said, ‘I’m afraid to go up and down the stairs with a basket of laundry because something bad might happen to me,’” says Saberi. “And I remember thinking if I lived with that kind of fear every day, how could I function?”

Though physicians often recommended exercise restrictions to their patients with HCM, Saberi wondered about the data behind this. As she started digging, she realized there actually wasn’t any.

So, she approached one of her mentors, Sharlene Day, MD, associate professor in the Division of Cardiovascular Medicine and director of the HCM program at the Frankel Cardiovascular Center. Together, Day and Saberi designed a pilot randomized clinical trial of moderate-intensity exercise training in patients with HCM. “We were excited to take this on,” says Saberi. “We thought: What if we can turn this whole concept upside down?”

It was the pair’s first foray into the world of clinical trials, but they formed a strong collaboration with partners at Stanford University and tapped expertise from colleagues at the Palo Alto VA and the Michigan Institute for Clinical & Health Research (MICHR). The resulting study was conducted over five years at the two university sites. It involved 136 HCM patients, randomized into groups who did 16 weeks of either their usual activity or moderate-intensity home-based exercise — most commonly a non-vigorous walking program.

The results, says Saberi, were encouraging. Participants in the exercise group saw a modest, but statistically and clinically significant, increase in exercise capacity, measured by their peak oxygen consumption. Just as importantly, there were no major adverse effects.

Since publication, Saberi has continued to probe the data, trying to discover what led to the most positive outcomes so that she and her collaborators can better tailor exercise prescriptions in the future. “We were purposefully very conservative in our exercise prescriptions because we didn’t want to cause problems,” she says. “But the fact that we saw improvements with no adverse effects has emboldened us. Now we’re wondering: How can we turn those participants who did not respond with significant improvement in their exercise capacity into responders? What are the barriers to improvement and how can we break them down?”

Saberi plans to continue this line of inquiry because of the substantial impact it can have on so many aspects of patients’ quality of life. “I got an email from the mom of a 15-year-old with HCM who read our paper,” she says. “She said, ‘His cardiologist told us it would be dangerous for him to even play games at recess. They’ve absolutely taken the joy of play out of his life.’ This is why we have to figure out the truth around physical activity for patients with HCM — because there are implications physically, psychologically and emotionally. My goal is for patients with HCM to be able to live their lives to the fullest, without fear.”

“My goal is for patients with HCM to be able to live their lives to the fullest, without fear.”
— Sara Saberi, MD
DIABETES CLINICAL TRIAL OF HYBRID CLOSED LOOP SYSTEM

Michigan Medicine researchers have started the first multi-center international clinical trial testing the use of a hybrid closed loop system among adult and pediatric patients with type 1 diabetes. Funded by Medtronic, the study is being led at U-M by Rodica Pop-Busui, MD, PhD, professor in the Division of Metabolism, Endocrinology & Diabetes and associate chair for clinical research, and co-principal investigator Michael Wood, MD, associate professor of pediatric endocrinology. The trial will monitor patients’ blood glucose control for 12 months at home while they’re using Medtronic’s MiniMed 670G system. It is the first hybrid closed loop system that automatically monitors a patient’s blood glucose levels and independently provides the appropriate amount of insulin, acting like an artificial pancreas. Patients only need to enter mealtime carbohydrates consumed, accept bolus correction recommendations and periodically calibrate the sensor. More information on the study is available on ClinicalTrials.gov, id number NCT02748018.

HEPATOLOGISTS OFFER GUIDANCE ON LIVER TESTING

Two faculty from the Division of Gastroenterology and Hepatology presented an analysis of liver diagnostic methodologies in the New England Journal of Medicine in the hopes of helping primary care physicians better care for and educate their patients. Prepared by Assistant Professor Elliot Tapper, MD, and Anna Lok, MD, DSc, assistant dean for clinical research at the Medical School and the Alice Lohrman Andrews Research Professor of Hepatology, the article discusses the indications, risks and technical limitations of traditional biopsies. It also suggests that a combination of blood tests and noninvasive imaging is appropriate for identifying the cause of many cases of liver disease as well as the extent of liver injury. The authors highlight two leading liver imaging tests — FibroScan, which uses elastography to measure liver stiffness, and a form of MRI called magnetic resonance elastography, which is more reliable in patients who are morbidly obese or have large amounts of chest wall fat. In cases where imaging and blood work don’t agree, the authors suggest a traditional biopsy is warranted. They also note the value of biopsies in the research arena, for developing targeted therapies, such as chemotherapies for liver cancer, and for analyzing changes in fibrotic tissue over time.
About NAFLD

In NAFLD, fat builds up in the liver despite little or no alcohol consumption. A more advanced type of NAFLD is nonalcoholic steatohepatitis (NASH), which occurs when inflammation and cell injury or scar tissue are also present.

The primary treatments for NAFLD are lifestyle changes, such as diet and exercise. There are numerous clinical trials looking at pharmacologic agents to treat NAFLD/NASH.

NEW NAFLD CLINIC OFFERS CLINICAL TRIALS

In October, Michigan Medicine launched a new Non-Alcoholic Fatty Liver Disease (NAFLD) Clinic at the Taubman Center under the direction of Monica Konerman, MD, MSc, a clinical lecturer in the Division of Gastroenterology and Hepatology. It offers the latest diagnostic and treatment options to patients, including access to clinical trials.

The new clinic offers comprehensive diagnostic evaluations, assessments of disease severity and individualized treatment plans for patients, including consultations with on-site nutritionists.

It is also committed to advancing knowledge and improving patient care through research. There are a number of critical unanswered questions around NAFLD, such as why some patients develop it while others with similar risk factors do not, and whether we can learn to predict which patients are at risk for advanced disease.

Patients in the clinic have the opportunity to participate in studies that seek to identify the causes of fatty liver disease development and progression, the efficacy of various treatments including lifestyle changes and new investigational drugs, assessments of patient education efforts and more.

Information on ongoing clinical trials is available at med.umich.edu/hepatology/trials/NAFLD-NASH.

Clinical Research Highlights

GENETIC PREDISPOSITION IN 1 OF 5 YOUNG COLON CANCER PATIENTS

A 2017 study in the journal Gastroenterology revealed that 20 percent of patients under age 50 who’ve been diagnosed with colorectal cancer have a genetic predisposition to it. This is higher than researchers expected and exponentially higher than for patients over 50. Under current guidelines, more than half of these younger patients would not qualify for genetic testing based on their clinical or family histories.

The study was led by Elena Stoffel, MD, MPH, assistant professor in the Division of Gastroenterology and Hepatology and director of the Cancer Genetics Clinic at the U-M Comprehensive Cancer Center. It examined the results of multigene panel testing from 430 people under age 50 who were treated for colorectal cancer at the cancer center between 1998 and 2015. By testing a broader sample of patients and including a wider variety of genes than are traditionally tested, the study exposed the role of inherited genetic mutations in the growing problem of colorectal cancer in young people. The authors suggest that genetic testing be made available to all colorectal patients under age 50 given the value of the information to their treatment and the screening of family members.

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The new clinic offers comprehensive diagnostic evaluations, assessments of disease severity and individualized treatment plans for patients, including consultations with on-site nutritionists.

It is also committed to advancing knowledge and improving patient care through research. There are a number of critical unanswered questions around NAFLD, such as why some patients develop it while others with similar risk factors do not, and whether we can learn to predict which patients are at risk for advanced disease.

Patients in the clinic have the opportunity to participate in studies that seek to identify the causes of fatty liver disease development and progression, the efficacy of various treatments including lifestyle changes and new investigational drugs, assessments of patient education efforts and more.

Information on ongoing clinical trials is available at med.umich.edu/hepatology/trials/NAFLD-NASH.
Endocrinology Precision Medicine Trials Show Promise

**REPURPOSED ASTHMA DRUG IMPROVES DIABETES AND FATTY LIVER IN KEY SUBSET OF PATIENTS**

The results of a clinical trial at U-M showed that the anti-inflammatory drug amlexanox, prescribed in Japan to treat asthma, improved insulin sensitivity and fatty liver disease in a subset of patients with high levels of inflammation.

The 12-week trial was led by Elif A. Oral, MD, MS, associate professor in the Division of Metabolism, Endocrinology & Diabetes (MEND) and director of the MEND Post-Bariatric and Obesity & Metabolic Disorder Programs at Michigan Medicine. The trial was a collaboration with the University of California at San Diego, where the tissue samples were analyzed, and actually grew out of basic research originally conducted at U-M.

Oral’s collaborator at U-C San Diego is Alan Saltiel, PhD, the former director of U-M’s Life Sciences Institute and professor in the Division of Molecular Medicine & Genetics. While at U-M, Saltiel and colleagues discovered that production of the enzymes IKKε and TBK1 was increased in obese mice, causing a reduction in the calories they burned. This prompted them to look for inhibitors of these enzymes by screening a library of 150,000 chemicals — which is how they landed on amlexanox.

Giving the drug to obese mice caused changes in their gene expression that led to weight loss and improved diabetes and fatty liver disease. The clinical trial revealed the same changes to gene expression in the human responder group, which led to similar improvements.

The team is planning follow-up trials to determine whether it’s possible to stratify patients who are likely to respond to amlexanox based on their degree of underlying inflammation. The next set of trials are expected to begin in late 2018.

**LEPTIN THERAPY IMPROVES FATTY LIVER IN SELECT PATIENTS WITH PARTIAL LIPODYSTROPHY**

Oral also led another trial of patients with fatty liver disease, this time caused by partial lipodystrophy. This rare condition features the loss of fat in some areas of the body and its accumulation in others; it also causes patients to have severe insulin resistance, high blood lipids and fatty liver. The study showed that participants with lower baseline levels of leptin — a hormone that regulates fat and glucose metabolism — had improvement in their liver disease after one year of treatment with metreleptin, a synthetic form of leptin. Metreleptin was approved by the Food and Drug Administration in 2014 to treat generalized lipodystrophy, thanks in large part to efforts initiated by Oral.

This NIH-funded study aimed to discover whether the drug could also help treat liver inflammation and fibrosis in patients with partial lipodystrophy. Patients with a lower average baseline leptin level of 14.5 ng/mL showed a clinically significant improvement in their liver disease, compared with non-responders whose average leptin level at baseline was 25 ng/mL. This suggests the potential for a precision treatment of fatty liver disease in patients with partial lipodystrophy.
Can Germ-Zapping Robots Keep Patients Safer?

KEITH KAYE CONDUCTS FIRST RANDOMIZED CONTROLLED TRIAL TO SEE IF UV LIGHT DISINFECTION CAN REDUCE HOSPITAL-ACQUIRED INFECTIONS

July 2017 saw the launch of a clinical trial designed to test whether robots using high-intensity ultraviolet light can protect patients from deadly superbugs, such as *Clostridium difficile* and MRSA, found on hospital surfaces.

The study is led by Keith Kaye, MD, MPH, professor and director of clinical research in the Division of Infectious Diseases. Funded by the NIH’s Agency for Healthcare Research, it’s the first of its kind to test these devices in a randomized controlled trial in the setting of a working hospital.

The centerpiece of the study is the Xenex Germ-Zapping Robot. Using pulsed xenon UV lamps, these robots flash germicidal light in millisecond pulses, damaging the cell structure and DNA repair mechanisms of most pathogens.

“We know these devices work from studies where you culture the environment before and after,” says Kaye. “They’ve been shown to reduce the amount of bacteria significantly and have been associated with reductions in infection rates in hospitals. What has never been done in a robust way is determining, using a rigorous study design, whether incorporating these UV light machines into standard hospital cleaning practices actually decreases patients’ risk for hospital-acquired infections or resistant organisms.”

To determine this, Kaye’s team deployed 16 Xenex Germ-Zapping Robots to two hospitals in the Detroit Medical Center network, where he worked before transitioning to U-M in 2016. When cleaning crews perform a “terminal clean” between patients, they are asked to do everything they normally would — scrubbing and disinfecting the bed, handrails, doorknobs, phones, call buttons, bathrooms, tray tables, curtains and so forth. Then they are asked to activate the robot’s five-minute cleaning cycle.

Half the robots in Kaye’s study are functional and half are shams, with a special glass that blocks delivery of the UV light. Users and researchers alike are blinded to which is which. His group is collecting data from the charts of patients in these rooms to determine whether the robots reduce the number of infections from key drug-resistant organisms.

“We’re targeting the hardier, more resistant pathogens,” says Kaye. These include *Clostridium difficile*, vancomycin-resistant enterococci (VRE), *Klebsiella pneumonia*, *Escherichia coli* producing extended-spectrum betalactamases (ESBLs), methicillin-resistant...
A Xenex Germ-Zapping Robot pulses germicidal UV light to combat hospital-acquired infections.

The Problem of Hospital-Acquired Infections

According to the CDC, there are approximately 1.7 million hospital-acquired infections in the U.S. per year. They affect 5 to 10 percent of hospitalized patients, resulting in 99,000 deaths and an estimated $20 billion in health care costs. Progress has been made in recent years in reducing these numbers, but more work is needed.

Clinical Research

Staphylococcus aureus (MRSA) and Acinetobacter baumannii.

Only part-way through the two-and-a-half-year trial, Kaye says he does not yet have efficacy data, but he’s been pleased with compliance. “In a working hospital, we’re unlikely to be able to treat every room 100 percent of the time post-discharge,” he says. “But early studies have shown that if you treat 80 percent of the time, you’ll have a big effect on environmental contamination. We’re proud that we’ve been above this threshold.”

Because of this, Kaye expects to have robust data that will complement work being done by others in the department and division — particularly that of Laraine Washer, MD, clinical associate professor in the Division of Infectious Diseases and medical director of the Department of Infection Prevention & Epidemiology. She’s leading a quality improvement intervention to use hydrogen peroxide vapor to terminally disinfect rooms at Michigan Medicine, specifically targeting Clostridium difficile.

“UV light and hydrogen peroxide vapor are the two big technologies in this arena, so this is an interesting natural experiment,” says Kaye. “We’ll learn a lot about which is easier to implement and which results in greater compliance.”

He hopes their work and the work of patient safety experts in the Division of Hospital Medicine will go a long way toward making hospitals safer, more hygienic places and accelerating recent progress against hospital-acquired infections.
A new initiative was launched in spring 2017 to document the perspectives of older Americans and their caregivers on issues relevant to their health, health care and health policy. Called the University of Michigan National Poll on Healthy Aging (NPHA), it is based at the U-M Institute for Healthcare Policy and Innovation, sponsored by AARP and Michigan Medicine, and directed by Preeti Malani, MD, MSJ, MS, U-M’s chief health officer and a professor in the Division of Infectious Diseases.

The NPHA is a recurring, nationally representative household survey of Americans 50 years of age and older, modeled on the highly successful U-M C.S. Mott Children’s Hospital National Poll on Children’s Health. It is already generating a number of insights with the potential to improve clinical care and health outcomes for this growing segment of our population.

HELPING OLDER AMERICANS SLEEP

Poll results released last fall reveal that one in three older adults turn to medications to help them sleep, many not realizing that prescription, over-the-counter and even “natural” sleep aids carry health risks, especially for older adults — either alone or in combination with other substances. In fact, one in 12 patients over 65 reported taking a prescription sleep medicine regularly or occasionally, although national guidelines caution against it.

In addition, most poll respondents said they hadn’t talked to their doctor about their sleep, even though more than a third said their sleep posed a problem. Half believe, incorrectly, that sleep problems are a normal part of aging. This is a concern, says Malani, because sleep medications, even over-the-counter ones, can contribute to problems such as falls, memory issues, confusion and constipation.

This lack of discussion represents a missed opportunity. Nearly two-thirds of the respondents who did speak to their doctor reported getting helpful advice, such as sleep-hygiene techniques.

ADDRESSING THE BURDEN OF DRUG COSTS

Also highlighting the need for better patient-provider communication were NPHA results released last summer on the burden of drug costs for older patients. The majority of Americans over age 50 take two or more prescription medicines, and 27 percent of them said their prescription drug costs posed a financial burden for them. This was especially true for patients taking six or more prescriptions and seeing more than one doctor.

Despite their concerns, nearly half of those who reported that drug costs are a hardship hadn’t talked to their doctor about the issue. But doing so was reportedly beneficial: 67 percent of those who said they talked to
their doctor about cost received a recommendation for a less expensive drug, and 37 percent got similar recommendations from pharmacists.

Malani says this research highlights the importance of finding ways for health professionals to more routinely engage with patients about cost, and where possible, to recommend generic equivalents or help identify options that reduce copayments or overall price. Such discussions, she says, should also be supported by insurers, such as the formal medication reviews covered by Medicare.

The majority of Americans over age 50 take two or more prescription medicines, and 27 percent of them said their prescription drug costs posed a financial burden for them.

New JI Research Projects

Three internal medicine research projects were funded in 2017 through the Joint Institute for Translational and Clinical Research, a Michigan Medicine partnership with the Peking University Health Science Center (PUHSC) in China. They include:

**EVALUATION OF SPIRONOLACTONE VERSUS INDAPAMIDE ON TARGET ORGAN DAMAGE IN PATIENTS WITH OBESITY AND HYPERTENSION (ENVOY)**

Two emeritus professors in the Division of Cardiovascular Medicine, Bertram Pitt, MD, and Stevo Julius, MD, ScD, are partnering with PUHSC investigators to compare the effects of the thiazide diuretic indapamide to the mineralocorticoid receptor antagonist spironolactone, both in combination with amlodipine, on left ventricular diastolic dysfunction and small artery elasticity in 300 patients with metabolic syndrome and hypertension over a 12-month period.

**OVERCOMING INTERPATIENT VARIABILITY IN ANTIPLATELET THERAPY**

Daniel Eitzman, MD, professor in the Division of Cardiovascular Medicine, is partnering with Haoming Zhang, PhD, assistant professor of pharmacology at U-M, and two PUHSC investigators on a pilot study to shed light on the variability of response to the class of platelet inhibitors that includes the drug Plavix, leading to reduced efficacy in some patients.

**MITOCHONDRIAL NUTRIENT METABOLISM AND PROGRESSION OF DIABETIC KIDNEY DISEASE**

Two researchers from the Division of Nephrology, Subramaniam Pennathur, MD, division chief and Norman Radin Professor of Medicine, and research investigator Kelli Sas, PhD, are partnering with PUHSC investigators to clarify the mechanisms underlying the progression of diabetic kidney disease in the hopes of identifying protective factors.
QUALITY + PERFORMANCE IMPROVEMENT
A Case in Quality: The Peri-Endoscopy Antithrombotics Project

HOW THE DEPARTMENT’S Q&I PROGRAM HELPED A MULTI-DISCIPLINARY TEAM IMPROVE AND STANDARDIZE THE MANAGEMENT OF BLOOD THINNERS BEFORE GI PROCEDURES

When Geoffrey Barnes, MD, MSc, an assistant professor in the Division of Cardiovascular Medicine, and Jacob Kurlander, MD, MS, a clinical lecturer in the Division of Gastroenterology and Hepatology, started talking as students in a health services research training program, they knew there was a problem where their subspecialties crossed paths.

Kurlander had seen it as a gastroenterologist who does endoscopic procedures. Patients would periodically arrive prepped for a colonoscopy only to have it cancelled because they hadn’t stopped their warfarin in time. Barnes saw the problem from the perspective of a vascular medicine specialist whose research focuses on the safe management of antithrombotics — the blood-thinners like warfarin and anti-platelet medications prescribed to prevent blood clots. As co-director of the Michigan Anticoagulation Quality Improvement Initiative (MAQI2), Barnes says he’d heard reports of “physicians being confused and not knowing how to manage patients on different blood thinning medicines before and after surgery.” This dismayed but didn’t surprise him. After all, he worked closely with the pharmacists and nurses who staff Michigan Medicine’s anticoagulation clinic, whose very charge is helping patients and their physicians manage these powerful medicines. “Occasionally, the clinic would hear about these patients and would be asked to offer some advice, but nothing systematic or routine.” It seemed like a missed opportunity, with negative implications for service delivery and, most importantly, patient care.

EXPLORING THE PROBLEM

Since endoscopy is one of the most common procedures for which patients have their antithrombotics interrupted, Kurlander and Barnes decided to explore the problem together. They focused especially on a key piece of it — decisions about bridging anticoagulation. There seemed to be particular confusion around when patients who take warfarin could stop their blood thinner for a brief period before a procedure and when they needed to “bridge” that period with injections of a shorter-acting anticoagulant.

Clearly, bridging is essential for patients at high risk for stroke or other clotting problems. However, bridging patients at low or intermediate risk means the expense and discomfort of a shot they don’t need, plus the potential for procedure-related bleeding. But where to draw the line?

Furthermore, the pair knew, it was not always clear which provider should take the lead in managing these medications — a primary care doctor ordering an endoscopy, the GI doctor who would perform it or a cardiologist who may have prescribed the medications initially. There was room for patients to receive conflicting information or to fall through the cracks entirely.

So, Barnes and Kurlander set about designing a survey to learn how their fellow physicians saw the issue. “We surveyed 127
providers in internal medicine, family medicine, cardiology and gastroenterology at six sites in the MAQI2 consortium,” says Kurlander. “We asked how they would manage various cases we presented, how they felt these bridging decisions were being made and whether they needed more help with this process.”

Their findings confirmed their hunches. First, there was significant variation across specialties about when to bridge — with the consequence that it was being considerably overused. “We found that the rate of bridging for patients on warfarin was around 25 percent,” says Barnes. “But national estimates say that fewer than 10 percent of these patients need bridging. We knew we needed to get our numbers down.”

Second, while there was consensus that a non-gastroenterologist should be responsible for bridging decisions, it was less clear whether that should be the primary care physician or cardiologist. If it were to fall under primary care, these physicians wanted more help with the process.

In a hopeful sign, respondents did agree that they’d welcome a consistent, well-designed process for managing these medications.

**TAPPING QI EXPERTISE**

Armed with these insights, the pair approached the Department of Internal Medicine’s Quality & Innovation (Q&I) Program, hoping to find a better way. “We had an initial meeting,” says Liz Spranger, a performance improvement coach at the program, “and it was clear this project had the ideal characteristics for us — physician-driven, patient-centric, measurable outcomes and the potential for clinical impact.”

The group began their quality improvement (QI) project in January 2017. Though the process is customized for each project, says Spranger, her approach with Barnes and Kurlander is representative of the support her team often provides.

Their first step is what she calls the discovery phase. This includes gathering data to confirm the size of the problem and identifying the right stakeholders.

“There was a lot of data that we were able to provide,” says Spranger. “Our data specialist, Linda Bashaw, extracted data from MiChart, such as on how often bridging medication is prescribed, how often there are...
I don’t think anyone on the team had ever had an experience like this, where a team worked so well, knew so much about a problem and was able... to understand it from multiple, different dimensions. Everyone was invested in the problem, wanted clarity around it and made the patient experience the driving factor. It was incredible.”

— Jacob Kurlander, MD, MS

hospitalizations for bleeding and how often procedures are canceled.”

The next step was identifying the key stakeholders who should comprise the team. This is a key element of project success but one that is often overlooked by QI newcomers, says Spranger. In addition to herself, Kurlander and Barnes, the team included primary care physicians, an anticoagulation pharmacist, a GI nurse, a supervisor from the endoscopy call center, MiChart specialists, a research specialist and patient advisors to keep the process grounded in this essential perspective.

Among the team’s first tasks was identifying the current state. This is where the careful construction of the team showed its value. “It allowed us to take a complete 360-degree view of our problem and to understand it from multiple, different dimensions,” says Kurlander. “Everyone was invested in the problem, wanted clarity around it and made the patient experience the driving factor.”

The team’s composition also helped challenge assumptions, says Barnes. “Everyone assumed they knew what happened in somebody else’s job, yet the way care was delivered was very different from what we expected. It was really important that we had an agnostic person like Liz to say, ‘What’s happening? Let’s ask the people who are actually doing the work.’”

After a thorough analysis of the current state, Spranger helped walk the team through choosing outcome measures and data sources — things like patient and provider surveys to assess their experience; chart reviews for appropriateness; and data on hospitalizations for bleeding, canceled procedures and their reasons. This is essential for determining whether an intervention has actually made an improvement, she says.

The team was then asked to clarify their design principles, work up potential solutions, and evaluate the pros and cons of each. Only after this months-long analysis did they identify their preferred future state.

THE SOLUTION

Ultimately, the team decided that the pharmacists at Michigan Medicine’s outpatient anticoagulation clinic were best positioned to coordinate this work. They already had expertise in antithrombotic medications; were centralized and so could be a consistent, standardized resource; and could serve in a similar role if the model were expanded to other surgical procedures.

The pharmacists’ role upon receiving a referral is to assess the patient’s chart, gather any necessary records and contact any providers, if needed. They then make a clinical recommendation in accordance with institutional guidelines on
how to manage the medications and also educate the patient. They’ve since expanded to the entire health system.

“Before we made these changes, the coordination of this process was random and variable, depending on which doctor ordered the procedure,” says Barnes. “Now it is systematic. Later this year, we’ll have enough data to be able to calculate the percent of patients who are getting appropriate bridging and compare it to our previous state. But the early markers we’ve seen are encouraging — the cases we’ve reviewed have been managed appropriately, provider feedback is positive and patient satisfaction is strong. I think we have a process that is going to have a positive impact for our patients and providers, and will be a great model for solving similar problems in the future.”

Future state mapping is a key output of the quality improvement process. This map illustrates how the new antithrombotic management process will function from the time an endoscopy is ordered to post-procedure instructions and depicts each stakeholder’s role in the process.
Resident QI Project: CBC Daily Labs

HOW A TEAM OF RESIDENTS USED THEIR MONTH-LONG QUALITY IMPROVEMENT PROJECT TO SPUR THE HEALTH SYSTEM INTO RETHINKING DAILY LABS

In 2017, the American Board of Internal Medicine Foundation-initiated campaign Choosing Wisely celebrated five years of mobilizing against low-value medical services. A group of second-year residents did their part to honor this milestone with a national conference poster on their work to chip away at one of the campaign’s more challenging targets: repetitive complete blood count (CBC) testing.

What started out as a month-long resident quality improvement (QI) project has been picked up and transformed into a full-scale evaluation being rolled out across the health system.

IDENTIFYING THE PROBLEM

In many ways the project began as an observation by the Division of Hospital Medicine’s Chris Petrilli, MD, while he was a chief resident. “Every day on rounds residents would report their morning labs,” he says. “It became clear that even when a patient was getting ready to be discharged, they were still being woken up at 4:00 a.m. to have their labs drawn. It’s common sense that any time you order a test, it should be because you’re looking for something specific or because it might change how you manage a patient, not for routine monitoring. But it seemed like that’s what was happening.”

The specter of routine monitoring troubled him, so as a newly minted assistant professor Petrilli brought the problem to the Department of Internal Medicine’s Quality & Innovation (Q&I) Program for help.

His focus was the CBC. Though useful for flagging potential problems like cancer, infection or anemia, the test is less valuable for patients who are clinically stable and have successive normal results. Not to mention that no one likes to be roused and poked unnecessarily.

Petrilli believes habit, training and convenience have caused physicians to go on autopilot with standing CBC orders. “This is how residents around the country have been trained, believing repetitive testing is not just the standard of care but good-quality care,” he says. “In addition, the electronic medical record makes it easy to just check a box at admission to repeat these tests automatically. It’s crazy to think we have the ability to order this test for 999 consecutive days without anyone even looking at or thinking about it.”

FINDING A TEAM

The Q&I Program heard Petrilli’s case and suggested pitching it as a resident project. It wasn’t long before a team signed on.

Its members included Tony Chen, MD; Jennifer Kennedy, MD; Kayla McAleenan, MD; Justin Shaya, MD; and Eric Smith, MD, and its faculty mentor was John Gosbee, MD, MS, a lecturer in the Division of General Medicine. The residents were drawn to the problem, says McAleenan, because it’s persistent and widespread — yet
there was evidence that it didn’t have to be. “We thought the CBC was a nice target, because it’s often done in a knee-jerk fashion,” she says. “It’s also an important topic not just for internal medicine residents, but for everyone in the hospital.”

Everyone that is, except in pediatrics. “It’s interesting that we’re extremely thoughtful about poking children,” says McAleenan, who’s doing a combined internal medicine-pediatrics residency, “but it’s not quite as hard to do if it’s an adult. Kids can actually have labs drawn when they first come into the hospital and not have them drawn again during their whole stay.”

LAUNCHING THE PROJECT

The team started with a problem statement, followed by a root cause analysis. The aim, says their performance improvement coach, Matt Johnson, was to determine why this repetitive pattern of ordering was occurring for adult patients and whether it was truly a “problem.” They conducted a survey of selected residents and attendings on the hospital service to determine the factors that caused them to place standing CBC orders. While the patient’s clinical status was high on the list, so too were other drivers — convenience, the perceived preference of a resident’s attending, and residents’ fear of missing a change in a patient’s status without this data.

The team also did more digging into the downside of daily CBCs. They discovered that each test can cost $200 or more and that overuse can lead to anemia, prolonged length-of-stay, and bottlenecks at the lab that can delay results for the patients who really need them.

To see if they could move the needle toward high-value testing, the team devised a week-long
The BPA encourages physicians to consider omitting a third CBC if the two previous tests were normal and the patient is stable.

“Our quality improvement project provides internal medicine residents the unique opportunity for mentoring from both physician and non-physician quality improvement experts. Matt Johnson, our performance improvement coach, brought experience from the medical device industry and helped the team apply industry standard quality improvement tools to the health care setting in order to improve efficiency and quality of care.”
— Eric Smith, MD, MED-PEDS Resident

Pilot. Aimed at the residents on all four general medicine resident services, its goal was simple: to make CBC testing more thoughtful and deliberate. Using daily morning reminder pages and workroom posters, the team urged residents to consider whether the patients on their rounds truly needed a CBC the following day.

The results were compelling — a 40 percent reduction in CBC orders during the intervention period, from an average of 1.32 CBC orders per patient-day for the previous six months to 0.82.

TAKING IT SYSTEM-WIDE
The residents are the first to admit that their intervention was modest, both in scale and rigor. However, they learned to use QI tools to analyze a clinical problem and pilot an intervention. And in the process, they demonstrated that with a little awareness-raising, behavior change on daily labs was possible.

They presented their findings, both at the traditional noon conference at the end of their month and through a poster at the 2017 Society of Hospital Medicine conference.

The results were so promising that the QI Program decided to maintain the project’s momentum, providing operational support for the project’s continued development and connecting it with MPrOVE for further evaluation. The latter was a natural fit, as both Petrilli
Resident PS/QI Education Program

The department’s Quality & Innovation Program partners with the Graduate Medical Education program to expose residents to quality improvement and patient safety (PS/QI) across all three years of residency.

Year one focuses on exposure and awareness, with several foundational PS/QI seminars. During the second year, teams of four to five residents apply their PS/QI knowledge to a month-long quality improvement project. The teams are led by the department’s PS/QI faculty mentors and the Q&I Program’s performance improvement coaches who facilitate topic selection, introduce quality improvement tools, and provide support for data needs and the presentation of project outcomes. In year three, residents can choose to deepen their understanding by leading or participating in additional QI projects, serving on a variety of QI committees or pursuing an elective with a faculty mentor.

FACULTY MENTORS

Seven faculty from the Divisions of General Medicine, Hospital Medicine, Infectious Diseases and Geriatric & Palliative Medicine act as faculty mentors to residents during their second-year PS/QI projects.

Nathan Houchens, MD
(Director, PS/QI Program)
Sandro Cinti, MD
John Gosbee, MD, MS
Lauren Heidemann, MD
Gabriel Solomon, MD
David Stewart, MD
Jennifer Stojan, MD, MHPE

PERFORMANCE IMPROVEMENT TEAM

Five performance improvement (PI) specialists from the Q&I Program further support these projects.

Tammy Ellies (Manager)
Linda Bashaw (Data Specialist)
Matt Johnson (PI Coach)
KatieSchwalm (PI Coach)
Liz Spranger (PI Coach)

About MPrOVE

The Michigan Program on Value Enhancement (MPrOVE) brings together leaders from Michigan Medicine and U-M’s Institute for Healthcare Policy & Innovation to rigorously evaluate interventions that aim to improve the quality and value of health care. It is co-directed by Eve Kerr, MD, MPH; Scott Flanders, MD; and Anne Sales, PhD, RN, MSN.

MPrOVE will then test the impact of layering in team competitions for appropriate ordering before moving to the final stage — testing the removal of the standing order altogether.

If successful, the evidence from this work could change the way CBCs, and potentially many other “routine” tests, are ordered, not just at Michigan Medicine but at hospitals around the world.

While McAleenan says this prospect is extremely gratifying, she’s just as excited about the fresh lens through which she views her career. “In my day-to-day role as a physician, I interact one-on-one with patients, and I feel I make a difference,” she says. “But through this project, I felt like I was making a difference in medicine on a larger scale. Now I’m always thinking: How can I make the experience better — for my patients, my coworkers and our health system?”

MPrOVE is now evaluating the BPA (at left) via a stepwise rollout to various services, bringing the methodological rigor it will need to be widely adopted. They’ll look not only at the overall number of CBCs ordered pre- and post-intervention, but also things like the trends in ordering and how ordering is affected by the service or attending to which residents are assigned. And while many previous studies have assumed that any reductions in CBC ordering represent inappropriate ordering, MPrOVE seeks to verify this.

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Patient Panels: Providing Quality, Population-Based Care

BRIARWOOD’S APPROACH TO PANEL MANAGEMENT IS A MODEL FOR PROACTIVE, COMPREHENSIVE, HIGH-QUALITY PATIENT CARE

Michigan Medicine’s Briarwood Medical Group has embraced the future of primary care. Overdue for a colonoscopy? The clinic will let you know. Released from the hospital? They’ll check in and schedule your follow-up. Time for your annual physical? Expect everything in one efficient package — checks on your chronic conditions, key lab results, orders for upcoming screenings and attention to that pinched nerve, stomach pain or whatever’s been recently troubling you.

It’s a rich model of care based on the notion of “population health,” says Linda Terrell, MD, the medical director of Briarwood Medical Group and an assistant professor in the Division of General Medicine. Its focus is keeping a clinic’s entire patient population healthy, including those who come in for visits — and, more remarkably, those who don’t.

PATIENT PANELS AND POPULATION HEALTH

It’s an approach that has been quietly building for a decade but was given a substantial boost in 2017 when the Centers for Medicare & Medicaid Services announced its first round of participants in its new Comprehensive Primary Care Plus (CPC+) program. Designed to “transform” primary care by making it more proactive, preventive and value-oriented, the program incentivizes a shift from episodic, largely reactive, care to population health management. U-M primary care clinics were selected to be among the first group of CPC+ participants, and Briarwood is serving as a model for how to implement this forward-looking approach.

The heart of it, says Terrell, is managing a “patient panel,” a specific group of patients under the care of a dedicated provider team. It aims to improve their health through a combination of inreach — better utilizing clinic visits to accomplish a broader array of goals — and outreach.
— contacting patients between visits, as necessary, to keep them on track with chronic disease management and preventive care. It also features built-in quality improvement processes that continuously drive to close any identified gaps in care.

**A RESPONSE TO GROWING DEMANDS ON PRIMARY CARE**

It may seem paradoxical, but this movement toward proactive, comprehensive care is being driven, in part, by the very factors that would seem to make it impossible. These include increasing demands on primary care physicians (PCPs) from an aging patient population, limited subspecialty availability, expectations of greater support for patients’ economic and psychosocial needs, and shorter hospital stays that put pressure on these doctors to manage more and more in the outpatient setting.

PCPs are responsible for not only acute patient needs — from sore throats to shingles — but also preventive services like immunizations and key cancer screenings as well as the management of increasingly complex chronic conditions. “We do most of the complex management for almost all of our type 2 diabetics, patients with depression and anxiety, and those with stable coronary disease, atrial fibrillation, hypertension and heart failure,” says Terrell. In addition, for all these conditions there are some 48 different quality measures — things like screening diabetic patients for kidney complications and assessing fall risk in the elderly — that her clinic is expected to hit between the 75th and 90th percentile on.

It’s a tall order. In fact, estimates suggest that it would take a PCP 18 hours a day to provide all of the recommended preventative and chronic disease management services to a typical panel of 2,000 patients.

To meet this demand, providers have had to move away from the traditional model of a centralized call center where patients seek care and providers react — typically with a pool of nurses juggling messages from patients they may not know among a number of dispersed physicians. Instead the new model is an outgrowth of the patient-centered medical home, with teams of providers arranged to streamline and coordinate care to dedicated groups of patients in increasingly efficient, effective and personalized ways.

**IMPLEMENTING A PANEL: THE INGREDIENTS**

There are a number of essential steps to implementing a panel-management model, and Terrell explains how her clinic undertook them.

“Estimates suggest it would take a PCP 18 hours a day to provide all the recommended services to a typical panel of 2,000 patients.”

— Linda Terrell, MD, Director, Briarwood Medical Group

**New Organization**

One of the first changes necessary to be able to deliver this model of care was a change in organization. The Briarwood leadership team took the clinic’s existing population of approximately 12,000 patients and divided them into four groups, working to preserve
Panel management uses a care team to conduct both inreach — using clinic visits to accomplish a broader array of goals — and outreach — contacting patients between visits to address chronic disease management and preventive care.

patients’ existing provider relationships.

Each group of roughly 3,000 patients was assigned to a dedicated provider team, or “pod,” comprised of two to four physicians, each with his or her own medical assistant (MA), plus one nurse. There is an additional nurse practitioner shared between two pods, plus clerical staff, an office manager, a pharmacist, a social worker, a dietician and a panel manager shared by all four pods.

The next step was to physically move the teams. Each pod is now geographically separated into the four corners of the building so that each team’s members work in close proximity to each other. This means that they can easily discuss important issues in person and on the fly, huddle regularly as a team to share information and strategize, and then come together monthly across pods to tackle clinic-wide issues.

Another example of proximity: Terrell now shares an office with her medical assistant. They no longer waste effort messaging each other; they can just talk.

“This geographic redistribution has improved our communication dramatically,” says Terrell. “My patients know that my nurse and medical assistant speak for me completely.”

New Roles

Just as important to the team structure is having clearly defined roles that empower all providers to work to the very top of their licenses.

For example, the nursing role now combines traditional triage with the newer function of care management. The latter includes proactively managing the pod’s most complex patients who utilize the most health care resources. This might include calling all patients who’ve been discharged from the hospital to make sure any concerns are
addressed and follow-up visits are scheduled.

Likewise, the role of the MA has grown dramatically in this model, says Terrell. In the case of annual physicals, she and her MA, Mandi Urbanski, preview the following month’s schedule, reviewing each patient’s chart so Terrell can identify the labs she wants. Urbanski places the orders and contacts patients to get the testing done before their scheduled appointment. She also documents any concerns the patients raise using MiChart’s pre-charting option.

Then, at the visit, Urbanski prints out the lab results, flags any care that’s due, takes vitals and conducts key in-office checks like blood sugar and diabetic foot exams. Then, she confers with Terrell, preparring her on these issues plus any concerns the patient has raised. It’s this rich partnership and planning that make these encounters so much more productive, says Terrell.

Another key role change is the addition of the panel manager. This is the person largely responsible for flagging patients in need of between-visit care. By running the data on who’s due for vaccines, screening tests or other key services, the panel manager can reach out to them by phone or portal to help them get the care they need.

Robust IT
All of these roles are made infinitely more manageable, says Terrell, with a robust database and dashboard interface. “We are lucky here at the university to have the Quality Analytics Division,” she says. “They are able to gather patient data from the Epic electronic health record and other sources and present it in a dashboard called Tableau. It’s an amazingly powerful tool that allows us to follow the patients in our panel and easily identify gaps in care. We get data for 48 different quality measures updated monthly. Our physicians can see their own measures, I can see them for our clinic and I can see our clinic compared to other primary care clinics.”

Other Supports
There are other useful supports, says Terrell, like e-consults, which allow primary care physicians to electronically consult with specialists about a patient’s care in lieu of a separate appointment, and a behavioral health collaborative that facilitates a psychiatric consultation to better manage patient medications.

There’s also the new Ambulatory Diagnostic and Treatment Units (page 56), which provide services that fall between those offered in the primary care office and the emergency room. But most important, says Terrell, is having a strong, well-trained team, coordinated communication and staff buy-in to the panel-management model.

THE PAYOFF: IMPROVED CARE

The panel management model and quality improvement processes built into it have resulted in significant improvements in care. The clinic is currently above the 90th percentile on virtually all of its key preventive metrics, with large recent jumps in the remaining areas.

This happens, says Terrell, because each month the clinic focuses on a different quality measure, brainstorming ways to improve care and hosting friendly inter-pod competitions to engage everyone in implementing the new approaches. The pod with

Medical Assistant Stacy Reber displays the Golden High Five, an award given to the pod with the strongest performance on each month’s target quality measure.
The best outcomes plays host to the Golden High Five award, itself an innovation suggested by one of the MAs to keep the focus on quality.

**Hypertension Control**

When the monthly spotlight turned to hypertension control, the team sought a way to ensure that a patient’s high blood pressure could not be overlooked during a clinic visit. Rather than just noting it in the chart, one MA suggested a tiny plastic flag be placed in the keyboard so physicians couldn’t so much as type without moving it. This was their cue to address the issue — either through a referral to the clinic’s own nurses or collaborating Meijer pharmacists.

“The Meijer collaboration is an initiative where our university pharmacists trained pharmacists at two Meijer locations,” says Terrell. “Patients can schedule a half-hour visit with them free of charge to discuss the importance of controlling blood pressure and ways to do it. The Meijer pharmacists have access to MiChart and can message the patient’s physician if they want to suggest a medication adjustment, and they offer free follow-up visits. Patients have found it very convenient and somehow less threatening than coming to the doctor’s office, and we’re now over the 90th percentile for blood pressure control.”

**Advance Directives**

There is another recent initiative aimed to increase the percentage of patients with advance directives on file, and the clinic has taken several steps to facilitate this. The clinic’s social worker, Leslie Brooker, MSW, switched to a clearer, easier-to-complete form, provided patients with self-addressed stamped envelopes to submit them and walked the entire clinic staff step by step through completing the form so they could all be a resource for patients. She also started free monthly patient education sessions on advance directives. “This has been very popular with our patients,” says Terrell, “and we’ve even had patients from other clinics ask to attend.”

While their rates have improved, Terrell hopes to bring them even
higher with follow-up by the panel manager.

**Depression Screening**

One of the areas that saw an enormous leap last year — from 10 to 74 percent — was administration of the PHQ-9, a screening questionnaire for depression. Though important for both diagnosing and monitoring the severity of a patient’s depression, it was often overlooked or entered in the notes section of the chart where it was easy to miss and couldn’t be queried. Through a concerted effort to train MAs on the importance of collecting this data, how to approach it with patients and how to enter it properly in MiChart, there is now useful, visible data that can be trended over time.

Terrell says that the path to panel management is by no means an easy one; it takes creativity, persistence and complete engagement of the team with all members working to the top of their training. However, the promise is worth it: better health for the entire clinic population, not just those who seek care. She’s delighted it’s being incentivized by CPC+ with a payment structure that recognizes the value of this approach, and she’s happy to be able to share her team’s lessons with other primary care clinics interested in accepting the challenge and promise of panel management.

Lead Medical Assistant Britney Gore (standing) consults with Medical Assistant Mandi Urbanski on MiChart updates.
Young doctors researching residency programs are drawn to Michigan Medicine because of its reputation; U.S. News & World Report recently ranked it no. 6 in graduate education. One reason for that ranking can be found in the educational options offered in the Department of Internal Medicine.

**TEACHING TO TEACH**

One recently established option is the Teaching to Teach curriculum, inspired by research that confirms a third of a medical student’s knowledge is directly attributable to interactions with residents.

Then-chief medical resident Daniel Bennett, MD, started the ball rolling on enhancing residents’ ability to teach when he gathered a team of colleagues to study the subject. “That’s when I met with the group,” noted Jennifer Lukela, MD, an associate director in the residency program, “and together we took steps to develop a curriculum. We initiated development in 2014, piloted the curriculum in 2015, and started to implement it in 2016.”

The Teaching to Teach (T3) curriculum is a mandatory experience, delivered over a four-week period within the ambulatory care rotation. During that time, Lukela and her co-instructors introduce residents to such subjects as clinical reasoning, the process of identifying cognitive errors in decision making, and the integration of evidence-based medicine into teaching.

“We then give senior residents pedagogical tools such as ‘advance organizers’ — a means of illustrating the relationship between what students are about to learn and what they already know — to teach younger residents and med students,” she explained. “We also require residents to build and present their own teaching scripts, which are later made available for others to access.” The other components of the T3 curriculum include developing presentation and feedback skills and validated tools for quick clinical teaching like the One Minute Preceptor.

**LEARN FROM THE BEST**

The next step in the process is showing residents how to turn theory into practice. The observation of “master clinician educators” is part of our new Medical Education Elective which is a two-week elective for senior residents. During this rotation they observe teaching rounds, lead education conferences for medical students and interns, and teach medical students physical exam and history taking skills.

The key here is to “watch the teaching, not the medicine,” and learn from the best.

**PRIMARY CARE TRACK**

One of those seasoned educators is Kristin Collier, MD. In addition to being a T3 instructor, Collier is the director of Graduate Medical Education’s primary care track. “A track is an elective...”
opportunity for residents to take a deeper dive into a field that interests them,” she explained.

Primary care is definitely something that interests Collier. “I’m a PCP who trained at Michigan,” she said. “I’m passionate about providing care over time and helping patients navigate health care and the health care system.”

How does the track encourage that level of emotion and commitment among the residents? As Collier explained, “We send them into the Taubman Center, the VA hospital and four community clinics where they — with faculty supervision — take care of a panel of their own patients. There they realize that primary care is a relationship-building practice.” In these settings, the young doctors see and treat a wide variety of ailments and illnesses. “In addition, they are provided with extra training in team-based care, population health, panel management, patient advocacy and care of the LGBTQ population,” she said.

Distinguishing U-M’s Primary Care Track from that offered by other universities is another, perhaps surprising factor. “All the third years in the track do a rotation in ‘Lean Thinking’ so that our residents are able to approach challenges in their practice settings in a way that improves value and eliminates waste.” This extra training in quality improvement, Collier believes, is imperative for the general internist of the future. Seven residents are currently in the primary care track.

PODIATRY FELLOWSHIP

Another program under the Graduate Medical Education umbrella recently welcomed its first specialized learner. As Crystal Holmes, DPM, CWS, and director of the Podiatry Clinic, explained, “We admitted our inaugural fellow in 2016, and plan to add one each year from here on out.”

Like the clinic in which it is based, the podiatry fellowship has a distinctive focus: on diabetic limb preservation. Said Holmes, “Fellows can engage with faculty in podiatry, neurology, plastic surgery, vascular surgery, physical rehabilitation, orthotics, infectious diseases, and endocrinology.” “This multidisciplinary approach has proven very popular,” she continued. “We have seen an exponential growth in the number of applicants from 2016 to 2017 to 2018.”

Another reason for the program’s popularity is that fellows are given six months of protected time to write and conduct research. “Our goal is to train academicians who integrate high-quality research into their clinical practice,” Holmes declared.

John Del Valle, MD, the head of graduate education for internal medicine, noted that the above examples — of a core curriculum, an elective track and a new fellowship — “illustrate the breadth and depth of unique educational experiences available at Michigan, and demonstrate the department’s commitment to developing the medical leaders of tomorrow.”

“Our goal is to train academicians who integrate high-quality research into their clinical practice.”

— Crystal Holmes, DPM, CWS
New Clinical Simulation Center Site

SECOND LOCATION ENSURES EASY ACCESS TO CRITICAL SKILLS TRAINING

When administrators noticed that the Clinical Simulation Center — an innovative learning laboratory in the Towsley Center — was exceeding its capacity of 10,000 learner visits per year, they took swift action and spent most of 2017 developing a second site even larger than the first.

The former Furstenberg student lounge in Medical Science Building II (Med Sci II) has been transformed into mock adult, pediatric and obstetric hospital rooms complete with equipment that displays realistic data. The mannequins are realistic, too, enabling learners to practice and perfect different skills: from chest compressions and defibrillation to assisting with birthing a baby.

Also featured at the new location is an eight-station simulation space that allows users to perform training tasks or take assessments at any time, day or night. Three post-simulation debriefing rooms and two large skills classrooms for table-top practice round out the center, which occupies 7,500 square feet.

“The sim center plays a critical role in the development of future physicians,” explained John Del Valle, MD, director of the Internal Medicine residency program. “Within our department in particular, residents are able to learn and develop dexterity in performing such invasive procedures as placing central lines and executing endotracheal intubations using simulated models. These opportunities enable our students to prepare for real-world scenarios in a low-risk clinical setting.”

Beyond building residents’ skill sets, the Med Sci II facility’s environment also fosters collaboration, bringing together students from various schools on campus to work and communicate as a team. “Learning in this environment helps all of these students to reduce errors, improve safety and elevate the quality of patient care,” noted James Cooke, MD, the centers’ executive director.

The Clinical Simulation Center is accredited by the American College of Surgeons as a Comprehensive Education Institute. “Opening a second center is a wonderful example of Michigan Medicine’s commitment to excellence in education,” said Del Valle. “Our institution is always seeking to provide the best educational opportunities for learners across all domains.”

― James Cooke, MD
Simulation Center Executive Director
STUDENT AWARDS
William Dodd Robinson Award
Virginia Sheffield
Eli G. Rochelson Memorial Award
Mary Clare Higgins-Luthman
Henry Fitzbutler Award for Excellence in Hospitalist Medicine
Sarah Kurz
Department of Internal Medicine Senior Scholarships
Margaret Allison
Mary Clare Higgins-Luthman
Sarah Kurz
Joshua Lee
Stephen Lichtenstein
Jordan Maxey
Vincent Pallazola
Virginia Sheffield

RESIDENT AWARDS
Kenneth Stark Internal Medicine House Officer Research Award
Krasimira Mikhova, MD
Calen Steiner, MD
Joshua Turkeltaub, MD
Ashraf Saleh, MD
Laurie Edmunds Award for the Most Outstanding House Officer
Russell Dolan, MD
Internal Medicine Award for the Most Outstanding House Officer
Daniel T. Cronin, MD
Bruce A. Jones Award for the Outstanding Housestaff Spirit
Jimmy Uebel, MD
Dr. Jacob P. Deerhake Community Service Award
William A. Rearick, MD, MPH
Laurie Edmunds Award for the Most Outstanding House Officer
Russell Dolan, MD
Internal Medicine Award for the Most Outstanding House Officer
Daniel T. Cronin, MD

FACULTY AWARDS
H. Marvin Pollard Award for Outstanding Teaching of Residents
Robert Dickson, MD
Richard D. Judge Award – Medical Student Teaching
Sarah Hartley, MD
Special Recognition for Contributions to the House Officer Teaching Program
Subramaniam Pennathur, MD
Steven E. Gradwohl Excellence in Continuity General Internal Medicine Teaching Award
Renuka Tipirneni, MD
John G. Frohna Outstanding Teaching in Medicine-Pediatrics Award
Jason Kahn, MD

Lifetime Achievement in Medical Education Award
Michael J. Shea, MD
Kaiser Permanente Excellence in Teaching (Pre-Clinical) Award
Jennifer N. Stojan, MD
From Non-A, Non-B Hepatitis to Hepatitis C Cure to Global Elimination of Hepatitis C

Anna S. Lok, MD
LEADERSHIP HIGHLIGHTS

Mentoring

LEARNING HOW TO MENTOR FROM A WORLD-CLASS COACH

Hepatologist Anna S.F. Lok, MD, the Medical School’s assistant dean for clinical research, has been in her post for only a short time. But already she has accomplished great things.

She has been tasked with developing, championing and implementing recommendations from the research board of directors to transform the clinical trials enterprise across the school. The first phase of that effort, she explained, “has focused on establishing clinical trial support units that break down department and division ‘silos’ and encourage researchers to work together thematically.”

A parallel activity has been the creation of a clinical trials academy, being piloted in collaboration with the Department of Internal Medicine. As envisioned by Lok and co-director Rodica Pop-Busui, MD, PhD, the academy provides junior faculty and investigators with tools and tips — starting with how to construct questions that can catalyze innovation in drug, device or behavior discovery — to help them navigate the complex landscape of clinical research. “It’s all about making our colleagues more successful,” she explained.

On top of these responsibilities, Lok also devotes a significant amount of time to mentoring young hepatologists both inside and outside the university, and even outside the U.S. “I regard my mentees as my children,” she said. “So, of course, I want to see them soar.”

Lok learned how to mentor from a world-renowned practitioner: Sheila Sherlock, DBE.

When Sherlock graduated from high school in England in the 1930s, she knew she wanted to be a physician. But finding a medical school to accept her in spite of her gender was difficult. After two years, she finally secured enrollment at the University of Edinburgh, from which she graduated at the top of her class.

“During the 1940s, she became a leader in hepatology, before the specialty was even recognized,” Lok noted. During the next decade, she wrote the pioneering text in the field — Diseases of the Liver and Biliary System — and was named Britain’s first female chair of medicine. Said Lok, “Her attitude toward the women privileged to study under her was, ‘If I can do all of this, why can’t you?’”

By all accounts, Sherlock was a tough taskmaster — very demanding on rounds, for example. She wanted her fellows to be the best they could be. But she was also very caring. “During my time in London, she gave me 100 pounds for Christmas,” Lok recalled — a much-appreciated gift for someone living on a stipend. “And after my training was complete, she welcomed me into the profession as a full-fledged colleague.”

This is a mentoring style that Lok has employed to great effect in her own career. “I can’t pay my mentor back for all she taught me,” she noted. (Sheila Sherlock died in 2001.) “So I pay it forward, to the next generation.”

Lok continued: “For young female trainees, my message is this: believe in yourself. It does not matter whether others believe you can succeed, you must believe that you can. Set your goals high and develop a plan to reach them. Do not give up easily when you encounter hurdles, but do recognize when to redirect if your initial plan is not working. Reach out for help — none of us can do it all — and also extend a hand to help.”

Lok did eventually find a way to pay back her mentor. In 2011, she and three colleagues collaborated on the 12th edition of Sherlock’s book. The 13th edition is now in the works.
New Leadership Roles

THREE INTERNAL MEDICINE PHYSICIANS ARE TAPPED FOR TOP POSITIONS

In 2017, a trio of Internal Medicine faculty was recognized for their leadership abilities with promotions to high-level positions in the Medical School, Michigan Medicine and the university.

On May 1, physician-scientist Bishr Omary, MD, PhD, accepted a dual appointment as executive vice dean for research at the Medical School and chief scientific officer for Michigan Medicine. Prior to his appointment, Omary served as chair of the school’s Department of Molecular and Integrative Physiology. He also holds the H. Marvin Pollard Professorship of Gastroenterology in the Department of Internal Medicine.

In his new role, Omary is working closely with key stakeholders to develop and implement a strategy to foster excellence in biomedical research and clinical translation. He also serves as a key member of the Michigan Medicine leadership team and assists with faculty recruiting and retention efforts and facility and capital planning for the research enterprise.

Omary earned his PhD from the University of California, San Diego and his medical degree from the University of Miami. He completed his residency in internal medicine at the University of California, Irvine Medical Center and a fellowship in gastroenterology at the University of California, San Diego.

As chief health officer, Malani serves as an advisor to the president and executive officers on matters of the health and wellness of the university community, concerning issues of disease management, public health preparedness and promotion of healthy practices and climate on all three campuses. She also serves as the medical director and chair of the advisory committee for MHealthy, the U-M community health and wellness program.

Malani earned a BA degree from U-M, a medical degree from Wayne State University and a master’s degree in journalism at Northwestern University’s Medill School of Journalism. She completed her internal medicine residency and infectious diseases fellowship at U-M, where she also received a master’s degree in clinical research design and statistical analysis.

During the summer, Charles Burant, MD, PhD, was named the new director of the Medical School’s A. Alfred Taubman Medical Research Institute, which supports medical practitioners who also perform research in their quest for new treatments and cures.

Burant is Michigan Medicine’s Robert C. and Veronica Atkins Professor of Metabolism as well as a professor of internal medicine and of molecular and integrative physiology in the U-M Medical School. Additionally, he holds appointments in the Schools of Public Health and Kinesiology.

During his career at U-M, Burant has also developed and directed the Michigan Metabolomics and Obesity Center.

Burant earned his MD and PhD in molecular and cellular biology from the Medical University of South Carolina in Charleston. He then completed a residency at the University of California, San Francisco and a fellowship in endocrinology at the University of Chicago.
Inspiring, Engaging, Empowering

INTERNAL MEDICINE ADMINISTRATORS BELIEVE IN LEADING BY EXAMPLE

Last year, six professors who were recently promoted to administrative positions at the department or division level sat down to talk about the ways in which they engage and inspire the faculty around them.

Rodica Pop-Busui, MD, PhD, the department’s associate chair for clinical research, probably has the greatest opportunity for impact in this area. “My job is to promote excellence in clinical research for internal medicine,” she explained. “Thus far, I have focused much of my time on helping early-career investigators develop their research skills.”

To this end, she has co-founded a clinical trials academy (page 82) with Anna S.F. Lok, MD; created a clinical trials website to publicize internal and external funding opportunities; and developed a special forum in which investigators can communicate and collaborate with each other.

Pop-Busui’s role model for these activities was Eva Feldman, MD, PhD, an accomplished neurologist at Michigan — working on diabetic neuropathy — who gave good advice, was very inclusive and mentored a large number of investigators. As Pop-Busui explained, “No matter how busy she was, she put our growth above her own interests. And she continues to do so with a new generation of mentees.”

In her work, the associate chair does all of these things to promote the success of her younger colleagues. “They must be allowed to express and pursue their ideas,” she said, “and be encouraged to become independent.”

Two colleagues of Pop-Busui’s in the Division of Metabolism, Endocrinology & Diabetes (MEND) support her position and add some ideas of their own.

The work of MEND service chief Nazanene H. Esfandiari, MD, is also very faculty-oriented. “I oversee all of our physicians,” she explained. “To excel at this job, you need to be a good listener and problem solver. I help my colleagues identify their needs and help them to achieve their goals.” In addition to maintaining an open-door policy, Esfandiari conducts a review of each physician’s progress two times a year to identify areas for improvement.

When working with junior faculty and fellows, she strives to give them good professional advice. “It is a humbling experience,” she added, “to have these young physicians trust my recommendations regarding their careers.”
Mirroring Esfandiari’s role in the MEND division, from the operational side, is Jennifer Wyckoff, MD. Her responsibilities are many and varied — just what you might expect for an administrator in the largest such division in the country. Among her biggest accomplishments so far is overseeing the opening of an endocrine service, engaging seven physicians and a diabetes educator, at Michigan Medicine’s West Ann Arbor Health Center.

“Two of my major goals,” Wyckoff noted, “are to enhance the quality of care for our patients and to help our staff feel engaged and empowered.”

Expanding on the idea of empowerment, she believes strongly in “actively helping colleagues flourish in their chosen programs. Find something for every faculty member to take ownership of and succeed in.” Wyckoff added, “A leader must also make sure that there is a pipeline of talent to succeed him or her.”

Wendy Marder, MD, the associate clinical chief of the Division of Rheumatology, is also concerned about pipelines. “There is a serious shortage of rheumatologists both locally and nationally,” she explained, “complicated by an increase in the number of patients suffering from such conditions as lupus, rheumatoid arthritis and gout.” As a result, “We appreciate how important it is to attract great residents and fellows to add to our ranks.”

Marder, who has engaged in such activities as hosting gatherings for young doctors with Seetha Monrad, MD, takes the time to help them navigate the landscape of the academic institution and be aware of department and division expectations and goals. Within that landscape is a prevalence of male doctors. Vibha Lama, MBBS, MS, who is the Division of Pulmonary & Critical Care Medicine associate chief, offered these comments on the imbalance: “It is my job to think ahead for the division,

“Two of my major goals are to enhance the quality of care for our patients and to help our staff feel engaged and empowered.”
— Jennifer Wyckoff, MD, PhD
to determine how we can stay competitive and cutting edge. Having gender diversity in leadership can help us achieve that.“

Lama plays her part by educating female practitioners both inside and outside the university to the opportunities that are open to them. “When I give talks, I always get this question: how do you balance home life with work life? I tell them timing is important; I had one baby during my residency and one during my fellowship. I explain to them that juggling their responsibilities is hard work. Then I share my ideas about where to find resources to help.”

Lama works on strengthening the bond in her division between clinical and basic science research. Michelle Anderson, MD, is trying to strengthen the bond between Michigan Medicine and its affiliated system on the west side of the state: Metro Health.

Anderson has been tasked with developing and implementing a training program of gastroenterology best practices and policies that mirror what you would find in Ann Arbor (to scale) (page 53). To the dozens of medical personnel she encounters on each weekly visit, she demonstrates her willingness to listen to their ideas. “I’m also very organized, results-driven and detail-oriented,” she explained. “You have to be with such a large endeavor.”

As faculty lead on the project, she models patience and perseverance to her colleagues, despite the fact that their deadline is likely 18 months away. She also pitches in to help as needed, seeing patients and even performing procedures. “It takes a village,” she said.

It is hoped that what Anderson and her team develop for Metro Health can be used to facilitate collaborations with other hospital systems.

“This has been an exciting opportunity for a midlife woman like me,” she commented. “I’m getting a chance to acquire skills I might not have otherwise.”

It’s apparent from her comment that this leader is happy to also play the learner.

“It is my job to think ahead for the division, to determine how we can stay competitive and cutting edge. Having gender diversity in leadership can help us achieve that.”
— Vibha Lama, MBBS, MS

LEADERSHIP HIGHLIGHTS
In her career, internist Audrey Fan, MD, has not shied away from a challenge. And now she revels in the responsibility of directing Michigan Medicine’s largest clinic outside of Ann Arbor — the Northville Health Center.

The clinical manager at U-M’s Livonia clinic was the one who encouraged Fan to apply for the job. “She told me I’d have more input and influence there,” the physician noted, “and have a greater impact on the care of our patients.” And she was right.

The Northville Center handles more foot traffic than the other suburban sites — about 200,000 visits a year. And the cases are more complex. Northville also attracts Fan’s preferred patient population: geriatrics.

And, even though direct patient care takes up 50 percent of her time, she doesn’t consider that a drawback: “My clinical work informs my administrative work.”

That administrative work includes managing a group of physicians representing 45 specialties — some outside her knowledge base of internal medicine. And, as Fan explained, “we’re still adding services.”

To communicate effectively with all of the center’s clinicians, Fan has made a concerted effort to enhance her people skills — talking and listening. She also helps new faculty navigate the Michigan Medicine system: “I’m excited to serve as a resource for those just coming into their roles.”

Fan is leading by example. But when she’s had questions about her job, she’s turned to another leader for assistance. “Connie Standiford, MD, [Michigan Medicine’s executive medical director of ambulatory care services] really helped me figure out how to move from a smaller site to one with so many specialties and to understand my role as medical director,” Fan explained. “She has been a great mentor for me.”
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