SHARING OUR PASSION AND KNOWLEDGE:
THE ART OF EDUCATION
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IN THE SPOTLIGHT
In 2014, U-M and the Department of Internal Medicine continued to receive recognition as standouts in the field. The annual U.S. News & World Report Best Graduate Schools rankings rated the U-M Medical School 12th in the nation among research-based medical schools. U-M also held its rank among medical schools for primary care training, coming in at 8th for the third year in a row. Four U-M specialties ranked in the top 10 including geriatrics at 4th, our own internal medicine at 6th, family medicine at 6th and women’s health at 7th. U-M Medical School graduates also continue to be rated highly by the directors of residency programs nationwide. We tied for 4th in the nation among research schools and 3rd among primary care schools.

THE ART OF EDUCATION
This past year has been filled with many new transitions in our department that are creating an excitement for the future. I have chosen the theme “The Art of Education” for our 2014 report because it is this primary mission that brings together all of our passion and knowledge at U-M. We not only train the next generation of clinicians, researchers and leaders, as well as educate our patients, but are also continually learning how to become better clinicians, researchers and leaders ourselves.

The U-M Medical School is in the process of redesigning its curriculum (page 24), our faculty are finding innovative ways to teach physicians about caring for underserved populations (page 32), our CME efforts continue to grow and evolve (page 46), and our faculty and staff continue to develop themselves professionally (page 38).

IMPROVING PATIENT CARE
Many of internal medicine’s research efforts are focused on educating providers on how to provide better quality of care in the U.S. and around the world (page 50). As we continue to make clinical improvements, our patient education initiatives are improving outcomes and quality of life (page 84). We are also continuing to focus on several new initiatives to address the future challenges of primary care (page 76).

NEW ASSOCIATE CHAIRS
Scott Flanders, MD, just began serving as internal medicine’s first associate vice chair of quality and innovation, is focusing on how we can improve the quality and value of our care across the entire department (page 14). Sanjay Saint, MD, MPH, has been appointed the chief of medicine at the VA Ann Arbor Healthcare System and senior associate chair for VA programs (page 8). He is replacing Richard Moseley, MD, who retired in May 2014 after serving 18 years in this role and 28 years with our department and the Division of Gastroenterology.

FOND FAREWELLS
On a sad note, the field of endocrinology lost two giants in 2014. Stefan Fajans, MD, and David Scheingart, MD, will be terribly missed. They both left an incredible legacy for the Metabolism, Endocrinology & Diabetes Division and our department (page 102).

LOOKING AHEAD
This past year also marked my fifth year as chair of the department. I am amazed and inspired by what we have accomplished in that time. As my position has been renewed for another five years, I am energized by the possibilities of what is yet to come. We will continue to plan and implement recommendations to improve patient care, to deliver research ideas and capabilities that are second to none, and to provide education on all levels that is highly ranked and recognized. I take great pride in what each and every member of our team has accomplished, and I am certain that we will continue to provide a model that other departments of internal medicine strive to follow.
The stories featured in this year’s report capture these efforts as we continue to set the standard as leaders and best.

“I have chosen the theme ‘The Art of Education’ for our 2014 report because it is this primary mission that brings together all of our passion and knowledge at U-M. We not only train the next generation of clinicians, researchers and leaders, as well as educate our patients, but are also continually learning how to become better clinicians, researchers and leaders ourselves.”
Our clinical programs continued to grow and demand remained strong in 2014. Our volume of ambulatory care and specialty care visits both on- and off-site are back on track after having lower numbers in 2013 due to the adjustment period required to adopt our new electronic medical records system. Our outpatient facilities in Ann Arbor (Briarwood and Domino’s Farms) and Livonia and Brighton continue to perform well, and our efforts to establish facilities in the Northville area were completed. We continue to explore and implement new approaches to meeting the increasing demand for patient care at all levels.

**CONTINUED EXPANSION AND DEMAND**

The U-M Health System’s new $39 million health center in Northville Township opened in July 2014 at the intersection of Seven Mile Road and Haggerty Road, near our existing Livonia Center for Specialty Care. This new facility, which includes 100,000 square feet of clinical and diagnostic space dedicated to caring for adults and children, is rapidly filling to capacity. Our department provides allergy, cardiology, endocrinology, general medicine, gastroenterology/hepatology, hematology/oncology, pulmonary, and rheumatology services there. The University of Michigan Medical Group has an option to build a second, similar facility at this site. We may need to accelerate the timeline on its development due to the extensive demand for services.

We are in the active planning stages for the major expansion and renovation of our Brighton and West Ann Arbor clinics. There are ongoing discussions about including the East Ann Arbor clinic in future plans. We are also working closely with the Department of Emergency Medicine to open a new medical short-stay unit with 24 beds located in the old Mott Hospital during the summer of 2015. It will be staffed by our Hospitalist Service.

**MICHART IMPLEMENTATION**

We are finally becoming more efficient using MiChart, the new electronic medical records system at U-M Health System. It was integrated into our inpatient areas in June 2014. This adjustment period went much faster and smoother than our first adoption of MiChart in our outpatient areas in 2012. Once established and fully integrated into our system this new approach will help improve overall processes and streamline our workflow.

**REORGANIZATION RESULTS**

I am also pleased to report that we are starting to see the results of the reorganization of our ambulatory care units that made each specialty clinic more connected with its own division in 2013 and decentralized call operations. Giving our units more autonomy has allowed the individual clinics to control their staffing and resources in order to adjust to continued growth. This has greatly improved satisfaction among the patients, staff and our units.

The Department of Internal Medicine’s clinical programs continue to grow and evolve in our effort to provide the very best patient care and experiences. Each year brings new improvements and new challenges with it. As long as we remain open to creatively exploring our options and implementing the latest innovations, we will remain “leaders and best” in Michigan and the nation.

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**CLINICAL PROGRAMS**

Timothy J. Laing, MD  
SENIOR ASSOCIATE CHAIR FOR CLINICAL PROGRAMS
“The Department of Internal Medicine’s clinical programs continue to grow and evolve in our effort to provide the very best patient care and experiences.”
The total number of Department of Internal Medicine faculty continued to grow during 2014. Our instructional and research faculty numbers have increased slightly while our clinical faculty remained steady. The chart at right breaks down that growth by year and by faculty type.

**FACULTY PROMOTIONS**

Our department handled 89 new faculty hires and 39 faculty promotions during 2014. Congratulations to these faculty members on their new status and achievements.

After a national search for two division chief positions, the department found there was no better fit for us than two of our very own esteemed faculty members: **Theodore J. Standiford**, MD, was named chief of the Division of Pulmonary and Critical Care Medicine and **James L. Baldwin**, MD, is now the chief of the Division of Allergy and Clinical Immunology. Both had been graciously serving as the interim chiefs of their divisions.

**LEADERS AMONG US**

In addition to having the Dean of the U-M Medical School, **James O. Woolliscroft**, MD, as a faculty member in our Department, we have added to the Department two recently appointed leaders of the University and the Health System.

**Mark S. Schlissel**, MD, PhD, a physician-scientist and immunologist, became president of the University in July, 2014, holding dual appointments in the Rheumatology Division of Internal Medicine and in the Department of Microbiology and Immunology.

**Marschall S. Runge**, MD, PhD, became U-M’s new Executive Vice President for Medical Affairs in March 2015. He is leading the U-M Health System and has an appointment in the Division of Cardiovascular Medicine in our Department.

**LEADERSHIP DEVELOPMENT**

The U-M Medical School and Health System Human Resources are continuing to offer the Linkage Leadership Institute for senior leadership such as division chiefs, section heads, program or medical directors and chairs. To date, 40 faculty leaders from the Department of Internal Medicine have participated in these workshops.

In 2014, Faculty Development announced the Inaugural Rudi Ansbacher Women in Academic Medicine Leadership Program, an intensive 18-month leadership development program designed to accelerate the development of women for senior positions in academic medicine and health care. **Dana J. Burkley**, an administrator for the Division of General Medicine and **Rashmi Chugh**, MD, an associate professor in the Division of Hematology and Oncology are among the program’s first class (page 38).

**DEDICATION TO EDUCATION**

This year, our annual report highlights the Department of Internal Medicine’s education efforts. Throughout these pages you will see how the work of exceptional faculty in all areas — teaching, research and patient care — is impacted and continues to grow and develop through educational efforts. In fact, many of our faculty are considered among the very best medical educators on campus and nationally (page 37). We’re very proud to feature these stories throughout this year’s report.
Throughout these pages you will see how the work of exceptional faculty in all areas — teaching, research and patient care — is impacted and continues to grow and develop through educational efforts.

NUMBER OF FACULTY MEMBERS BY TRACK AND YEAR

- Clinical
- Instructional
- Research

39 FACULTY PROMOTIONS

89 NEW FACULTY HIRES

2014 INTERNAL MEDICINE ANNUAL REPORT
The VA Ann Arbor Healthcare System (VAAAHS) continued to experience increases in both outpatient and inpatient activity in 2014. There was a 4 percent increase in total inpatients and a 5 percent increase in outpatient visits. Through numerous on-going initiatives and efforts, we continue to decrease our readmission rates and lengths of stay for patients.

**NEW TAVR UNIT**
The new Transcatheter Aortic Valve Replacement (TAVR) Hybrid Surgical Suite officially opened at VAAAHS in December 2014 (see photo). This program is led by Paul Michael Grossman, MD, an associate professor from the Division of Cardiovascular Medicine and director of the cardiac catheterization laboratory at the VAAAHS. This makes us the sixth VA in the country to offer this life-saving procedure to America’s veterans.

**FACULTY APPOINTMENTS**
After 18 years as associate chair of VA programs and 28 years with the U-M Department of Internal Medicine, Richard H. Moseley, MD retired in June 2014. I officially began my new position as the chief of medicine at the VAAAHS and senior associate chair for VA programs on December 1, 2014. In addition to my appointment, Grace Su, MD, a professor from the Division of Gastroenterology, was named the new VAAAHS associate chief of medicine (with a focus on subspecialty care and access). Andrew Odden, MD, an assistant professor from the Division of General Medicine, is the new associate chief for inpatient care and Adam Trembly, MD, an assistant professor from the Division of General Medicine, was reappointed as associate chief of primary care and educational programs.

**AWARDS & RECOGNITION**
During 2014, VA faculty members were making an impact on patient care and research in many ways. These are just a few of the highlights:

- Rodney Hayward, MD, a professor in the Division of General Medicine, was elected to become a member of the Association of American Physicians in 2014.
- Vineet Chopra, MD, MSc, an assistant professor from the Division of General Medicine, received a K08: Mentored Clinical Scientist Development Award from the Agency for Healthcare Research and Quality for the “Improving Peripherally Inserted Central Catheter Use in Hospitalized Patients” project.
- Ann-Marie Rosland, MD, MS, an assistant professor from the Division of General Medicine, received a U.S. Department of Veterans Affairs Merit Award to test a family engagement intervention for patients with diabetes. Joel H. Rubenstein, MD, MSc, an assistant professor in the Division of Gastroenterology also received a merit award for his project “Validation and Extension of the Michigan Barrett’s Esophagus Prediction Tool (M-BERET).”
- Pearl Lee, MD, an assistant professor in the Division of Geriatric and Palliative Medicine, received a VA Career Development Award for her study “Veterans with Diabetes Mellitus: Improving Physical Activity & Participation.”
- Sarah Hawley, PhD, MPH, an associate professor from the Division of General Medicine, was awarded a three-year, $850,000 American Cancer Society grant for her proposal “Population Based Study of Breast Cancer Decision Support Networks.”

I have been on the faculty of the Department of Internal Medicine and the Ann Arbor VA for 16 years now. I am honored to be able to take on this leadership role and to continue working with these talented faculty and staff creating a model academically-oriented VA health care system. Our nation’s veterans deserve no less.
January
Lori Herbst  Geriatric and Palliative Care

February
Alexander Larson  Gastroenterology

March
Amy Hosmer  Gastroenterology

April
Andrew Jameson  Infectious Diseases

May
Thomas Valley  Pulmonary & Critical Care Medicine

June
Kyle Hornsby  Cardiology

July
Jeff Beamish  Nephrology

August
Tiu Hannah  Nephrology

September
Caroline Castillo  Infectious Diseases

October
Jonathon Bott  Infectious Diseases

November
Craig Alpert  Cardiovascular Medicine

December
Tos Kerdsirichairat  Gastroenterology
The funding environment for research continues to be difficult — only one out of 10 federal grant proposals are receiving funding. It is more important than ever for our faculty to stand out and find creative ways to support their work. This year there were several great examples of how groundbreaking scientific research in our department is leading to practical applications in the marketplace. It also underscores the importance of internal medicine faculty pursuing these opportunities so society can continue to benefit from the discoveries being made in our laboratories.

**A BREAKTHROUGH DISCOVERY**
The research efforts of James Shayman, MD, a professor from the Division of Nephrology, led to the FDA approval of a new U-M invented drug for Gaucher disease, an inherited disorder suffered by more than 10,000 patients worldwide that affects many of the body’s organs and tissues. The new drug, Cerdelga, represents the first class of chemical entities conceived and developed at U-M to achieve FDA approval (see sidebar).

**A DISTINGUISHED INNOVATOR**
Shaomeng Wang, PhD, a professor in the Division of Hematology/Oncology, has advanced four novel cancer drugs into Phase I/II clinical development and several more drugs into late-stage preclinical development. He received the Distinguished University Innovator Award for 2014. Sponsored by the university’s Office of Research, the award honors faculty who have made important and lasting contributions to society by developing novel ideas and insights through their research, and then translating them to practice. His work has led to 67 new invention disclosures resulting in 33 issued U.S. patents and four license agreements. Just this past year, his company Oncofusion Therapeutics received $7.7M for the discovery and development of small-molecule inhibitors of the BET bromodomains for the treatment of human cancer.

**TAUBMAN SCHOLARS**
The state of the current funding environment also underscores the need for philanthropic support of our research. It was great news to hear that four of the six U-M clinician-scientists appointed to the 2014-2017 class of Taubman Scholars by the A. Alfred Taubman Medical Research Institute are from our department. Each will receive an unrestricted grant of $150,000 per year for three years, to be used to pursue high-risk, high-reward translational medical science. The Taubman Scholars from internal medicine are:

Kathleen Collins, MD, PhD, Infectious Diseases — Improving therapies for HIV; Pavan Reddy, MD, Hematology/Oncology — Understanding and harnessing the role of inflammation in mitigating the graft-versus-host disease after bone-marrow transplant; John Carethers, MD, chair, Department of Internal Medicine — Understanding the role of inflammation in colon cancer; and Sharlene Day, MD, Cardiovascular Medicine — Understanding the disease mechanisms of hypertrophic cardiomyopathy.

**FOR THE FUTURE**
While the topic of funding tends to dominate our thoughts these days, we know that the ultimate future of our work depends upon training the next generation of physician scientists. The Department of Internal Medicine has many wonderful educational programs in research all the way from summer internships for medical students to the physician-scientist track for residents and T32 training programs for the fellows. At the end of the day, it’s about the people. People who are sharing their time, experiences and knowledge. Without great researchers and the training and mentorship they provide, none of these 2014 stories would have been possible.
FDA APPROVES U-M INVENTED DRUG FOR GAUCHER DISEASE

A treatment for Gaucher disease type 1 licensed by the University of Michigan to Genzyme Corp., was recently approved by the Food and Drug Administration. Cerdelga offers an alternative to the other approved Gaucher disease treatment — an intra-venous enzyme replacement. It is administered orally and could become the preferred treatment for this disease.

The strategy of treating Gaucher disease by inhibition of glycolipid synthesis was proposed by the late Dr. Norman Radin, a U-M neuro-chemist, more than 40 years ago. The work directly leading to Cerdelga began 25 years ago when Dr. James Shayman, a nephrologist trained in lipid biology and pharmacology, sat down with Radin and began their collaboration. Their shared work continued at least until 1995 after which Radin retired, but research continued by the Shayman group to design, synthesize and test glycolipid synthesis inhibitors. Patents covering these compounds and related inventions were licensed to Genzyme, a Sanofi company, in 2000 for clinical development.

Genzyme’s road to FDA approval included clinical trials including phase 3 trials conducted in 60 medical centers in 29 countries, which comprised the largest group of clinical studies ever conducted on Gaucher disease representing more than 500 patient years of exposure in approximately 400 individual patients.
The Department of Internal Medicine’s clinical research activity has increased in the last year. We’re hoping to help it flourish even more by continuing to find new and better ways to support clinical research and allow our faculty to apply findings to real-world situations to improve population health.

CLINICAL RESEARCH HIGHLIGHTS

Some notable clinical research news involving Department of Internal Medicine faculty in 2014 included:

The U-M Kidney Epidemiology and Cost Center (UM-KECC) was awarded a five-year, $10.3 million federal contract to serve as the coordinating center for the United States Renal Data System (USRDS), a national data system that collects, analyzes and distributes information about patients with chronic kidney disease and end-stage renal disease. Rajiv Saran, MBBS, a professor from the Division of Nephrology is serving as the director of the USRDS Coordinating Center. The award, combined with a $17.6 million award from the U.S. Centers for Medicare and Medicaid Services granted in October, expands UM-KECC’s funding for national kidney disease monitoring, quality improvement and research.

U-M was also selected as one of the Clinical Centers for the NHLBI Prevention and Early Treatment of Acute Lung Injury (PETAL) Clinical Trials Network (U01). This network represents the extension of the Acute Respiratory Distress Syndrome (ARDS) Clinical Network developed to perform multi-site clinical trials in patients with ARDS. We are one of 12 clinical sites throughout the country. It is being led by Robert Hyzy, MD, a professor from the Division of Pulmonary and Critical Care Medicine.

We were also the only institution to be awarded both the Clinical Autoimmunity Center of Excellence, and the Basic Autoimmunity Center of Excellence from the NIH/NIAID. The mission of the ACE is to encourage and enable collaborative research across scientific disciplines, medical specialties, and between basic and clinical scientists, in the search for effective treatments for autoimmune diseases. Both centers are being led by faculty from the Division of Rheumatology. David Fox, MD and Dinesh Khanna, MD, MS are the directors of the Clinical ACE. Bruce Richardson, MD, PhD and Amr Sawalha, MD are directors of the Basic ACE.

A consortium that includes the U-M Medical School was awarded $24.3 million by the National Institutes of Health for a clinical trial to study a potential kidney disease treatment for people with type 1 diabetes. Rodica Pop-Busui, MD, PhD, an associate professor from the MEND Division is the principal investigator for the Michigan site. Her co-PI is Frank Brosius, III, MD, chief of the Division of Nephrology.

DISTINGUISHED MENTOR AWARD

M. Bishr Omary, MD, PhD, H. Marvin Pollard Professor of Gastroenterology and professor and chair of the Department of Molecular & Integrative Physiology was selected as one of the six recipients of the 2014 MICHR Distinguished Clinical & Translational Research Mentor Award. The award honors the efforts of faculty who foster the intellectual, creative, scholarly and professional growth of their students, fellows and trainees in the areas of clinical and translational research.

MEDICAL SCHOOL SUPPORT

The U-M Medical School is in the process of evaluating and revamping our infrastructure for clinical trials (page 74). We hope to create a more systematic approach by creating clinical research support hubs based on topic areas that would be available to all departments/divisions. These efforts will begin launching during 2015.
JOINT INSTITUTE UPDATES
The Joint Institute for Translational and Clinical Research (JI), the University of Michigan Health System’s partnership with the Peking University Health Science Center (PUHSC) in Beijing, China, entered its 4th and last year of the first phase. Both sides are interested in continuing this successful partnership and are working on extending this partnership. The JI’s Fourth Annual Symposium was hosted in Ann Arbor in fall 2014 where more than 50 colleagues from PUHSC joined us.

As you can see, the Department of Internal Medicine’s clinical research programs continue to grow, make advances and receive well-deserved recognition. As we evaluate our protocols, create stronger support systems and cultivate partnerships, our faculty continue to make a lasting impact on patient care.

MOST CITED RESEARCHERS
U-M ranked No. 11 in a new list of the most-cited researchers, produced by Thompson Reuters, with 27 U-M scientists determined by the company to be in the top 1 percent of their fields. More than 3,200 researchers worldwide were included in the Thompson Reuters list, which ranks an individual’s impact based on a survey of Highly Cited Papers (defined as being in the top 1 percent by citations in the Web of Science database) between 2002–2012. Five Internal Medicine faculty are among the 27 U-M scientists:

Eric Bates, MD, (Cardiovascular Medicine), clinical cardiology
Angela Fagerlin, PhD, (General Medicine), medical decision making
Daniel Hayes, MD, (Hematology/Oncology), breast cancer
Anna Lok, MD, (Gastroenterology), hepatitis
Cristen Willer, PhD, (Cardiovascular Medicine), genetics
I’m excited and honored to take on the new position of Associate Chair for Quality and Innovation for the Department of Internal Medicine.

The overarching goal for our Quality and Innovation Program is for the Department of Internal Medicine to be a leader in quality improvement and delivery system redesign regionally, as well as nationally. The creation of this quality program is necessary to build the infrastructure to support, and remove barriers to, quality improvement work done by our faculty, driving us toward high-value, appropriate, patient-centered care.

A lot of our faculty’s work related to quality — including mine with the Michigan Hospital Medicine Safety Consortium, and much of the work our health services researchers are doing — is externally focused on working with hospitals around Michigan and around the country. This new role of Associate Chair for Quality and Innovation and the new Quality and Innovation Program focus on the patients cared for specifically by the Department of Internal Medicine. As a department, we intend to do a better job of measuring how well we are caring for our patients, identifying opportunities to improve, figuring out ways to more rapidly implement best practices or standards of care, and assure this happens reliably for all our patients across the board.

I just began serving in this role last summer so we are in the early stages of defining our next steps. I’ve spent the last six months meeting with all of internal medicine’s divisions to evaluate the current quality and innovation environment. These efforts will help us:

- better capture all of the work that is being done;
- link common work/projects among different faculty and divisions;
- identify any barriers that divisions are experiencing; and
- identify gaps and areas needing more attention.

Joining me in this effort are Assistant Chair for Quality and Innovation James Froehlich, MD, MPH, and Department of Medicine Quality Manager Abby Zier, MPH. We will use all of this information to inform the path of the program. In spring 2015, we are bringing together representatives from all divisions to convene a Quality Council that will be charged with coordinating and aligning quality efforts across the divisions of internal medicine.

One potential product could be the creation of dashboards for all our divisions and the department that provide metrics on clinical outcomes and patient satisfaction for a variety of important clinical conditions managed by our faculty. Ideally, these metrics should provide real-time input as to: “How are we doing? Are we falling short of our goals in some areas? Are there areas we could improve?” That’s ultimately our goal.

In this year’s annual report, you will see several stories about the work our faculty are currently doing to improve the quality of care through research (page 48) and patient care initiatives (page 66) locally, around the state and nationally. I am hopeful that our new Quality and Innovation Program will be able to build on these successes benefitting the Department of Internal Medicine and all of its patients.
"The creation of this quality program is necessary to build the infrastructure to support, and remove barriers to, quality improvement work done by our faculty, driving us toward high-value, appropriate, patient-centered care."

QUALITY COUNCIL DIVISION REPRESENTATIVES

- Allergy and Immunology: Christine Holland, MD
- Cardiovascular Medicine: Kim Eagle, MD; James Froehlich, MD
- Gastroenterology: Grace Elta, MD; Mike Rice
- General Medicine: Larry McMahon, MD, MPH; Jeff Rohde, MD
- Geriatric Medicine: Lillian Min, MD
- Hematology/Oncology: David Smith, MD; Dale Bixby, MD
- Infectious Diseases: Kevin Gregg, MD
- Metabolism, Endocrinology and Diabetes: Jennifer Wyckoff, MD; Craig Jaffe, MD
- Molecular Medicine and Genetics: Eric Fearon, MD; Elena Stoffel, MD
- Nephrology: Jonathan Segal, MD
- Pulmonary and Critical Care Medicine: Rommel Sagana, MD
- Rheumatology: Timothy Laing, MD; Puja Khanna, MD
- Veterans Affairs: Andrew Odden, MD; Timothy Hofer, MD
- Resident: Chris Petrilli, MD
- Fellow: Daniel Alyeshmerni, MD
- Patients: TBD
ADMINISTRATIVE PROGRAMS

Masada (Musty) Habhab
CHIEF ADMINISTRATIVE OFFICER

With more than 700 faculty and 1,600 staff members, the Department of Internal Medicine requires a lot of behind-the-scenes support to ensure its operations run smoothly and efficiently. We are supported by multiple administrative units that manage everything from faculty and staff appointments to finances for the U-M Medical School, hospital and ambulatory care operations, to over 200,000 square feet of research space. Our department’s administrative units and 12 divisions are supported by two directors and 11 administrators, all of whom work together with us to effectively manage our operations (see photo at right).

IMPROVING CLINICAL OPERATIONS USING LEAN THINKING

Our Department remains focused on enhancing clinical operations, and in 2014, we dedicated even more support to our clinic operations and their leadership management teams. This support includes involvement from the department’s three lean coaches, resources from our finance office, and other departmental units. Projects have ranged from higher level initiatives, where we are working on creating a lean management system that encompasses daily management, cross-functional management and strategy, to projects that focus on day-to-day operations, including call center staffing and protocols, nursing and prior authorization process flows, patient scheduling and streamlining of administrative support. Other great examples of lean thinking in action are featured in the patient care section of this year’s report (page 81).

BUILDING SUCCESS

The Department of Internal Medicine continues its focus on developing leadership skills for our faculty and management staff. Building on our success with the Linkage Leadership Academy, we were pleased to help sponsor the U-M Health System’s first Women in Academic Leadership Summit, which was attended by more than 15 women leaders from Internal Medicine (page 38). We also enrolled two of our women leaders (Rashmi Chugh, MD, from Hematology/Oncology and Dana Burkley, Division Administrator in General Medicine) in the Rudi Ansbacher Women in Academic Leadership Program. And, the department hosted its first Art of Primary Care Workshop (page 100), attended by more than 80 physicians and staff, where attendees not only learned about innovations in primary care and the development of the VA Patient Centered Medical Home, but also participated in a speed mentoring workshop and had an opportunity to learn skills that help cultivate energy to enhance professional lives.

EMPLOYEE RECOGNITION AND STAFFING

A new employee recognition program was developed in 2014 to celebrate our faculty and staff recognizing milestone longevity at the University of Michigan with 10 years or more than 40 years of service! We also honored those employees who received the department’s Staff Awards for Excellence (page 21), in the areas of administration, clinical and research. The reception at the North Campus Research Complex was wonderful, and a full show of support from division and administration leaders created a very supportive atmosphere in which to recognize staff service.

UPDATES, PLANS AND FOCUS

Many departmental activities take place that aren’t so obvious to our faculty and staff. We’ve spent time improving our budgeting and financial reporting processes over the past year, and are in the process of updating our space policies to maximize usage of our current footprints. Updated clinical performance standards are being implemented, and we will soon roll out our updated research standards and teaching standards. Additionally, we are in the planning stages for the renovation of our...
administrative spaces on the third floor of the Taubman Center.

The theme of this year’s report is the “Art of Education.” While all of us are here to support the education of the next generation of clinicians, researchers and educators, our administrative support staff are also continually learning and exploring how we can make things better for our faculty, staff, students and patients. There are always opportunities to grow and develop as a team, and as individuals. This is at the heart of why so many of us love working for the U-M Department of Internal Medicine.
DEPARTMENT OF INTERNAL MEDICINE DIVISION CHIEFS

Front row (left to right): James Baldwin, MD (Allergy & Clinical Immunology); David Fox, MD (Rheumatology); David Pinsky, MD (Cardiovascular Medicine); Laurence McMahon, Jr., MD, MPH (General Medicine); Powel Kazanjian, MD (Infectious Diseases). Back row (left to right): Raymond Yung, MB, ChB (Geriatric & Palliative Medicine); Peter Arvan, MD, PhD (Metabolism, Endocrinology & Diabetes); Chung Owyang, MD (Gastroenterology); Theodore Standiford, MD (Pulmonary & Critical Care Medicine); John Carethers, MD (Chair of Internal Medicine); Eric Fearon, MD, PhD (Molecular Medicine & Genetics); Kathleen Cooney, MD (Hematology & Oncology); and Frank Brosius III, MD (Nephrology)
DEPARTMENT OF INTERNAL MEDICINE CHIEF MEDICAL RESIDENTS

Left to right: Daniel N. Bennett, MD; Gail K. Larsen, MD, MPH; John Carethers, MD, Chair of Internal Medicine; Valerie M. Vaughn, MD; and Pranab M. Barman, MD

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DEPARTMENT OF INTERNAL MEDICINE
AWARDS

JEROME CONN AWARD
Elizabeth Speliotes, MD, PhD

PAUL DEKRIUF – LIFETIME ACHIEVEMENT AWARD
Richard Moseley, MD

CHAIRMAN’S AWARD FOR OUTSTANDING SERVICE
Theodore Standiford, MD

INTERNAL MEDICINE AWARD FOR EXCELLENCE IN ADMINISTRATION
Stephanie Gatica

ADMINISTRATIVE EXCELLENCE
Echo Reed (Allergy and Clinical Immunology)
Donna Boyer (Pulmonary & Critical Care Medicine)
Marilyn Duron (General Medicine)
Joann Sherman (Hematology/Oncology)

CLINICAL EXCELLENCE
Marc Uelmen (Cardiovascular Medicine)
Karen Sabit (Nephrology)
Lisa Sylvest (Gastroenterology)

RESEARCH EXCELLENCE
Knoll Larkin (General Medicine)
Valerie Kahn (General Medicine)
Chrysta Lienczewski (Nephrology)
Madhusudan Venkatareddy (Nephrology)

Front row: Donna Boyer, Karen Sabit, Lisa Sylvest, Marilyn Duron, Valerie Kahn, Joann Sherman, Musty Habhab
Back row: Echo Reed, Marc Uelmen, John Carethers, MD (Chair), Knoll Larkin, Chrysta Lienczewski, Madhusudan Venkatareddy
Internal medicine faculty member Rajesh Mangrulkar, MD, the associate dean for medical student education, is principal investigator on the grant and spearheading this initiative along with other UMMS leaders from internal medicine, including UMMS Dean James Wooliscroft, MD, and Joseph Kolars, MD, the senior associate dean for education and global initiatives.

“As we started to envision how we could improve our curriculum to reflect today’s more complex care delivery system, we realized that our current approach to medical education needed to be completely rethought. When this AMA funding opportunity came up, we used it as an incentive to ignite this process at UMMS,” explains Mangrulkar.

“As a top academic medical school that’s also part of a public institution, Michigan has a strong commitment to preparing physicians to meet society’s needs. These needs have been changing drastically. Reevaluating our curriculum will help us fulfill our mission in a more intelligent manner,” explains Cyril Grum, MD, the Department of Internal Medicine’s senior associate chair of undergraduate programs.

Medical students of the future will need to better understand health care economics and health policies because those influence patient care and the clinical delivery and academic systems they are going to enter. They will also be encountering the needs of a growing aging population after they graduate. Many of their patients will likely have four or five complex chronic conditions. This will require working in interdisciplinary care teams, increased patient education, thinking about drug interactions, the genetic characteristics of the patient, their risk of illness and responses to therapy.

As the needs of the health care system and patient populations continue to evolve, these students will need to be able to adapt and lead change to make it even better. “As physicians we constantly need to keep up with the rapid pace of new knowledge to understand what we should and shouldn’t be doing. Our learning never ends. We need to lay a good foundation of knowledge and concepts and combine it with the approach of developing students as master learners, who are constantly asking questions, finding new answers, and calibrating it with their other knowledge,” says Mangrulkar.
THE APPROACH
The U-M Medical School has started its curriculum and organizational transformation journey with a primary goal of having every graduate of the medical school be able to lead change in health, health care and health care science. “We want Michigan graduates to be the ones who are leading change. We are completely restructuring the organization of our curriculum, reformulating the content and revamping the learning approaches students will be exposed to,” adds Mangrulkar. The medical school’s approach to developing physician “change agents” who will improve health care at the systems, science and patient levels will be phased in over several years.

The first step is the creation of the “M-Home,” a learning community where students will develop relationships with a smaller group of colleagues, staff and faculty that will follow them throughout their medical education. The M-Home is designed to foster a strong professional identity based on doctoring skills, professionalism and an understanding of one’s values. Students will then enter a two-year foundation (the “trunk”), integrating science and clinical experiences from the beginning, including current core third-year clinical rotations.

“Michigan students are some of the best and the brightest around. I grow more impressed each year with their talents, enthusiasm and passion for medicine. I am looking forward to working with them sooner in the clinic,” adds Grum.

After completing the trunk, students will proceed through “professional development branches,” where they will complete advanced clinical and scientific training at a deliberate but flexible pace until they’re ready to progress to the next stage. Underlying all of this will be leadership training focused on teamwork, communication, critical problem-solving skills and the ability to be a systems thinker. Students will apply those skills throughout, but also in “Paths of Excellence,” developing expertise and promoting change in a field that is critical to health care, such as health equity, global health, public health, and health policy.

CURRICULUM DEVELOPMENT TIMELINE
The design and implementation of the new curriculum will follow a deliberate process occurring between 2013 and 2018.

2013: Explore and develop model for curriculum transformation.
2014: Convene work groups to design curricular elements.
2014 to 2015: Determine content and logistics for curricular elements.
Fall 2015: Taubman Health Sciences Library renovation complete; first elements of the new curriculum are introduced:
- All medical students will be part of the new M-Home Learning Community;
- First year clinical immersion;
- New Chief Complaint Course; and
- Leadership and Paths of Excellence are deliberately integrated.
2015 to 2018: Phased implementation of additional curricular elements.
VISION OF THE PHYSICIAN LEADER
The new curriculum aims to develop capabilities in the following themes:

- Leadership. Able to question and challenge the status quo. Able to manage oneself and exert influence over others.
- Teamwork. Able to work collaboratively in interdisciplinary/inter-professional settings of care. Able to communicate effectively.
- Systems. Understands systems of health care. Able to navigate him/herself within systems to deliver and coordinate care for patients.
- Patient Care. Able to engage patients and develop trust. Able to navigate patients through the process, choices and value of the system.
- Creation & Discovery. Able to apply creative/critical thinking to develop new solutions or information. Able to utilize current and emerging technology.
- Foundational Skills and Knowledge. Understands and applies knowledge foundational to medicine. Able to perform tasks required of the general physician.

quality and safety, bioethics, health policy, the science of learning and the science of discovery.

THE JOURNEY
This is going to be a long journey. “We’re not using a ‘flip the switch’ approach. During 2014, we officially launched a rigorous governing structure and began the design and planning of the curriculum. More than 200 faculty, staff and students, nine working groups and 15-20 sub teams are involved in this effort. We’re doing the implementation in a modular approach. We’ll be doing some things in 2015, and then we’ll make more dramatic changes to the architecture in 2016. We’ll continue to implement pilots and experiments and then learn from them as we go. By 2018 all branches will launch and in 2020 we will graduate the first class of the curriculum,” explains Mangrulkar.

STUDENT INVOLVEMENT
UMMS aims to include as many voices as possible in curriculum reform. The Student Advisory Committee (SAC) allows students interested in medical education to offer input to the faculty members enacting curriculum change. The SAC consists entirely of medical students elected by their classmates. It includes two students from each of the M1-M4 classes, and one MSTP student. SAC representatives are currently acting as liaisons between the rest of the student body, the work groups, and the Steering Committee.

“The student response to this effort has been inspirational. Even though these curriculum changes will not directly affect them, those participating have been really excited to help shape the future of medical education. They will tell us what they think is possible and what is most important to them as students. It’s really a great leadership development experience. We’re engaging learners in the process of leading medical change. When the AMA visited UMMS in November 2014 to check on our progress, they specifically noted how impressed they were with our high levels of both student and faculty involvement in the transformation process,” adds Mangrulkar.

AN EXCITING TIME
“Michigan was one of the original architects of the current medical school curriculum and is considered a national leader in medical education. It’s quite fitting that we would find ourselves up to the challenge of creating the next model of the medical curriculum that society needs. Our Taubman Health Sciences Library is being remodeled to provide learning and collaboration spaces that will complement our new curriculum (see sidebar on next page) and we’ve just received $6 million in funding.
A $55 million project to transform the A. Alfred Taubman Health Sciences Library building will be completed during summer of 2015, ushering in the new era of education at Michigan. When it re-opens after an 18-month closure, it will be a natural light-filled medical education hub, one that supports in-person, collaborative, active learning.

Medical students will have access to modern classrooms, clinical simulation and information technology-rich assessment areas to learn and test patient care skills, collaboration spaces and small group learning and team breakout rooms.

A large commons area, space for exhibits, inter-professional leadership training spaces, a library, and wide new staircases and halls will foster interaction. The building will also have a medical student-centered lounge, quiet study and reflection areas.

The project will also increase the number of fully equipped medical and procedure rooms where students can develop their physical examination and clinical interaction skills with standardized and real patients.

“Michigan was one of the original architects of the current medical school curriculum and is considered a national leader in medical education. It’s quite fitting that we would find ourselves up to the challenge of creating the next model of the medical curriculum that society needs,” adds Mangrulkar.
In addition to the medical school’s new curriculum, the University of Michigan was awarded $3 million in funding for an Interprofessional Health Education and Collaborative Care program through the university’s Transforming Learning for a Third Century program in November 2014.

This grant was matched by the deans from the seven health sciences schools, which include the U-M Medical School, the College of Pharmacy, School of Dentistry, School of Public Health, School of Social Work, School of Nursing and the School of Kinesiology. This five-year, $6 million program is working to transform the way faculty teach more than 4,000 health professional students, with an ultimate goal to impact the patient experience, population health and the cost of health care.

During winter semester 2015, the schools of dentistry, medicine, nursing, pharmacy and social work piloted a new course, “Team-Based Clinical Decision Making.” The course is the first of its kind at U-M and may be one of the largest semester-long interprofessional education offerings in the country. More than 250 students worked in interprofessional teams, rotating through all five schools and solving difficult patient cases. Faculty also co-taught the two-credit course in interprofessional pairs.
THE ART OF EDUCATION:
U-M Medical Student and Internal Medicine Resident Perspectives

“I had the opportunity to learn from many internal medicine faculty first in the classroom as a medical student and then side by side with them in clinic and on the wards. Now, I’m eager for the opportunity to share many of these experiences with others in my new role as CMR.”

Internal Medicine Chief Medical Resident (2015-2016)
University of Michigan

“Things change so quickly in medicine. We need to adapt continually. There’s an emphasis at Michigan to continue to learn and think critically. It really helps that the faculty are very approachable and have a genuine interest in sharing their knowledge with you.”

Owen Albin, MD
2nd Year Resident

“At U-M, I’ve learned how to handle all kinds of issues. How to appropriately treat people, why we make the decisions we do. I learned how to approach medicine with vigor. You’re always learning and growing — exploring how to make medicine better.”

Morgan Jones, MD, PhD ’15

“My first experience at Michigan was as a cancer patient. I am now able to see both sides as a former patient and a house officer. I was blown away by the care and support I received. I want to be able to carry that on to my patients and trainees.”

Kris Kawamoto, MD
2nd Year Resident

“The clinical rotations really push you to become the best clinician you can be. There are so many opportunities to explore your options at U-M — to discover your passion.”

Brian Salata, MD ’15

“I really enjoy the learning process. U-M is known for its rigorous medical education. It’s providing some of the most diverse opportunities for medical students today. Both the faculty and the attendees are really focused on giving students a great medical education. They are determined to help you find your path.”

Sarah Brown, MD ’15
A HISTORICAL PERSPECTIVE:
The Evolution of Medical Education at Michigan

Today, U.S. News & World Report ranks the U-M Medical School among top medical schools in the United States. Looking back in history, it appears that leadership and innovation have been longstanding traditions at U-M. Long before the landmark Flexner Report “Medical Education in the United States and Canada” was published in 1910, the U-M Medical School had been a leader in cutting edge medical education, not to mention basic and clinical research, and patient care.

1850: The University of Michigan Medical School opens its doors to more than 100 students and becomes U-M’s first professional school. The curriculum consists of lectures, and the second year was a repeat of the first. Tuition is $5 a year.

Late 1870s: The academic term is increased from six months to nine months.

1880: A three-year curriculum with laboratory instruction and formal grades is adopted.

1890s: U-M adopts the four-year medical school program still in use today and starts involving students as active participants in their education, rather than passive observers and teaching them how to acquire and interpret information — approaches that were considered radical for the time.

1891: A new hospital on Catherine Street replaces the old Campus Pavilion Hospital.

1899: The school introduces the clinical clerkship — a breakthrough made possible by the fact that U-M owns its own hospital.

1900: The U.S. medical community recognizes the Catherine Street Hospital as the largest teaching hospital in the country.

1910: The landmark Flexner Report “Medical Education in the United States and Canada” is published. It cites U-M as a “model for medical education.”
1950-1960: Students start receiving earlier clinical contact with patients and an interdepartmental course in the neurosciences is introduced.

Late 1960s: Increased clinical training is incorporated into the first two predominantly basic science years of medical school. An interdepartmental Introduction to Clinical Medicine course and senior year subinternships are also introduced to the curriculum.

2003: The school begins to implement a new curriculum that integrates biomedical, clinical and psychosocial sciences with clinical skills and professionalism.

2013: The American Medical Association launches “Accelerating Change in Medical Education.” UMMS is selected as one of 11 medical schools to receive funding to transform its curriculum.

2014: UMMS Dean James Wooliscroft, MD, receives the Flexner Award for Distinguished Service to Medical Education.
ADDRESSING A GROWING NEED

Despite providers' increasingly important role and genuine interest in caring for vulnerable populations, many health care professionals lack formal training regarding social determinants of health, public health care systems or special care needs of the medically underserved. Even though national accreditation standards include expectations that clinicians reflect awareness of socioeconomic barriers impacting patient care, there is currently no formalized national curriculum.

An interprofessional team made up of physicians, nurses, social workers and medical educators at U-M decided to address this issue head on. They identified both a strong local and national need for a curriculum that supports learners who provide medical care for high risk, socioeconomiclly disadvantaged patients, with an emphasis on the needs of homeless, uninsured and under-insured patients.

A local assessment revealed the need for a formal curriculum serving multiple clinical training programs at the University of Michigan. Neither the U-M Medical School nor the School of Nursing had access to a concise practical resource for clinical learners who care for underserved and homeless populations. Residents who rotated through underserved clinical venues with a traditional informal curriculum showed no significant improvement in socioeconomic or sociobehavioral knowledge. A review of learner comments revealed caregiver fatigue, including perceptions of inadequate knowledge and skills to meet the needs of complex and disadvantaged patients; comments also revealed compassion fatigue.

"We were finding that many learners were feeling unprepared to help these populations. You can’t just drop someone into a homeless clinic and expect them to figure it out. There are special skill sets that need to be learned," explains Davoren Chick, MD, FACP, an associate professor from the Division of General Medicine who regularly provides care at a homeless shelter clinic. "They need a cognitive framework to work from in order to engage in productive
care of these populations. At the same time, we were hearing from faculty that they didn’t feel they had the proper knowledge or resources to teach those skills.”

Nationally, half of internal medicine residents are international medical graduates. On completion of training, these international physicians go on to provide a higher percentage of Medicaid, Medicare/Medicaid, and uninsured care here in the U.S. than do graduates of U.S. medical schools. This has created an additional need for residency programs to address knowledge gaps regarding the U.S. health system because the residents with the least personal experience with U.S. health systems are more likely to be caring for at-risk populations.

CREATING THE CURRICULUM
Supported by a Graduate Medical Education Innovation grant from the University of Michigan Medical School, the team developed a modular, interdisciplinary curriculum that would support clinical learners and faculty in assessing and formulating a biopsychosocial approach for socioeconomically disadvantaged patients with complex care needs. They identified specific knowledge objectives across seven inter-related content areas: 1) demographics of the medically uninsured and homelessness in the United States; 2) public health insurance programs, with emphasis on Medicare and Medicaid; 3) national public health care delivery systems; 4) social determinants of health, with an emphasis on socioeconomic status; 5) biomedical care needs of homeless and at-risk patients; 6) the biopsychosocial model of care, with emphasis on special psychosocial considerations for underserved and low socioeconomic status populations; and 7) team-based inter-professional care for high risk populations.

Independent learning modules were created for each of the content areas. They provide case-based, clinically relevant, concise and politically neutral content exploring each identified learning objective. The modules have since been formally peer-reviewed and published through the AAMC MedEdPORTAL, with two subsequent major revisions to ensure continued clinical relevance and include current evidence.

TAKING IT ONLINE
Dr. Chick then collaborated with Michigan Creative, a group at U-M that provides professional design and website development services, to explore the best ways to present these core learning modules online. The result was the Caring with Compassion website — caringwithcompassion.org — that includes a complete set of curricular tools to support diverse learner needs, including:

- Formal instructor’s guide
- Informal learner’s guide
- An individualized learner dashboard supporting each user in tracking progress
- A downloadable version of the core learning content (“The Caring Book”)
- Extension links and resources
- A clinical case pocket presentation guide that reinforces learning points during clinical care
- A milestone-based skill assessment tool to support formative feedback and skill application
- Professionally produced videos simulating real life perspectives that reinforce clinical objectives

The site is open to the public and the aggregated curriculum is designed to be engaging, flexible, portable, responsive to handheld devices and appropriate for diverse health professionals at multiple stages of training.
THE CARING WITH COMPASSION TEAM

Principle Investigator:
Davoren Chick, MD
Clinical Associate Professor
Department of Internal Medicine and Department of
Learning Health Sciences

Coinvestigators:
April Bigelow, PhD, ANP-BC
Clinical Assistant Professor
Coordinator, ANP Program
U-M School of Nursing

Pamela Davis, MD
Clinical Assistant Professor
Department of Pediatrics
U-M Medical School

Heather Rye, LMSW, CCM
Complex Care
Management Program
Population Health
U-M Medical School

F. Jacob Seagull, PhD
Assistant Professor
Department of Learning
Health Sciences
U-M Medical School

Brent C. Williams, MD, MPH
Associate Professor
Department of Internal
Medicine
U-M Medical School

Website design and
development:
Michigan Creative

Pamela Davis, MD; Brent C. Williams, MD, MPH; Davoren Chick, MD; April Bigelow, PhD, ANP-BC; Heather
Rye, LMSW, CCM
Knowledge outcomes for the Caring with Compassion online curriculum have been highly positive and significant, both educationally and statistically (see page 36). When post-module knowledge was compared with pre-test knowledge for national users (measured by online quizzes), knowledge scores improved for each tested area.

**CARE CONSEQUENCES**
The formal curriculum is supplemented with a case-based, online game that integrates learning objectives into an enjoyable, low-risk learning experience. The game, “Care Consequences,” was designed to actively engage young professional learners. “It incorporates fun, interactive experiment with knowledge application in a storyline format. We revised the game structure based on formal feedback from a medical student focus group, resulting in successful development of a game that has become widely lauded nationally,” explains Dr. Chick. Based on the success of the initial game, the team developed a second character storyline. Nationally, players with high scores (reflecting both substantial knowledge of the targeted learning objectives and successful bio-psychosocial management of a complex patient) are publicly posted on a game Leaderboard, supporting friendly competition.

**CME CREDIT**
To promote faculty development, the team arranged to offer CME credit for each of the seven core didactic modules. Caringwithcompassion.org provides up to 10 total hours of free CME credit through the U-M Medical School. To date, active clinicians have certified over 300 CME hours related to their Caring with Compassion self study activities. Quality ratings for each learning module have been as good as or better than other U-M CME activities.

**MAKING AN IMPACT AT U-M**
At University of Michigan, Caring With Compassion is now a core resource for both U-M Medical School and School of Nursing courses related to care of underserved populations. It is used by the Medicine-Pediatrics residency training program to support their clinical learners who provide care at an underserved community clinic, and it is available as an individual learning resource for interested Internal Medicine residents who are participating in the medical clinic at a local homeless shelter. Caring with Compassion is also being used as a resource for a cross-listed interprofessional course that is required for all 3rd year School of Dentistry students, 3rd year College of Pharmacy students, and Integrated Health Scholars at the School of Social Work.

**NATIONAL OUTCOMES**
Caring with Compassion has quickly become widely disseminated and recognized as a nationally significant curriculum. More than 2,000 users have enrolled nationally. Enrollment continues to increase and numerous institutions have adopted the core modules as mandatory assignments for their learners. Users who have shared demographic information include: medical students, residents, nursing students, other clinical learners, physician faculty, other faculty, RNs and NPs. They come from 304 health education institutions, including: Boston Healthcare for the Homeless Program, Cleveland Clinic, Columbia University, Partners HealthCare, Duke University, Henry Ford Health System, Johns Hopkins Medical Center and the Mayo Clinic to name a few. “As we expected, we are also finding the site and game to be especially appreciated by international medical school graduates because it gives a clear overview of U.S. health care systems and insurance systems of care,” adds Chick.

**WHAT’S NEXT?**
The Caring with Compassion team is now partnering with two pediatricians and a medicine-pediatrics resident to develop a supplementary module addressing special considerations for the care of socioeconomically disadvantaged children. They are actively
transitioning to external funding support and alternative internal curricular maintenance support in order to sustain and improve this resource for future learners. In addition, the curriculum has been considered as a resource for use in the newly envisioned U-M Medical School curriculum (page 24).

“We are applying for funding from foundations that support education and care for underserved populations. Our goal is to obtain sufficient funding to implement further curricular enhancements including an administrative tracking portal for institutional users; enhanced faculty development tools to support clinical faculty in provision of feedback; a wiki site that allows users to contribute best practices and share local resources; and a pediatric game scenario in Care Consequences that reinforces pediatric learning objectives,” explains Chick.

“It took a lot of time but in the end we were able to develop an engaging, flexible, portable, inter-professional curriculum that supports contemporary graduate medical learners, advanced medical students, and other health professionals who deliver care to medically underserved populations. We are grateful that the UMMS Graduate Medical Education office funded this project and allowed us to realize its potential as a major national resource.

“What’s been most rewarding for all of us is the overwhelming positive response we’ve gotten from learners. They’re not only acquiring necessary knowledge from the curriculum, but also genuinely enjoying it. It makes my day when I see comments like: ‘This site is super awesome.’”

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<th>KNOWLEDGE OUTCOMES</th>
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Knowledge outcomes for the Caring with Compassion online curriculum.
STUDENT AWARDS

William Dodd Robinson Award
Mohammad Dar
Andrea Thompson

Eli G. Rochelson Memorial Award
Bryan Peterson

Henry Fitzbutler Award for Excellence in Hospitalist Medicine
Betty Zhao

Department of Internal Medicine Senior Scholarships
Cassandra Betts
Stephanie Burdick
Mohammad Dar
Charles Schuler, IV
Vandan Shah
Jennifer Taylor

RESIDENT AWARDS

Kenneth Stark Research Award (oral)
Andrew Hughey, MD

Kenneth Stark Research Award (poster)
Mosmi Surati, MD, MPH

Laure Edmunds Award for the Most Outstanding House Officer I
Jared Wilkinson, MD

Internal Medicine Award for the Most Outstanding House Officer
Joshua Levenson, MD

Bruce A. Jones Award for Outstanding Housestaff Spirit
Natalie Cohen, MD

Dr. Jacob P. Deerhake Community Service Award
Robin Goldman, MD

David S. Rosen Award Medicine-Pediatrics House officer Award for Humanism
Jennifer Hasvold, MD

FACULTY TEACHING AWARDS

Special Recognition for Contributions to the Medical Student Teaching Program
Vladimir Ognenovski, MD

Special Recognition for Contributions to the House Officer Teaching Program
Anna Booher, MD
Cara McDonagh, MD

Richard D. Judge Award for Excellence in Medical Student Teaching
Michael Heung, MD

H. Marvin Pollard Award for Outstanding Teaching of Residents
Paul Fine, MD

Steven E. Gradwohl Excellence in Continuity General Internal Medicine Teaching Award
Kristin Collier, MD

John G. Frohna Outstanding Teaching in Medicine-Pediatrics Award
Aaron Daniels, MD

DEAN WOOLLISCROFT RECEIVES FLEXNER AWARD

James O. Woolliscroft, MD, was recognized by the Association of American Medical Colleges in 2014 with the Flexner Award, a national award in recognition of outstanding leadership in transforming medical education in the modern age. Dr. Woolliscroft, who has led the U-M Medical School since 2007 and is the Lyle C. Roll Professor of Medicine in the Division of General Medicine, accepted the award at the annual meeting of the AAMC in Chicago.

Considered the highest honor given by AAMC, the Flexner Award recognizes extraordinary contributions to medical schools and the medical education community. It was first given in 1958.
In a recently published Pew Research Center article, it was noted that “most Americans find women indistinguishable from men on key leadership traits such as intelligence and capacity for innovation, with many saying they’re stronger than men in terms of being compassionate and organized leaders.” Linkages, Inc. reports that “companies with a higher share of women at the executive committee level outperform those with fewer women.” And while many studies note that businesses have better operating results when women hold key leadership positions, too many times we see a disproportionately low number of women appointed to these roles. Academic medicine is no exception, as noted in a recently released AAMC State of Women in Academic Medicine report. Based on data from 117 LCME accredited medical schools, the number of women in faculty positions dwindled from 46 percent in residency to 21 percent as full professors to 15 percent as department chairs and 16 percent as deans.

The U-M Health System and the Department of Internal Medicine are actively pursuing ways to change that paradigm by supporting the development of many of U-M’s women leaders in medicine.

LEADERSHIP SUMMIT FOR WOMEN

The Department of Internal Medicine was a sponsor of the Health System’s first Women in Academic Leadership Summit, entitled “Leading the Future of Academic Medicine & Healthcare.” This conference in early 2015 provided skills-based training in negotiation and building leadership presence, and provided participants with opportunities to connect with thought leaders and world-class faculty. More than 400 women leaders in health care and academic medicine from across the country gathered for an unparalleled day of powerful keynote speakers, networking and development of critical thinking skills. Internal Medicine had representation from more than 20 women faculty and administrators (see photo on page 40).

RUDI ANSBACHER WOMEN IN ACADEMIC MEDICINE LEADERSHIP PROGRAM

Another way the department supports advancement of women is by promoting participation in leadership development programs, such as ELAM, the Executive Leadership in Academic Medicine program offered by Drexel University. Due to its popularity, the U-M Health System launched its own program to develop women leaders. Designed in partnership with the U-M Medical
School, Linkage, Inc. and the Stephen M. Ross School of Business, the U-M Medical School Office of Faculty Development announced the Inaugural Rudi Ansbacher Women in Academic Medicine Leadership Program in 2014.

The first two women from the Department of Internal Medicine participating in the program are Rashmi Chugh, MD, an associate professor from the Division of Hematology/Oncology and Dana Burkley, administrator for the Division of General Medicine.

“This program demonstrates the U-M Health System’s commitment to cultivating and developing female faculty and staff leadership; I’m very grateful for the support of the department and excited to put to good use the superior training I will receive,” explains Burkley.

This intensive 18-month program is designed to accelerate the development of women for senior positions in academic medicine and health care by providing insights about leadership strengths, opportunities, self-awareness, growth, development and success. It includes:

- Five two-day immersion workshops
- Executive leadership coaching
- Action learning, reading and related assignments
- Ongoing development planning
- Exposure to, and participation in, committees and projects
- Preparation for future challenges and advancement

While the curriculum is innovative and relevant, one of the most rewarding aspects for Dr. Chugh thus far has been the opportunity to interact with other colleagues.

“This program creates a unique learning environment for women in academic medicine to learn skills that are typically not taught formally. During interactions in small group projects and simulations, I am learning how to cultivate the new principles and gaining perspectives from fellow group members. I expect these invaluable experiences will stay with me long after the program is complete and allow me to translate the skills in a practical sense within my department.”

SUPPORT FROM THE ALLIANCE FOR ACADEMIC INTERNAL MEDICINE (AAIM)

Momentum for the development of leadership skills for women is also growing nationally. Recently, AAIM established a committee of women leaders from across the country to identify ways to support and further develop women faculty and administrators. Goals include opening a dialogue among the women members of AAIM, helping them find mentors, seek advice and coach others; preparing women to assume leadership roles at their home institution; and building a community of leaders who will help AAIM develop the next generation of leaders for departments of medicine. The Department of Internal Medicine’s Chief Administrator Masada (Musty) Habhab will soon begin her term as president-elect of AIM (Administrators of Internal Medicine), a council of AAIM. “I am excited to be part of the development of the AAIM women in leadership program. Most of all, I am proud of the work we are doing within our department, at the health system, regionally and nationally to further develop the skills of women leaders, and our ongoing commitment to support gender balance in academic medicine leadership positions,” she adds.
Front row: Michelle Anderson, MD — Associate Professor, Gastroenterology; Megan Riehl, PsyD — Instructor, Gastroenterology; Sarah Hawley, PhD, MPH — Associate Professor, General Medicine; Mary Ellen Michele Heisler, MD, MPH — Professor, General Medicine and Professor of Health Behaviors and Health Education; Monica Lysson, MD — Assistant Dean for Graduate Medical Education, Professor, General Medicine and Professor of Learning Health Sciences; Rudi Ansbacher, MD — Professor Emeritus of Obstetrics and Gynecology; Marisa Rodriguez — Administrative Manager Health Care, Allergy; Julie Brabbs — Administrative Manager Health Care, Hematology/Oncology and Molecular Medicine and Genetics; Mary Freer — Administrative Manager Health Care, Pulmonary and Critical Care; Tammy Ojo, MD — Assistant Professor, Pulmonary and Critical Care; Margaret Gyetko, MD — Professor of Internal Medicine and Senior Associate Dean for Faculty and Faculty Development; Eve Kerr, MD, MPH — Professor, General Medicine

Back row: Denege Ward, MD — Assistant Professor, General Medicine; Janet Stevens — Administrative Manager Health Care, Rheumatology; Musty Habhab — Administrative Director Health Care; Rashmi Chugh, MD — Associate Professor, Hematology/Oncology; Lynn Henry, MD, PhD — Associate Professor, Hematology/Oncology; Dana Burkley — Administrative Manager Health Care, General Medicine; Kathleen Cooney, MD — Professor, Hematology/Oncology and Professor of Urology; Amy Kaufman Eddy — Administrative Manager Health Care, Nephrology; Deneen Wellik, PhD — Associate Professor of Internal Medicine and Cell and Developmental Biology, Molecular Medicine and Genetics; Karen Hall, PhD, MD — Professor, Geriatric and Palliative Medicine; Namita Sachdev, MD — Assistant Professor, General Medicine and Assistant Professor of Pediatrics and Communicable Diseases
This year, the Department of Internal Medicine Residency Program received more than 3,500 applications; of which, approximately 480 medicine and medicine-pediatric candidates were interviewed with our faculty and program leadership from November 2013 through January 2014.

The Internal Medicine Residency Program welcomed its incoming intern class of 58 individuals in June 2014. They included 11 graduates of U-M Medical School along with other top tier medical schools. Of this group, 48 percent are newly elected members of the Alpha Omega Alpha Honor Medical Society and nine individuals have additional advanced degrees. The program also recruited six outstanding MD, PhD graduates for the Physician Scientist track.

Six of the incoming interns are 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.

"Our amount of applications increased by more than 300 this year. The pool of prospective residents keeps getting larger and more competitive. This demand reflects well on the reputation of our program and is providing us with stellar medical school graduates," explains John Del Valle, MD, the Department of Internal Medicine's senior associate chair for graduate medical education and the director of the residency program.

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 Pranab Barman, MD, Daniel Bennett, MD, Gail Larsen, MD, MPH and Valerie Vaughn-Sandler, MD. In the Medicine-Pediatrics program, the CMR is Laura Taylor, 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.

PRIMARY CARE TRACK
To help meet the nation's growing need for primary care physicians, the Department of Internal Medicine Residency Program initiated a primary care track in 2014 that allows residents even more options as they solidify their career paths. This new track is funded by U-M Hospital and adds two new positions to the program increasing the total number of categorical medicine residents to 44. It focuses on expanded exposure to ambulatory care rotations and interactions with primary care mentors. Residents participate in multiple dedicated month-long continuity/ambulatory clinic rotations, and get the opportunity to experience primary care in multiple settings. "Adding these two primary care spots in 2014 is helping us better meet the goals and needs of our department and the health system," adds Del Valle.
ASSOCIATE PROGRAM DIRECTOR

Sarah Hartley, MD, has been appointed as an associate program director for the Internal Medicine Residency Program. In this role, she provides oversight to the inpatient component of the training program. Her main responsibilities include assisting with schedule development, oversight of educational needs within the inpatient setting and assistance with oversight of all inpatient activities including compliance with duty hours, record completion and schedule modifications. She will also advise residents on a regular basis, assist with the recruiting process and participate in administrative meetings.

ASSISTANT PROGRAM DIRECTORS

The Internal Medicine Residency Program is pleased to announce the addition of four new assistant program directors:

Kristin Collier, MD, has accepted the role of the assistant program director focusing on outpatient education and the primary care track. Dr. Collier is a former resident of the U-M Internal Medicine Residency Program and served as a CMR in 2004-2005.

Jennifer Lukela, MD, is our new assistant program director on outpatient education and will work on development of ambulatory experiences for the residents. She is also a former resident of the Internal Medicine Residency Program and served as a CMR in 2002-2003.

Rachel Perlman, MD, will develop and administer programs to facilitate the career development of residents in her role as the assistant program director for career development. She completed a residency in our Internal Medicine Residency Program and then went on to complete a fellowship in the Division of Nephrology at UMHS.

Thomas Sisson, MD, will oversee the development of a research mentoring program for residents while expanding scholarship and research curriculum in his role as the assistant program director for Research and Scholarship. Dr. Sisson completed a fellowship in the Division of Pulmonary and Critical Care Medicine here at the University of Michigan following his residency in our internal medicine program.

The program would also like to thank both Anna Booher, MD and Cara McDonagh, MD for their excellent service as assistant program directors during the previous year.

Program Appointments

2014 FELLOWSHIPS IN THE DEPARTMENT OF INTERNAL MEDICINE

During 2014, there were 137 fellows working in the following areas:

<table>
<thead>
<tr>
<th>Fellowship</th>
<th># of Fellows</th>
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<tbody>
<tr>
<td>Allergy</td>
<td>4</td>
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<tr>
<td>Cardiology</td>
<td>21</td>
</tr>
<tr>
<td>Cardiology Advanced Heart Failure + Transplant</td>
<td>2</td>
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<tr>
<td>Cardiology EP</td>
<td>6</td>
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<tr>
<td>Cardiology EP (second year)</td>
<td>6</td>
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<tr>
<td>Interventional Cardiology</td>
<td>3</td>
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<tr>
<td>Gastroenterology</td>
<td>20</td>
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<tr>
<td>Transplant Hepatology</td>
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<tr>
<td>Advanced Endoscopy</td>
<td>2</td>
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<tr>
<td>Geriatrics</td>
<td>4</td>
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<tr>
<td>Hospice + Palliative Care</td>
<td>3</td>
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<tr>
<td>Hematology/Oncology</td>
<td>20</td>
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<tr>
<td>Infectious Diseases</td>
<td>4</td>
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<tr>
<td>Metabolism, Endocrinology + Diabetes (MEND)</td>
<td>6</td>
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<tr>
<td>Metabolism, Endocrinology + Diabetes (MEND) - Research Track</td>
<td>1</td>
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<tr>
<td>Nephrology</td>
<td>10</td>
</tr>
<tr>
<td>Pulmonary/Critical Care</td>
<td>16</td>
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<tr>
<td>Critical Care</td>
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<tr>
<td>Rheumatology</td>
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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; Sara Hartley, MD, Associate Program Director; Subramaniam Pennathur, MD, Associate Program Director; Thomas Sisson, MD, Assistant Program Director; John Del Valle, MD, Program Director, Senior Associate Chair, Graduate Medical Education; Front row (left to right): Namita Sachdev, MD, Associate Program Director, Medicine-Pediatrics; Kristin Collier, MD, Assistant Program Director; Rachel Perlman, MD, Assistant Program Director; Not pictured: Jennifer Lukela, MD, Assistant Program Director
For many years, the U-M Health System (UMHS) had used a homegrown Electronic Health Record (EHR) system called CareWeb. In order to meet the new federal standards of the Health Information Technology for Economic and Clinical Health Act, the hospitals and health centers adopted MiChart — an electronic medical record system purchased from Epic Systems Corporation in 2012.

MiChart drastically changed the way faculty and staff created and accessed clinical information to care for patients, conduct clinical research and secure payments across UMHS. It also introduced new ways for patients to take an active role in their health care, including the use of an online patient “portal” called myuofmhealth.org.

“When the new EHR system was introduced, it was quite a burden for physicians. Healthcare delivery is already complicated and everyone had to learn how to master a complex new tool even though it offered more functionality,” explains Rafat (Raf) Rizk, MD, an assistant professor from the Division of Gastroenterology. Rizk, a MiChart physician builder, who is interested in both medical education and the EHR, ended up developing an interactive website, MiChartFLY.com, to help fellow U-M physicians learn and share best practices for using MiChart. UMHS already provides formal MiChart training and online resources but Rizk wanted to provide another alternative for collaboration focused on physicians who needed relevant answers quickly.

“I wanted to help providers learn some of key timesaving shortcuts and features of MiChart so they could better care for their patients,” he says. “My hope is for physicians to have less screen time and more face time with patients.” The philosophy Rizk promotes for learning any EHR is to achieve “Less time searching, more time caring and more time for life.”

He initially started by making video tutorials with useful tips in 2012 and his efforts gradually evolved into a position allowing him to work on MiChart projects and MiChartFLY, a web-based platform where physicians can learn, share and contribute toward a shared understanding of the best MiChart features.

**SEE ONE, DO ONE, TEACH ONE**

MiChartFLY uses a just-in-time learning approach with self-guided micro-tutorials that can be completed in less than five minutes. The goal is develop a database of easily searchable MiChart how-to’s that are categorized intuitively by physician tasks, so physicians can learn on-the-fly how to use MiChart. The mindset of MiChartFLY uses the age-old adage of “see one, do one, teach one.” Many users like the just-in-time approach because they can train at their own pace, wherever and whenever they like, for as little or as much time as they want.

Physicians can also create peer-to-peer tips for their own specialty to be shared with each other and with other specialties.Anyone can contribute by e-mail or by posting a comment. Rizk explains, “We can learn a ton from each other; we just need a collaborative space that is easy to find and easy to use.”

He hopes physicians will explore the power of collaborative social learning. “For busy physicians, I think this is a realistic approach, and it goes beyond what e-mail can do.”

There have been more than 13,300 page views and over 6,000 unique visits on the site so far, but Rizk hopes that the site can be used as a resource by many more. “I would also love to have more contributors, from physicians to house staff to mid-levels, all contributing to shared learning,” he adds.

Rizk is grateful that this effort has been supported by the Department of Internal Medicine, the U-M Medical Group and Margaret Punch, MD, the associate medical director of ambulatory care services at UMHS, so he can spend time working with colleagues to help them maximize the utility of MiChart. Ultimately he adds, “As we learn how to use the best of MiChart and how to share what we know, we will see greater value in the EHR. Simultaneously, though, Epic must continue to make the user interface more intuitive so the learning curve is not as steep.”
EXPANDING OUR REACH:
Continuing Medical Education Program

The Department of Internal Medicine has come a long way since it began coordinating and executing continuing medical education (CME) courses in 2012. The shift in responsibility from the OCME office (a Medical School unit) to departments came about in 2011 when the U-M Medical School decided to fund CME internally and eliminated pharmaceutical funding for its CME offerings; the first university in the country to do this. There were many concerns about the impact this decision would have on CME outreach at the University of Michigan.

In the wake of the funding and structural changes, the Department of Internal Medicine created its own CME program. While there have been challenges, the program is now a success and offers a variety of courses highlighting the subspecialties of internal medicine as well as medical conditions outside of their realm.

The CME team is made up of a staff of three who oversee all aspects of course planning from registration, web maintenance, design, marketing, on-site management and finance. Allison Picinotti serves as program manager and Jennifer Goodwine and Katie Ursitti are both project coordinators. Each year the team works with more than 15 faculty members who serve as course directors. The course directors determine and validate educational content — making sure it is free of commercial influence, establish course objectives, select speakers, determine course format, and assist in the development of appropriate evaluation tools. “We are so fortunate to be able to work with so many exceptional faculty members who are leaders in their fields. It makes planning quality courses very easy,” states Picinotti.

Since its inception, the CME team has tried to keep their customers’ needs and wants a top priority. They pay special attention to survey results, customer questions and patterns, and try to use a mix of basic customer relation strategies with today’s technology to improve many aspects of their program. “We constantly ask ourselves how we can create a customer-focused program that educates health care professionals on the latest in medical care at the lowest cost possible,” adds Picinotti.

In 2014, the program registered more than 2,000 health care professionals from Michigan and beyond. A total of 19 courses were offered. Of these, the Department of Internal Medicine sponsored 12 and the others were planned for seven departments outside of Internal Medicine through a fee-based event planning service started over two years ago. This service allows other departments to take advantage of the infrastructure the Department of Internal Medicine created to plan successful CME events in a very efficient way — creating win-win relationships.

Other highlights for the Department of Internal Medicine CME program include:

- Securing more than $25,000 in non-pharmaceutical corporate sponsorships.
- Increasing course attendance for many of its annual programs. In 2014, the Internal Medicine Update that takes place at the Grand Hotel on Mackinac Island experienced record attendance since the course was created over 32 years ago.

The CME team is also looking to partner with online CME companies. “Today, people use smartphones and mobile devices all the time. There is a demand for CME on the go. We are exploring opportunities that would allow...
We are so fortunate to be able to work with so many exceptional faculty members who are leaders in their fields. It makes planning quality courses very easy.

As for the future, the CME team is in the midst of planning their first Internal Medicine Board Review that will take place in July 2016 at The Inn at St. John’s in Plymouth, Michigan. The week-long course led by Kristen Collier, MD, and Suvarna Bhat, MBBS, will offer American Board of Internal Medicine (ABIM) initial certification and recertification exam takers a comprehensive review of internal medicine that is guided by the blueprint of the ABIM board exam. They are hoping this course will become an annual addition to their current course offerings.

The Department of Internal Medicine CME team is proud of where they are today and they are excited about the future. “I am truly grateful to all who have made our CME program a success — the dedicated faculty who give up their time to plan and speak at our events and the CME staff for their steadfast commitment to planning top notch courses. I am excited to see where the future takes us,” says John Carethers, MD, chair of the Department of Internal Medicine.
A SPOTLIGHT ON QUALITY

The art of education in medicine generally reflects how knowledge is communicated. At its best, it should be done personally, perceptively and empathetically. But what knowledge is comprised of — that’s largely the purview of research.

And when decision-makers want to know what constitutes quality in health care, one place on campus is the undisputed arbiter of such knowledge — the Institute for Healthcare Policy and Innovation (IHPI).

It is the intellectual gathering place of more than 460 faculty examining whether health care services are safe, equitable, appropriate, patient-centered, efficient, and as effective as possible in producing a healthy population. And though IHPI draws from 17 schools and colleges across campus, the Department of Internal Medicine is among its most influential players. It’s the largest group within IHPI with 80 contributing members, and this group supports health care quality at all scales — from individual decision-making to international campaigns — and everything in between.

This is because health services research is anything but research for its own sake. Instead, it’s using research as a tool to educate all of us with a stake in health care — government officials, insurers, employers, providers and patients — on what can be done to help more of us be healthier longer and for less money.

“Much of the work we do is very scientific in nature — using detailed data and rigorous statistical methods to draw conclusions about groups of patients or large segments of society,” says IHPI Director John Ayanian, MD, MPP, the Alice Hamilton Professor of Medicine from the Division of General Medicine. “But the art of it requires us to translate what we learn about larger groups in ways that are relevant to our various stakeholders and centered on the needs of individual patients and families.”

As is clear from this year’s sampling of highlights in health services research, internal medicine faculty are blending both science and art to yield powerful impacts. All members of IHPI, these investigators are helping to shape insurers’ quality programs at the state and national levels, advance international efforts to curtail unnecessary health services, and inform new national guidelines for the conditions they study.

Of course, it’s just as important for such rigorous evaluation and insight to be applied locally — to the patients cared for directly by the Department of Internal Medicine. That’s why in 2014 the department named its first associate chair for quality and innovation, Scott Flanders, MD, a professor from the Division of General Medicine and director of the U-M Hospitalist Program.

His role is to ensure that the kinds of best practices and standards internal medicine researchers are working so hard to identify actually foster exceptional care by the department in every setting. On the most basic level, this means that the divisions will have dashboards that show in real time how well providers are doing in areas from patient outcomes to satisfaction so that heads can quickly and continuously flag areas for improvement.

But it’s also about making sure the department builds a supportive infrastructure and removes barriers to the implementation of quality-related innovations.
“By continually driving toward high-value, appropriate, patient-centered care,” says Flanders, “our goal is for the Department of Internal Medicine to be viewed as a leader in quality improvement and delivery-system redesign regionally as well as nationally.”

As you’ll see in the pages that follow, all the ingredients are in place to make this goal an imminent reality.

“Fundamentally the research we do is meant to inform policy and practice and to bring better evidence to bear on improving quality, cost and access in the U.S. health care system.”

IHPI Director John Ayanian

All of the internal medicine faculty highlighted for their quality-related research in this section are members of the Institute for Healthcare Policy and Innovation (IHPI).
Dr. Flanders comes well-equipped for his new departmental leadership role in quality and innovation. He has spent the past decade leading efforts to improve the care of hospitalized general medicine patients at U-M and across the state.

He is the director of the Michigan Hospital Medicine Safety (HMS) Consortium, a Collaborative Quality Initiative (CQI) of nearly 50 Michigan hospitals. They are working together to measure each one’s performance in key quality-related areas, identify areas for improvement, support each other’s progress, and quantify the impact of their efforts.

This work is funded by Blue Cross Blue Shield of Michigan (BCBSM), which has catalyzed CQIs across a range of specialties to improve care for everyone, including the patients they cover. BCBSM not only supports these collaboratives financially in areas like coordination and data collection, but also incentivizes hospitals to participate through pay-for-performance systems.

U-M serves as the coordinating center for this collaborative. With Flanders at the helm, it has undertaken a number of quality-related efforts that have made important progress in 2014.

The first involved a campaign to reduce life-threatening blood clots among hospitalized patients. Lying in a hospital bed during a major illness or following a procedure can increase patients’ risk for venous thromboembolism (VTE) — a blood clot in the deep veins of the legs, which can break off and travel to the lungs. The U.S. Department of Health and Human Services estimates that as many as 900,000 cases of VTE occur annually in the U.S., one-third of them fatal.

When Flanders and his colleagues went to address this issue in Michigan, they started with the established guidelines — but quickly discovered they’d have to dig deeper for a solution.

“The goal of our project was to do what many national guidelines said we should do to reduce the risk of VTE,” he says, “namely, increase the rate at which most hospitalized patients received blood thinners. We hoped to be able to show that as we improved this rate, the rate of blood clots would drop in all of our hospitals. But the data didn’t show that; the rate of blood clots remained fairly stable.”

So he and his team backtracked and realized they needed a more nuanced approach. By further researching the issue, they found that, rather than giving blood-thinners across the board to hospitalized patients, they needed to better identify the small percentage of patients at high risk for blood clots and target them with blood-thinning medication. At the same time, they needed to identify those at low risk to ensure they weren’t being exposed to the dangers and costs of a medication they didn’t need.

The team documented their recommendations in the October 2014 issue of JAMA Internal Medicine, and redoubled their efforts to ensure that participating hospitals were consistently assessing their patients for VTE risk. According to Flanders, their work led both to significant increases in such assessments and also to a 30 percent jump in the use of prophylactic blood thinners among patients at high risk.

Another area on which the CQI made substantial progress in 2014 was an effort to reduce complications from peripherally inserted central catheters, or PICCs.

Developed as a potentially safer alternative to central venous catheters for extended intravenous therapies like long-term antibiotics or chemotherapy, PICCs carry risks of their
own — namely the risk of infection and VTE, discussed above.

According to Flanders, the use of PICCs in hospitalized medical patients has increased dramatically over the years, yet without formal guidelines for who should and should not receive them.

So, under the leadership of Vineet Chopra, MD, MSc, assistant professor in the Division of General Medicine and research scientist at the Veterans Affairs Center for Clinical Management Research and Patient Safety Enhancement Program, the CQI set out to remedy that. In 2014 they convened an international, multi-specialty panel of experts to develop appropriateness criteria for the use of intravenous catheters in hospitalized patients.

They will soon begin measuring their hospitals’ compliance with these criteria to reduce inappropriate use — such as in high-risk patients or those needing an IV for fewer than five days. By ensuring that those who don’t need these lines aren’t getting them in the first place, providers can avoid their complications entirely. For patients who do need catheters but are at risk for complications, the team is working to ensure that hospitals use evidence-based techniques, like choosing thinner PICCs or substituting shorter “midline” catheters to reduce complications. They’re also providing specific advice for providers on care and maintenance practices.

To improve their hospitals’ performance, the CQI not only collects data on treatment appropriateness and outcomes, it works with hospitals to help them implement the necessary procedural changes to improve these measures. The coordinating center team performs site visits at many participating hospitals and uses strategies such as pairing a high-performing hospital with one needing support through a process called “facilitated implementation.”

“We walk through a hospital’s care processes from start to finish to identify barriers and help them fix a problem or improve the process we’re addressing,” says Flanders.

For him, this captures the artfulness of their approach. “It’s easy to stand up in front of a group of hospitals and say, ‘Here’s what you should do,’” he says. “It’s an entirely different thing to have them actually do it. How you relay this information, how you help hospitals improve makes all the difference. Disseminating information through a talk or a meeting is only step one. You need to find the right partner who can work through their barriers with them if you want to see best practices implemented in a variety of settings.”

Dr. Chopra is now building a multidisciplinary team around best practices in vascular access to improve care at UMHS.
REIMAGINING QUALITY, TARGETING OVERUSE

If the hospital medicine CQI proved anything in 2014, it was that one-size-fits-all medicine is not quality medicine and that more care is not necessarily better care. No one knows that better than Eve Kerr, MD, MPH, professor in the Division of General Medicine and director of the Veterans Affairs Center for Clinical Management Research (VA CCMR). She has been championing efforts to reimagine how we think of and measure quality, from the UMHS and Ann Arbor VA to the international stage.

Among her key contributions in 2014 were several high-profile meetings and publications on decreasing the use of unnecessary health care services. She’s worked with the Center for Healthcare Research & Transformation (CHRT), a partnership between UMHS and Blue Cross Blue Shield of Michigan, on how to both measure and decrease the use of such services in the state of Michigan. But she’s also taken on a similar role in Choosing Wisely, a campaign that is working to educate physicians and the public about the types of services they should be questioning and why.

Launched in the U.S. by the American Board of Internal Medicine Foundation in 2012, Choosing Wisely has enlisted 70 specialty societies to identify specific tests, treatments and procedures that are often overused. The result is more than 400 services that the campaign says patients and doctors should discuss carefully to see whether the clinical benefits outweigh the risks for each patient. Kerr and IHPI Director John Ayanian, MD, MPP, the Alice Hamilton Professor of Medicine from the Division of General Medicine, discussed the campaign’s aims and value in a December 2014 commentary in the Harvard Business Review.

There are a number of services that Choosing Wisely has flagged for scrutiny — from antibiotics to hysterectomy to diagnostic imaging for acute, uncomplicated lower back pain. Not only can such services be wasteful, they can unintentionally harm patients through adverse drug reactions, surgical complications or unnecessary radiation.

A perfect case study is research published in BMJ during 2014 by Kerr and Sameer Saini, MD, assistant professor from the Division of Gastroenterology and a research scientist at the VA CCMR. It showed that current colorectal screening guidelines, which encourage screening across the board in patients age 50 to 75, were contributing to the overuse of screening in some patients and underuse in others.

“We found that patients who were 75 years old and very unhealthy — with multiple comorbidities and less than five years of life expectancy — were twice as likely to get screened as someone who was 76 and totally healthy,” says Saini. This is because the guidelines were translated into a quality management system that focuses solely on age and fails to take into account whether screening is likely to benefit patients based on their health status.

This is in some ways a relic of a time when underuse was a much greater problem than it is today, says Saini. The scales have tipped toward overuse for some groups because, as in this case, quality-management and incentive systems unintentionally encourage it. But physicians also order unnecessary services for other reasons — patients demand them, they fear missing a diagnosis and the associated malpractice considerations, or it’s what they were trained to do.
But it needn’t remain this way, say Kerr and Saini. We live in an era where predictive modeling can be used to identify very precisely which patients are likely to benefit from a particular service. In addition, we can redesign health systems to measure and reward quality in a more meaningful way. “On a very basic level, we can adjust our quality targets for health status — so the healthiest patients should be screened at very high rates, very sick patients should be screened at very low rates, and those in between should be in the middle,” says Saini. “But we could also consider measuring instead whether providers had a discussion with their patients about the benefits and harms of a screening procedure. It wouldn’t matter so much whether a patient chose to get screened as long as he or she made an informed decision.”

In 2014, Saini received a Veterans Affairs Merit Grant to put these ideas to the test. With it, he will work with the VA to evaluate a model for colon cancer screening that incorporates patient decision-support tools, provider education, and changes to the quality measurement and clinical reminder systems. Among the goals is to broaden the focus from screening targets to informed decision-making — and ultimately to develop an approach that can serve as a model for other health care services, as well.

For her part, Kerr has also done a great deal of work outlining what a more meaningful quality system might look like. She published a piece in JAMA with Rodney Hayward, MD, professor in the Division of General Medicine and senior investigator at VA CCMR describing how electronic health records could be used to determine a service’s personalized risk-benefit ratio for each patient and how this could be combined with the patient’s documented preferences to measure quality of care.

The key point is that at the health system level what we measure matters. Yet, in the effort to reduce the use of unnecessary services, there are other elements to consider — both of which rely heavily on the art of education.

“At the patient level, we have to help change the mindset that more is always better,” says Kerr, “and help people realize that doing everything for everybody can actually lead to worse care.”

The art of conveying this, she says, lies in helping patients overcome perceptions that when doctors recommend not doing something it is a form of “rationing” — and to see instead that quality is about matching services to the patients who will truly benefit from them.

To address this, Choosing Wisely has partnered with Consumer Reports to develop educational materials that help patients explore the appropriateness of various services and talk to their doctors about this issue.

There are just as many educational needs at the provider level, says Kerr. She’s completed a survey that shows physicians are finding it difficult to accept many of the Choosing Wisely recommendations. For example, evidence shows that the diabetes medication regimens recommended for younger patients may be harmful to older people, in whom they can induce dangerous episodes of low blood sugar, problems thinking, and loss of consciousness. Despite the evidence, it’s been challenging, says Kerr, to get doctors to change their practices and dial back diabetes medications for older patients.

That is why last summer she joined quality experts from 11 countries to help shape this campaign. She’s lending her expertise in measurement and evaluation to ensure that Choosing Wisely has the greatest possible impact on the way health care services are perceived and utilized across the globe.
As we’ve seen, what policymakers choose to measure and incentivize directly impacts quality of care. One of the country’s largest laboratories for this idea is the Centers for Medicare and Medicaid Services (CMS), whose programs cover nearly 100 million Americans. But it’s not only the CMS’ reach that makes it an important area for study. It’s that its policies often set precedent for other insurers.

In the CMS “lab” there are policy experiments underway that aim to increase the quality of care while reducing costs. While such pay-for-performance policies are well-intentioned, how they are implemented makes all the difference — in whether they achieve their aims or wind up penalizing high-performing health care systems and disincentivizing quality.

One of internal medicine’s rising stars in health services research, Jennifer Meddings, MD, MSc, assistant professor in the Division of General Medicine, has been examining these policies — with surprising results.

The first one she and her mentor Laurence McMahon, Jr., MD, MPH, division chief and professor in the Division of General Medicine, examined in detail was CMS’ no-pay policy. Under it, CMS would stop paying for complications that billing data indicated were acquired in the hospital, such as bedsores and catheter-associated urinary tract infections (CAUTIs).

“These payments were seen as a type of perverse incentive,” says Meddings, “where the hospital could actually get more money to provide services when bad things happened to patients.” The goals are laudable, she says — saving taxpayer money and incentivizing good care. But like many things, the devil is in the details.

Meddings and McMahon decided to look at how CMS was classifying various conditions as “hospital-acquired” and therefore not eligible for payment. They found that the billing data CMS was using did a very poor job of capturing these events.

“In the case of CAUTIs, in the billing data it looks like an incredibly rare event,” says Meddings. “But it was chosen as the first condition for non-payment because we know it’s incredibly common.” In part because of their work illuminating this disconnect, CMS has since changed the data source it uses to identify CAUTIs for public reporting and financial penalties.

However, Meddings and McMahon have shown that this disconnect persists for other conditions where billing data is still used for public reporting and financial-penalty generation, like pressure ulcers/bedsores. While investigating this condition, they realized not only that the data source was suboptimal but that CMS’ application of the policy didn’t match its depiction — or its quality-improvement goals.

“When CMS described this policy on their website and in press releases, they basically said that hospitals would no longer receive extra payment for hospital-acquired stage three or four pressure ulcers,” says Meddings. “But when we looked at the details of how the no-pay policy was implemented, we found that the majority of CMS’ savings had nothing to do with these very severe sores. It was from the removal of payment for milder ulcers that had been documented as ‘present-on-admission.’ These are ulcers that patients were coming in with and for which hospitals could previously receive extra payment to cover the skin-care
resources devoted to healing these ulcers and preventing them from worsening.”

Removing payment for proper care of existing ulcers troubled Meddings and McMahon, as did their finding that CMS appears to assign its penalties simply by tier. “A quarter of hospitals will be penalized no matter how well they perform;” she says. “These are not clearly poor performers by a certain metric; it’s how they perform in comparison to each other without strong evidence that the one-quarter cutoff is identifying those delivering bad care.”

Such policies, she says, may work well for establishing budgets but are not necessarily an ideal way to enhance care. She’s hoping that her team’s work will help educate policymakers about the need to carefully choose both their data sources and the application of penalties to ensure they truly incentivize quality.

Choosing what to measure and reward is equally important, says Meddings. In the case of CAUTIs she has done extensive research with her patient-safety mentor Sanjay Saint, MD, MPH, on how to prevent these infections at the bedside — research that has given them tremendous insight into how catheter-related performance systems should be structured. Saint is the George Dock Collegiate Professor of Internal Medicine from the Division of General Medicine, chief of medicine at the VA Ann Arbor Healthcare System, director of the Patient Safety Enhancement Program, and investigator at the VA Center for Clinical Management Research (VA CCMR).

What they’ve found is that there are ways to reduce the occurrence of these infections — but it’s particularly challenging in patients who need them for extended periods. “We have interventions that can help prevent early infections, such as proper hand hygiene and insertion techniques,” says Meddings. “We’ve also documented that we can reduce CAUTIs by more than 50 percent by using a reminder or a stop order. But the best way to prevent these infections is to not place the catheter at all.”

So rather than measuring just infection rates, which — for patients who need long-term catheters — are more difficult for a hospital to control, it might be better, says Meddings, to measure whether catheters were used appropriately in the first place.

To support such a change in focus, in 2014 Meddings led an effort to develop appropriateness criteria for urinary catheter use. Along with Saint, her internal medicine collaborators included Steven Bernstein, MD, MPH, associate dean for clinical affairs, professor in the Division of General Medicine, investigator at the VA CCMR, and an expert in the rigorous RAND/UCLA Appropriateness Method; and Sarah Krein, PhD, RN, research associate professor in the Division of General Medicine and investigator at the VA CCMR, who specializes in implementation research for prevention of health care-associated infections.

With funding from the Agency for Healthcare Research and Quality (AHRQ), they convened a multi-disciplinary panel of 15 experts from eight institutions, including physicians and nurses with expertise in various areas of internal medicine, emergency medicine, urology, rehabilitation, and wound care. Their results, which were published in May 2015 in the Annals of Internal Medicine, provide detailed and pragmatic guidelines addressing whether a catheter is indicated in nearly 300 non-surgical scenarios — from patients in intensive care to those who are difficult to turn.

They are now doing the same for several common surgical procedures and in patients receiving epidural anesthesia. “This kind of work is needed,” says Meddings, “because

“Policies that work well for establishing budgets may not be the ideal way to enhance care.”
there are many common situations for which there are no well-established guidelines despite an increasing body of research demonstrating that less catheter use is both feasible and associated with better patient outcomes. There are hospitals you could go to for hip surgery, for example, where it is routine for patients to have urinary catheters for days after their procedure and others that rarely use them."

This matters because each day a catheter is in place increases a patient’s risk of infection and other complications. In the future, Meddings hopes that instead of comparing hospitals by CAUTI rates alone, value-based purchasing programs can use the kinds of guidelines she and her colleagues are developing to measure and reward appropriate catheter use. This not only has the potential to improve patient outcomes; it would also avoid the pitfall of unfairly penalizing hospitals that care for the sickest patients — the ones most likely to need catheters for prolonged periods, where infection is difficult to prevent.

In fact, Meddings is looking at ways in which CMS might be able to incorporate risk-adjusted measures of appropriate catheter use so this doesn’t happen.

The need for risk-adjustment is also at play in hospital readmissions. It’s an adverse event that CMS had hoped to curb by reducing payments for those it considers preventable. But, says Meddings, it’s more complicated than it appears. “Currently CMS adjusts its payments for readmission based on information available in the billing data, like a patient’s age and gender and whether they have other conditions,” she says. “But bedside clinicians often say, ‘I know certain patients are going to be readmitted, but it’s not because of their age, the fact that they have diabetes, or anything we did or didn’t do. It’s because they are unable to obtain or take their medications as prescribed and have no one to take them to their follow-up appointments, so they can only come back to the emergency room by ambulance when they are really sick.’”

Since factors like functional impairment, economic resources and social support can influence readmission yet are out of hospitals’ control, Meddings says, CMS should consider whether it makes sense to penalize hospitals when patients with such limitations are readmitted. She’s working with Kenneth Langa, MD, PhD, professor in the Division of General Medicine and the Institute for Social Research, research scientist at the VA CCMR, and co-director of the Patient Safety Enhancement Program; Timothy Hofer, MD, MSc, professor in the Division of General Medicine, associate director for analytic and information resources at the VA CCMR, and co-leader of its methods core; Mary A.M. Rogers, PhD, MS, research associate professor in the Division of General Medicine and research director of the Patient Safety Enhancement Program; and Theodore “Jack” Iwashyna, MD, PhD, associate professor in the Division of Pulmonary & Critical Care Medicine and investigator at the VA CCMR to use a unique merged data set to determine the impact of these factors on hospital readmission rates for a variety of conditions. They hope ultimately to see whether there’s a way for CMS to risk-adjust readmissions so that hospitals aren’t penalized for caring for the most vulnerable populations.

She hopes that her team’s work will help educate policymakers about the need to carefully choose what to measure and reward, which data sources to use, and how to apply penalties to ensure they truly incentivize quality.
Another internal medicine researcher who is exploring how the quality initiatives from the Centers for Medicare and Medicaid Services (CMS) could be refined to better achieve their aims is Colin Cooke, MD, MSc, MS, assistant professor in the Division of Pulmonary & Critical Care Medicine.

While exploring how to improve care for patients hospitalized with pneumonia, Cooke and his colleagues uncovered a surprising practice. They found that hospitals could alter their statistics to avoid payment penalties by the CMS. In an effort to reduce the number of pneumonia patients reported as having died or been readmitted, some hospitals were reclassifying a percentage of them as having sepsis, a body-wide overreaction to infection that can cause organ failure and death.

“Clinically, these patients likely have both conditions, so there is some aspect of legitimacy to the sepsis classification,” says Cooke. “However, relabeling just enough patients’ primary diagnoses to avoid a penalty clearly violates the spirit of the pneumonia accountability program. It’s a perverse and unintended consequence that allows hospitals to avoid the financial repercussions of delivering lower quality care to patients.”

Since Cooke’s group and others have brought the issue to light, CMS has begun reevaluating how they define sepsis and pneumonia to put an end to this practice.

SUPPORTING SEPSIS CARE

In related work, Cooke and divisional colleague Jack Iwashyna, MD, PhD, have begun advocating for a national quality system to improve the care of patients with sepsis.

“National accountability measures aimed at improving quality of care in the hospital currently only focus on heart failure, heart attack and pneumonia,” says Cooke. “However, sepsis is responsible for more hospitalizations and deaths in the hospital than any of these conditions. In addition, estimates suggest that only 35 percent of patients with sepsis receive optimal care. The time has come for CMS to take a lead in improving care for sepsis patients.”

In 2014, the pair co-authored a thought piece in JAMA laying out a four-point system for setting up a quality framework with the potential to meaningfully improve sepsis care while avoiding some of the unintended consequences and implementation concerns Cooke and Meddings have identified. It has received press in outlets from The Hospitalist to Men’s Health.
In 2014, the U-M Kidney Epidemiology and Cost Center won a five-year $10.3 million NIH contract to serve as the coordinating center for the United States Renal Data System (USRDS). This is the national data system that collects, analyzes and distributes information about patients with both chronic kidney disease (CKD) and end-stage renal disease (ESRD).

The effort is being directed by Rajiv Saran, MD, professor in the Division of Nephrology and of public health, and associate director of the U-M Kidney Epidemiology and Cost Center (KECC). He has assembled a multidisciplinary team of 21 investigators from the U-M Medical School, School of Public Health, Institute for Healthcare Policy and Innovation, Frankel Cardiovascular Center, and School of Pharmacy, in partnership with Arbor Research Collaborative for Health, and the University of California-Irvine. The main tasks of the USRDS coordinating center are to maintain and expand the database, publish research based on the data, maintain the USRDS website with information on kidney disease in the U.S., respond to government requests, and provide data to researchers around the country.

One of the center’s first orders of business was compiling the 2014 USRDS Annual Data Report on the state of kidney disease in the U.S. Among the significant takeaways is that CKD affects more than 1 in 10 adults, a number that has remained relatively stable over the last decade. ESRD is on the rise, however, due largely to an aging and overweight population. More than 600,000 people were treated for it during 2012. A glimmer of hope, however, is that while the total number of cases of ESRD is increasing each year, the rate of increase in new cases showed a slight decrease for the third consecutive year — although with wide geographic variation across the country.

Another important positive development is that patients on dialysis and those who have received kidney transplants are living longer, with death rates having dropped substantially over the last decade.

“While definitely too soon to declare victory on the war against the rising tide of kidney failure, the USRDS does provide some good news about kidney disease in the U.S.” says Saran. “We will continue to follow these trends closely to see whether they are sustained over the coming years, study what factors may be responsible for bringing about this positive change, and explore how it may be even further accelerated.”

The USRDS award from the National Institute of Diabetes and Digestive and Kidney Diseases comes on the heels of a prior $17.6 million grant to the KECC, from the Centers for Medicare and Medicaid Services, and affirms U-M’s importance in national kidney disease monitoring, quality improvement and research efforts.
KIDNEY DISEASE BY THE NUMBERS

Key facts and figures from the USRDS 2014 Annual Data Report (data for U.S. adults current to 2012)

- Number treated for ESRD: 636,905 and rising
- ESRD incidence rate down for third year in a row (3.8% decline in 2012)
- Total Medicare expenditure for all stages of kidney disease (not including prescription medications): $87 billion
- Medicare costs for ESRD up 3.5% from previous year ($28.6 billion vs. $27.7 billion)
- Patient mortality down 28% for hemodialysis, 47% for peritoneal dialysis and 51% for transplant since 2003

CKD Prevalence: 13.6%
Despite the heavy incidence and burden of major cardiovascular events like heart attack, stroke and cardiac arrest, there are still voids in our understanding of their outcomes, best practices and follow-up care requirements that internal medicine researchers are working to fill.

One of these is **Brahmajee Nallamothu**, MD, MPH, professor in the Division of Cardiovascular Medicine and investigator at the Veterans Affairs Center for Clinical Management Research (VA CCMR). He received two grants in 2014 to shed light on why there is so much variation in the incidence and outcomes of in-hospital cardiac arrest and what can be done about it.

In general, the outlook for patients who suffer cardiac arrest is grim. Though survival has improved in the past decade, when an adult’s heart stops beating in the hospital, he or she has less than a 25 percent chance of survival, according to the American Heart Association. Even among those who make it through the event, Nallamothu estimates that roughly 40 percent will die within the year. And those who do survive can sustain brain damage and a host of associated functional limitations that impair their quality of life.

But exactly what this quality of life looks like and what survivors’ health care needs are remain something of a mystery. Nallamothu hopes to change that with a new grant from the VA Health Services Research & Development Service called RESCU (recovery after in-hospital cardiac arrest: late outcomes and utilization).

He is working with co-principal investigator **Jack Iwashyna**, MD, PhD, associate professor in the Division of Pulmonary & Critical Care Medicine and investigator at the VA CCMR, and a research team with expertise in complex survey methods that includes **Kenneth Langa**, MD, PhD, professor in the Division of General Medicine and the Institute for Social Research, research scientist at the VA CCMR, and co-director of the Patient Safety Enhancement Program. They will use VA and other data sources plus in-depth longitudinal surveys to probe what patients’ recovery and health care usage are like. They’ll also identify both the patient- and hospital-level factors associated with various outcomes.

Similarly, Nallamothu’s new 5-year NIH HEROIC grant will look at the strategies employed by top-performing hospitals before, during and after cardiac arrest. He’s assembled a multidisciplinary team featuring experts in resuscitation and qualitative research from
U-M and the VA CCMR, among them, Molly Harrod, PhD, and Sarah Krein, PhD, RN, and Sanjay Saint, MD, MPH, from the Division of General Medicine, as well as partners from the Mid-America Heart Institute in Kansas City. They plan to identify a set of best practices to prevent cardiac arrest and improve outcomes for patients who do experience it.

Ultimately, his team plans to work with the American Heart Association and a network of Michigan hospitals to develop a national quality improvement program incorporating the successful practices they’ve identified.

Nallamothu credits much of his successful grantsmanship to the infrastructure developed by the Institute for Healthcare Policy and Innovation (IHPI). “These grants are based on the team model, and our collaborations resulted directly from the co-location of health services researchers the IHPI made possible,” he says. “The IHPI was designed to help us build multidisciplinary teams where the whole is greater than the sum of its parts. It has done that for us and allowed us to secure grants that could be game changers in the area of cardiac arrest.”

Another researcher who’s exploring the long-term outcomes and needs of patients following cardiovascular events is Deborah Levine, MD, MPH, assistant professor in the Division of General Medicine and a researcher at the VA CCMR.

In 2014, she reported on research she did with a number of colleagues, among them, Jack Iwashyna, Kenneth Langa, and Mary A.M. Rogers, PhD, MS, research associate professor in the Division of General Medicine and research director of the Patient Safety Enhancement Program. They found that the long-term consequences of heart attack and stroke were greater than previously thought. Their findings indicate that survivors of these events face both acute drops and an accelerated long-term decline in their physical functioning in the decade afterward. During this period, heart attacks left patients with some 1.5 to 3.5 new functional limitations, and strokes left them with 3.5 to 4.5 such issues. These include difficulties performing everyday tasks like dressing, bathing, shopping and managing money. These issues in turn led to significant increases in depression among these patients. In fact, the risk of developing severe depressive symptoms was 20 percent greater for every new functional limitation gained after a heart attack — and 34 percent for each limitation gained after a stroke.

In separate research, Levine and her collaborators explored the cognitive impacts of stroke. They found that not only did a stroke lead to steep drops in global cognition, new learning and verbal memory immediately after the event; it also led to an accelerated decline in global cognition and executive functioning for years afterward.

The implications of this research are significant, says Levine. First it suggests the need for more research.

In terms of stroke, researchers need to determine which rehabilitation techniques or health-management strategies, such as better blood pressure or diabetes control, might reduce the prospect for long-term cognitive deficits.

For stroke and heart attack, it’s important to know what’s causing the enduring limitations — whether patients aren’t being fully rehabilitated or whether they’re going on to suffer additional vascular events.
In either case, says Levine, our aging population and better treatments for these events mean there will be increasing numbers of patients facing these issues. So we’ll need to develop cost-effective ways to care for this growing and vulnerable population.

But her research also suggests the need for a change in clinical guidelines. “The current guidelines recommend functional and cognitive assessments in stroke patients before hospital discharge and in the post-acute setting,” she says. “However, our results suggest that survivors of heart attack also merit functional assessment before hospital discharge — and that survivors of both events warrant monitoring for mounting functional disability for many years after the event.”

Levine’s paper on heart attack and stroke was heralded in an accompanying editorial as ushering in a new era in our understanding of the functional outcomes of cardiovascular disease. She hopes this new understanding will, in turn, enhance the quality of services provided to patients — and ultimately their quality of life.

“These grants could be game changers. They’re allowing us to use novel survey and qualitative methods to dive into the ‘why’ behind known quality gaps and identify best practices that could help address the devastating effects of cardiac arrest on patients.”

Brahmajee Nallamothu, Professor
Division of Cardiovascular Medicine
U-M’S NEW MOOC:
Bringing Policy Insights to Medical Education

The year 2014 saw preparations for the first U-M-only massive open online course (MOOC) —Understanding and Improving U.S. Healthcare: Special U-M Student Edition. Launched in January 2015, the six-week course examined the structure, strengths and limitations of this country’s health care system along with various improvements attempted through policy reform. Its backbone was a series of weekly on-demand mini-documentaries on the history of reform featuring interviews and panel discussions with U-M researchers and policy specialists. It also incorporated a unique residential component; in week five participants assembled for small-group sessions led by U-M experts across the Ann Arbor, Flint and Dearborn campuses.

Internal medicine faculty were prominent among these experts. The course was actually created by one — Matthew Davis, MD, MAPP, Michigan’s chief medical executive and a professor with multiple appointments, including in the Division of General Medicine. Other professors from the division had interview segments: Eve Kerr, MD, MPH, on quality measurement; Mark Fendrick, MD, on value-based insurance design; and John Ayanian, MD, MPP on racial, ethnic and socioeconomic disparities in quality of care. In addition, the small-group sessions incorporated a health-plan design exercise developed by Susan Goold, MD, MHSA, MA based on her CHAT (Choosing Healthplans All Together) model. Students used her framework to design a health plan that factored in stakeholder perspectives and the realities of scarce health care resources.

The course reached some 800 students and was a requirement for all first-year medical and first- and second-year dental students. A similar version of the course brings this expertise to the general public through the Coursera online learning platform.

The MOOC was sponsored and supported by several U-M groups, including the Institute for Healthcare Policy and Innovation (IHPI), whose mission links seamlessly with the course.

“The work we do is very much aimed at bringing people from different disciplines together to share their perspectives and learn how we can improve quality of care and the functioning of the health care system,” says IHPI Director John Ayanian. “We view the MOOC as an important component of this educational effort.”
In this report, we’ve looked at how the Department of Internal Medicine both fosters and embodies the key components of quality health care: well-trained providers; well-informed patients; and a research enterprise that leads the way in identifying the best of policy and practice.

The only thing missing, some might say, is a system for tying it all together.

Just such a mechanism was preparing for launch at U-M in 2014 using the concept of a learning health system (LHS). A health system becomes a learning health system when it acquires the capacity to continuously study and improve itself — and U-M appears uniquely positioned to shape the future of this paradigm-changing approach.

The concept’s champion is Charles Friedman, PhD, the Josiah Macy Jr. Professor of Medical Education and a professor of information and public health, who in 2014 was named chair of the new Department of Learning Health Sciences — a reimagining of the former Department of Medical Education.

A learning health system works, says Friedman, by supporting an ongoing series of “learning cycles.” In each cycle, interested members of the health system come together to discover how to improve a particular problem related to health or health care. Next, this self-selected “community of interest” analyzes data on providers’ practices and patients’ experiences to determine what works best. They then feed this knowledge back to both of these audiences.

“This feedback can be customized to convey a message like, ‘Here’s what you’re currently doing, here’s what we’ve learned is ideal; our experience suggests if you do X, you might have a good outcome,’” says Friedman. “Participants get that feedback, and if it makes sense in their context, they can decide to change — all, in part, or not at all. And that new experience becomes information that can feed a new cycle of learning.”

We’ll give concrete examples of what this might look like later in this piece, but there are three things that make the process unique. First, the “finish line” for research is not a journal article, but a change in practice. Second, the learning process is continuous and ongoing. Third, unlike traditional clinical alerts and advisories, the advice this process generates is directed at people who’ve chosen to be part of the community of interest, defined the research question and helped structure the study. This creates a receptivity that doesn’t characterize the top-down clinical decision support providers typically receive.

Each learning health system can have multiple cycles going on with different problems of interest at any given time. What makes it a system is its shared infrastructure — shared policy frameworks, shared data sources, shared technology for aggregating data, and shared feedback systems. This structure makes the learning process substantially more efficient than efforts by individual groups or faculty. In addition elements can be added to the platform as needed so that it becomes increasingly rich and robust over time.

But is a system like this really necessary? Absolutely, say many of U-M’s leading health services researchers. Dorene Markel, MS, MHSA, director of the The Brehm Center and assistant research scientist in the Department of Learning Health Sciences, has spoken with many of them. She’s in the process of helping UMHS set up its first LHS, focused on diabetes care.
“As we were talking to some of our leading authorities on quality-related research, they expressed frustration at the challenge of getting their findings adopted even at their own institution because there’s no system in place to do that,” she says. “A learning health system bridges that gap between research and clinical care. We’ll do things that aren’t quite formalized research but will allow our system to learn from patients and enhance our care.”

In many ways the concept represents the mingling of time-honored ideas and recent trends: It’s where quality improvement and systems thinking meet big data and team science — with elements of e-Health and personalized medicine.

THE BIRTH OF AN IDEA
The learning health system concept has been gathering momentum nationally since it was first articulated by the Institute of Medicine in 2007. Friedman discovered the potential of this idea in 2009 as an executive with the Office of the National Coordinator for Health Information Technology (ONC) and immediately began working to incorporate it into the country’s health IT agenda. Thanks in part to the foundation he laid, the ONC recently named the learning health system an official 2024 goal for the nation’s health information technology. By 2011, Friedman had transitioned to U-M to serve as director of the Health Informatics Program, a joint program of the Schools of Information and Public Health, and he set about seeding the LHS concept here. With

“A learning health system harnesses the power of data and analytics to learn from every patient, and feeds the knowledge of what works best back to providers and other stakeholders to create cycles of continuous improvement.”

Charles Friedman, Chair, Department of Learning Health Sciences
support from a 2013 U-M Global Challenges for a Third Century grant, he began to identify the elements of an LHS infrastructure for UMHS. He says the university is particularly well-suited to this effort.

“First, we’ve got great support from leadership,” he says. “We’ve also got the only Department of Learning Health Sciences in the country. Though a department by itself can’t make a learning health system, it stands to be a catalytic force.”

In addition, he cites U-M’s culture of interdisciplinary collaboration and its wealth of UMHS data resources like the Research Data Warehouse.

But U-M is uniquely equipped in the area of LHS implementation that has traditionally received the least attention: the feedback portion. “Most groups trying to implement an LHS have focused on the data aggregation and analysis side of the cycle,” says Friedman, “Unfortunately this creates only half a learning system.”

Some of this, he says, is a function of the current hype around “big data.” It’s also something of a legacy of traditional research paradigms and the academic reward system. “Traditionally, we do a study, learn something and then publish it,” says Friedman. “That’s fine, but we know that when we put new knowledge in journals, there’s a long latency — often cited as 17 years — before it finds its way into practice. In a learning health system, we complete the cycle so that what we learn actually drives change.”

It’s this explicit feedback component that gives the LHS the potential to be a “quantum improvement” over current practice, he says. And this is the particular expertise of the Center for Health Communications Research (CHCR), directed by Larry An, MD, associate professor in the Division of General Medicine (see page 91).

An’s team of behavioral scientists, communication professionals and software developers specialize in using data about individuals — such as their information needs, attitudes, beliefs and practices — to develop personalized messages that help them change their behavior in positive ways. By using data gathered within the LHS, the team can craft tailored messages that support patients and providers in changing their behavior to improve patient health.

AN LHS IN PRACTICE: STARTING WITH DIABETES

Perhaps the best way to envision what all this might look like is to explore some concrete, but hypothetical, examples from UMHS’ upcoming learning health system for diabetes.

Diabetes was chosen as the inaugural LHS project because of both its public health significance and its relevance to so many departments and divisions within UMHS — not just the Division of Metabolism, Endocrinology & Diabetes (MEND), but general medicine, family medicine, obstetrics and gynecology, as well as all the specialties that deal with complications, such as neurology, nephrology, cardiovascular medicine, and ophthalmology.

In September 2014, the Department of Learning Health Sciences invited members of all these areas to a town hall meeting to discuss a vision for how an LHS could enhance diabetes care at UMHS. It was an opportunity for participants to learn about and engage with the LHS concept and to identify potential problems of interest.

Since then, clinicians from key specialties have volunteered to take leadership roles in the
diabetes LHS, including several from internal medicine. These include Jennifer Wyckoff, MD, clinical assistant professor from the MEND Division and medical director of the Adult Diabetes Education Program; Rodney Hayward, MD, professor from the Division of General Medicine and the School of Public Health, director of the Robert Wood Johnson Foundation Clinical Scholars Program, and senior investigator at the Veterans Affairs Affairs Center for Clinical Management Research; and William Herman, MD, MPH, the Stefan S. Fajans/GlaxoSmithKline Professor of Diabetes from the MEND Division, professor in the School of Public Health, and director of the Michigan Diabetes Research and Training Center. Faculty leads from other departments include Thomas Gardner, MD, MS, professor of ophthalmology; Joyce Lee, MD, MPH, associate professor of pediatric endocrinology; and Eva Feldman, MD, PhD, the Russell N. DeJong Professor of Neurology.

The diabetes LHS is in its earliest planning phases, and its initial research questions are still being formulated. However, Brehm Center Director Markel, who is managing the diabetes LHS rollout, and CHCR Director An, whose center will develop tools and systems for the feedback side of the LHS cycle, shared some conceptual examples of how an LHS could be used to improve diabetes care within UMHS.

Markel’s example illustrates the type of question an LHS is particularly suited to ask. In general these questions should have two traits. First, the answer isn’t known (otherwise, changing practice is actually a compliance issue). Second, there must be variation in what people do — because variation is what we learn from.

One such question is how to best augment a popular Type 2 diabetes drug. “The typical medication that’s first prescribed for someone with Type 2 diabetes is Metformin,” says Markel. “But in many patients after a while, it starts failing, and a second or third medication is needed. Specialists have told us that the guidelines for which drugs to use after Metformin are contradictory and heavily debated. So we could use the LHS to examine what our own physicians are prescribing, why they choose one drug vs. another, and what the outcomes are.”

The LHS takes advantage of the fact that any health system is inherently a laboratory with numerous small experiments going on at any given time, where one set of practices can be compared with another. By systematically analyzing the results of these experiments, providers can learn what the system finds is best for patients with certain characteristics.

“The idea behind the LHS is: How do we develop an infrastructure where we can learn from every patient and give our clinical providers timely information to enhance the care of their patients.”

Dorene Markel, Director, The Brehm Center
An’s example highlights how his center’s contributions to the LHS could work, both to enhance current practice and facilitate continued learning. It addresses the topic of managing diabetes in pregnancy.

Women with diabetes need to maintain especially tight blood sugar control for a healthy pregnancy. To do this, they’ve traditionally had to record their blood sugar seven times a day and, based on their pre-meal readings and the number of carbohydrates they expect to consume, use a correction factor from their doctor to calculate their dose of insulin. Then, every week or two, they’re supposed to talk with their doctor, who reviews their logs and decides whether to keep or adjust the correction factor.

Not only is this process burdensome, there are several points at which errors can creep in — in recording, in calculating, or in estimating the carbohydrate content of meals.

“In addition,” says An, “while there are recommendations for where to start with the insulin correction factor, there aren’t really great algorithms for how that initial factor should be modified based on the patient’s actual experience.” He thinks a learning health system could help change this.

To get started, he envisions deploying the kind of mobile health tool he’s been working on with MEND colleague Jennifer Wyckoff, MD, and obstetrics and gynecology faculty Mark Chames, MD, and Michelle Moniz, MD. By incorporating wireless glucometers and insulin pens, the app could automatically record patients’ blood-sugar readings, handle the calculations, record the insulin doses, and send all this data to both the patients’ cell phones and their doctors. It could even include educational modules or image-analysis features to help with carbohydrate estimates, as well as components that could track other things that affect blood sugar like physical activity, sleep and stress.

There would be a lot of learning with such an approach, says An. At the provider level, the app could provide a richer picture of each patient’s self-care efforts, recommend to the provider how the correction factor might be tweaked based on this information, and flag when blood-sugar levels or self-care changes suggest a conversation is warranted.

“At the system level, we’re learning as well,” says An. “As more and more patients are tracked, it would discover — based on the last 100 patients like you who had similar levels of activity, blood sugar, and diet — this is the way the correction factor should be modified. Over time, the phrase ‘like you’ would become more and more refined.”

“And at the patient level, she could see her own trends,” says An. “These are my blood sugars, my activity, my carbs, my dosing, and this is the result. So she’d gain insight into the factors that influence her blood sugar.”

The system could also use what it has gathered to send her automatic, tailored messages of support and guidance. This is where the “art of education” comes in.

“We know that these messages need to be presented in a way that is supportive rather than guilt-provoking,” says An. “We don’t want to create a very precise nagging nanny; we want to create an interaction where this app is like a trusted friend who delivers messages in a way that reinforces a patient’s values and goals for her health and her baby’s.”
The LHS takes advantage of the fact that any health system is inherently a laboratory with numerous small experiments going on at any given time, where one set of practices can be compared with another. By systematically analyzing the results of these experiments, providers can learn what the system finds is best for patients with certain characteristics.

**LEARNING AT EVERY SCALE**

Not only can learning happen at every level within a health system, it can happen at every scale — from individual health system to international network. In addition to launching an LHS within UMHS, U-M is providing support and leadership for major state and national learning health systems.

U-M is working to develop an LHS at the state level through the Center for Healthcare Research & Transformation (CHRT) — the non-profit partnership between UMHS and Blue Cross Blue Shield of Michigan (BCBSM) that promotes evidence-based care delivery.

Called Learning Health for Michigan, the proposed system will work with multiple organizations, including the Michigan Department of Community Health and several BCBSM-sponsored collaborative quality initiatives, to identify communities and problems of interest. In July 2014, Learning Health for Michigan held a multi-stakeholder meeting in Lansing to kick off the LHS development process. Several task forces formed around specific areas that could develop into questions suitable for a learning cycle.

At the national level, Friedman and his team are developing a collaboration with the Cancer Research Network, an existing learning network of more than a dozen cancer centers.

At both scales, U-M hopes to be able to contribute the types of platform components it’s planning for the UMHS LHS.

“If we do it right, the platform components we build at the local level should work at the national level and vice versa,” says Friedman. “So our efforts locally in diabetes could very well inform and benefit from reuse of components we build in our collaborations at the national level. This is a big exercise in everything is related to everything else.”

Such relationships only enhance the value of the LHS concept, says Markel. “There is so much potential for the LHS to augment our mission in research, education and clinical care that I believe that this term that many of us have only recently learned about — you’ll be hearing a lot about it in the future.”

“Our mission within the LHS is to make big data meaningful to patients and providers in their everyday lives.”

Larry An, Director, Center for Health Communications Research
During 2014, leaders and faculty of the U-M Medical School including the Research Board of Directors dove into a process of reflection and exploration to find new ideas on how clinical trials at U-M could be improved to better serve our patients.

Clinical trials are defined as prospective, biomedical or behavioral research study of human subjects that are designed to answer specific questions about biomedical or behavioral interventions. Biomedical interventions can include drugs, biologics, treatments, devices, procedural interventions, or new ways of using known drugs, biologics, treatments or devices. Behavioral interventions are intended to prevent or treat an acute or chronic disease or condition.

Many at UMMS, were concerned that current protocols were inefficient and often ineffective in activating and executing clinical trials and thus limiting the value of U-M’s clinical trials program for faculty, funding agencies, providers and patients.

A Clinical Trials Task Force consisting of 14 U-M Health System leaders — the chairs of all of the departments and the directors of two centers — was created to deliberate and make recommendations regarding system-wide process improvements for clinical trials research. It was co-chaired by David Pinsky, MD, the J. Griswold Ruth and Margery Hopkins Ruth Professor of Internal Medicine, the chief of Cardiovascular Medicine, who is a director of the Frankel Cardiovascular Center and also included Department of Internal Medicine Chair John Carethers, MD and the Director of the U-M Comprehensive Cancer Center Max Wicha, MD.

“Examining our practices and structure is a crucial step to making improvements. Clinical trials are vital in order to give new therapies and new hope to our patients,” explains Pinsky. “We need to be able to provide the latest technologies and advancements in medicine.”

The task force first defined a goal: “To create the new knowledge needed to improve clinical care, value and health outcomes by successfully executing a diverse portfolio of high-quality
clinical trials” and six strategies needed for clinical trials at U-M. “This helped us begin the process of moving from visualization to actualization,” says Pinsky.

The group then benchmarked the U-M Medical School against five peer organizations and conducted focus groups and surveys to gain an accurate picture of the current state of clinical trials at U-M to assess both strengths and challenges.

Input was gathered from:

- 77 Faculty and Staff on Working Groups
- 64 Study Coordinators & Research Administrators
- 101 Patient Survey Participants
- 457 Respondents to an Assessment of the Clinical Trial Enterprise Survey

More than 30 countermeasures were identified to improve the environment for clinical trials. The task force’s top 10 recommendations included:

1. Develop a pre- and post-award infrastructure and service model that offers efficient, affordable support for a diverse clinical trial portfolio that is accessible to all faculty, especially early-career investigators.
2. Develop mandatory training and credentialing based on competencies for those conducting clinical trials.
4. Enhance the efficiency of contracting for clinical trials.
5. Professionalize the study coordinator role with appropriate job descriptions, career ladders, and salary bands.
6. Implement an integrated clinical trial management system.
7. Make identification of potential research participants from our patient population easier.
8. Enable physicians to easily find available clinical trials.
9. Recognize clinicians contributing to the success of trials: reward through promotion & tenure as well as compensation.
10. Identify research space co-located with clinics, combining the clinical care experience and research experience for our patients.

The UMMS Research Board of Directors voted to implement the recommendations and the planning process has already begun. A central core group for clinical trials will be run out of the medical school. MICHR, the Michigan Institute for Clinical and Health Research, will also play an important role in training study coordinators and providing biostatistics expertise. A series of strategic nodes is being created to facilitate, manage and evaluate clinical trials in specific domain expertise areas. Each node will have a budgetary unit, provide study coordinators, facilitate recruitment, and help move clinical trials forward. The first four nodes will include: 1) oncology; 2) heart, vessel, blood; 3) acute critical care; and 4) children’s health. The goal is to have all clinical trials at U-M run through a node by 2018.

While there have been many high-value, successful clinical trials at U-M, Pinsky explains, “These new structures and processes will truly benefit everyone — faculty, departments and, most importantly, our patients. That’s really why we’re all here.”
The U.S. is expected to face a shortage of between 12,000-31,000 primary care physicians by 2025, according to a report released by the Association of American Medical Colleges. The Department of Internal Medicine has been focusing on the increased need for clinical faculty — many of whom are primary care physicians — by creating the Clinical Excellence Society, Academiae Laureati Medici, to recognize and retain excellent clinicians. In addition, a new primary care track has been established in its residency program. The department is also playing a prominent role in a new Primary Care Task Force that is exploring how to restructure primary care at the U-M Health System. The task force, which is led by Internal Medicine Chair John Carethers, MD, also includes chairs from the departments of family medicine, pediatrics and obstetrics and gynecology, as well as three to four faculty representatives from each of the primary care departments.

U-M’s Primary Care Network is made up of a system of community-based U-M Health Centers in Washtenaw, Livingston, Oakland, and Wayne Counties. More than 170 providers, both physicians and nurses, specializing in internal medicine, pediatrics, obstetrics and gynecology and family practice see patients for a wide range of services, from routine office care and minor outpatient procedures, to immunizations and specialist referrals and complex care coordination.

When the task force first met in 2013 they identified major issues that needed to be addressed: how to handle the rapidly growing volume of patients, the current care process and flow, as well as how to prevent physician burnout and increase provider satisfaction to maintain competitive in recruitment.

During 2014, the task force made their first major recommendation. In an effort to encourage and recruit more primary care providers, the group focused on resetting the salary structure for primary care providers at UMHS to make them more competitive. The Faculty Group Practice Board approved the recommendation to provide salaries that are approximate to the existing market. “Our goal is to be able to attract 20-25 new faculty, to ramp up recruiting to be able to not only fill vacancies, but eventually to open up new practices to new patients,” explains Laurence McMahon, MD, MPH, a member of the task force and professor and chief of the Division of General Medicine. In addition, funds received from quality improvement incentive payments will be used to supplement primary care provider salaries in recognition of their role in managing their patients’ preventive services and quality of care.

“Moving forward, the task force plans to address other key issues in primary care at UMHS, including openings that are difficult to fill, exploring different models of care, population health management, quality and provider satisfaction,” adds McMahon.

“Our goal is to be able to attract 20-25 new faculty, to ramp up recruiting to be able to not only fill vacancies, but eventually to open up new practices to new patients.”
On November 14, 2014, the Department of Internal Medicine hosted its inaugural Steven E. Gradwohl Art of Primary Care Award and Lecture, honoring the memory, spirit and approach to patient care provided by Steve Gradwohl, MD while practicing at the University of Michigan. The event was made possible by the generous donations made in Steve’s name after his untimely passing in 2013. It was attended by more than 300 participants, including Steve's parents who travelled from their home in Iowa. The evening was showcased by an outstanding lecture and remembrance by Vic Strecher, PhD, professor of public health and friend of Steve, and a keyboard remembrance composition performed by Paul Fine, MD, from the Division of General Medicine.

THE AWARD
Elisa Ostafin, MD was named as the recipient of the first Steven Gradwohl Art of Primary Care Award. The selection committee picked Dr. Ostafin as she espouses the art and practice of primary care medicine as Steve did, and lives and practices that spirit each and every day. She is the medical director of the UMHS West Ann Arbor Health Center on Jackson Road, and has been a practicing primary care internist on faculty in the Department of Internal Medicine since 1985. She is a graduate of Huron High School, Dartmouth College, and Wayne State University School of Medicine. She also completed her residency in internal medicine at the University of Michigan. Elisa is very active in teaching medical students and residents, and recently received the Special Recognition for Contributions to the Medical Student Teaching Program award. She has also been named several times to the Hour Detroit Top Doctors and the Best Doctors in America lists.

THE WORKSHOP
U-M has some of the finest primary care physicians in the nation, but we don’t often celebrate or recognize this. Through the generous gifts of donors in honor of one of our great physicians, Steven E. Gradwohl, MD, the Department of Internal Medicine presented the Steven Gradwohl Art of Primary Care Workshop to more than 80 faculty, staff, residents and students on November 15, 2014. The workshop highlighted the art of the practice and ongoing improvements in primary care that will make this area of medicine fulfilling for both physicians and patients well into the next millennium.
In 2013, more than 1,800 doctors from around Michigan joined together to improve the care of 80,000 people who rely on Medicare, while also slowing the growth of their health costs.

The initiative, called POM ACO or the Physician Organization of Michigan ACO, LLC, was founded as a joint venture of the University of Michigan Health System and six physicians groups around the Lower Peninsula of the state. It is an accountable care organization, or ACO, under the Medicare Shared Savings Program (MSSP) of the Centers for Medicare and Medicaid Services (CMS).

One of the largest ACOs in the country, POM ACO focuses on the triple aim of better care for patients, better health for entire populations, and lower health care costs.

POM ACO gained additional steam in 2014 when 2,900 other health care providers joined — including more than 1,700 U-M Medical School faculty physicians from the University of Michigan Medical Group.

In all, the POM ACO now includes 5,700 providers from 12 physician groups based in 22 counties. Together, they will be responsible for improving the care and health of more than 120,000 Michigan residents covered by Medicare.

BUILDING ON SUCCESS

The University of Michigan Group Practice (formerly called the Faculty Group Practice) already has many years of experience as leaders in the movement to make traditional Medicare better and more efficient at the same time.

Previously, U-M physicians and several hundred others from the IHA group in Washtenaw County succeeded in curbing costs while improving quality through a different Medicare ACO, called a Pioneer ACO.

And before that, the U-M physician group showed the power of the ACO model through a five-year Medicare demonstration project that saved Medicare millions and improved the quality of care.

“Our commitment to improving the health of individuals and populations, and containing the growth of health care costs, grows even stronger with this transition, and we’re glad we’ve been joined by so many like-minded physicians and providers across the state,” says Associate Professor of Internal Medicine David Spahlinger, MD, executive director of the U-M Medical Group and chair of the POM ACO board.

“By working together to share information, best practices and ideas, we will continue to help improve traditional Medicare,” he explains. He adds that Michiganders whose doctors have joined POM ACO should notice only positive impacts. This may include better coordination of care between primary care and specialty doctors, better follow-up after hospitalizations and more support available between visits.

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Data released in the fall of 2014 revealed that the POM ACO achieved much of its aim in just the first year, though more opportunities remain to improve care and contain costs further.

The data, from the federal agency that oversees the Medicare system, shows that the Michigan initiative saved the traditional Medicare system $4.7 million in calendar year 2013, while simultaneously improving patients’ ratings of their care and their doctor, control of conditions such as high blood pressure and diabetes.

CMS released results from all 220 MSSP ACOs in the country simultaneously. Of them, 53 saved enough money to qualify to share in the savings; POM ACO did not achieve this goal but was one of 52 ACOs that did save Medicare money through better care coordination and quality.

The new results show that in a year when national spending on traditional Medicare increased by one-half of a percentage point, POM ACO was able to save money — specifically, 0.7 percentage points on total spending of $685 million.

While it did not reach the 2 percent cost savings threshold for sharing in savings, the effort’s leaders note that POM ACO is already working to do more to achieve the triple aim for participating patients and is focusing on improvement efforts in the coming year.
As the aging population continues to grow in the U.S., so do the number of patients with multiple chronic conditions (MCC) and health care costs. Approximately one in four Americans has MCC. Among patients aged 65 years and older, as many as three out of four have them. Two-thirds of the total health care spending is associated with care of Americans with MCC. The U-M Health System continues to explore new and better ways to care for these patients in a more efficient and effective manner.

“A real key to addressing this issue is to look at improving coordination of care,” explains David Spalinger, MD, executive director of the University of Michigan Medical Group. “The average patient with multiple conditions receives care from up to 14 physicians a year — usually two primary care providers and the rest are specialists. We need to find better ways to manage these complex patients and provide better coordination of care between primary care providers and specialists. There is a need for more centers and clinics where there is communication, collaboration and co-location of primary and specialty providers so we can better care for these patients. Our new Northville location is a good example of this,” he adds.

The model of co-locating doctors for improved collaboration is not new at U-M. The Comprehensive Cancer Center and the Samuel & Jean Frankel Cardiovascular Center have been operating under collaborative models for years. At the Cancer Center, oncologists and surgeons collaborate. At the Cardiovascular Center, it might be thoracic surgeons, cardiologists and vascular surgeons. Just last year, U-M opened a Transplant Ambulatory Care Unit where nephrologists or liver gastroenterologists might work side-by-side with transplant surgeons. There is also has a new multidisciplinary Comprehensive Wound Care Clinic that brings together surgeons, rehabilitation physicians, podiatrists and physical therapists to treat things like pressure ulcers or non-healing wounds.

Connie Standiford, MD, a general medicine physician, U-M professor of internal medicine and the executive medical director of Ambulatory Care Services, “As a primary care physician, being able to easily co-manage complex patients and work closely with specialists has been a very successful model,” she says. “UMHS would like to do even more of this to continue to enhance patient satisfaction and improve outcomes.”

On the second floor of U-M’s Taubman Health Care Center, a new Comprehensive Musculoskeletal Center recently opened. It was created to help patients with spine issues, bone fractures, knee pain, arthritis and more — all with the goal of getting the right patient aligned with the right doctor as efficiently as possible. To achieve this, the center brings together more than 250 physicians from 10 specialties, who work in over 50 clinics at 22 facilities across the UMHS, under one umbrella, fostering Collaborations between care teams that focus on bone, joint and spine health. It’s building on the natural synergies between physicians and removing barriers to collaboration.

“Collaborating closely with colleagues really helps doctors approach problems differently. We’re able to create a smarter care plan. This is good for our patients and a good model for the future of medicine overall.”

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“Collaborating closely with colleagues really helps doctors approach problems differently. We’re able to create a smarter care plan. This is good for our patients and a good model for the future of medicine overall,” adds Timothy Laing, MD, associate chair for clinical programs in the Department of Internal Medicine and a professor in the Division of Rheumatology.

A branch of the Comprehensive Musculoskeletal Center also opened in the new U-M Northville Health Center in July 2014.
Hospitalizations account for nearly one-third of the total $2 trillion spent on health care in the United States. In the majority of cases, hospitalization is necessary and appropriate. However, experts estimate that as many as 20 percent of hospital discharges end up being rehospitalized within 30 days of discharge. These rehospitalizations are costly, potentially harmful and may be avoidable. Poorly executed transitions in care can negatively affect patients’ health, well-being and family resources and unnecessarily increase the costs incurred by the health care system and the patients, families and communities they serve. Maintaining continuity in patients’ medical care is especially critical following discharge from the hospital, and for older patients with multiple chronic conditions, this “handoff” period takes on even greater importance. Research shows that one-quarter to one-third of these patients return to the hospital due to preventable complications.

The U-M Health System and Department of Internal Medicine faculty are actively finding better ways to navigate transitions of care in our hospitals, clinics and statewide.

A NEW ROLE

Vikas Parekh, MD, an associate professor from the Division of General Medicine is the medical director for care management and clinical effectiveness for the U-M Health System. This new role, created in 2013, reports to the chief medical officer and represents the voice and role of physicians in the changing landscape and transitions of hospital care.

Dr. Parekh has been partnering with an interdisciplinary team from nursing and social work to re-engineer patient discharge and transitions of care at UMHS. “We’re changing the process so we are thinking about and planning for discharge the minute a patient comes to the hospital — not the on the day they’re leaving.” This involves an assessment of the patient by the care team to understand their needs and current support system up front. Then a discharge plan can be made accordingly. These can include pre-discharge measures such as patient education, discharge planning, medication reconciliation and the scheduling of follow-up appointments.
in advance. Post-discharge interventions can include follow-up phone calls by health professionals, access to a patient hotline, assistance to bridge the transition from hospital to home or a care setting and help with behavioral changes (i.e., smoking cessation). “We treat it as a continual process of evaluation and change the plan to improve it as needed for each patient. This is not a cookie cutter approach at all,” explains Parekh.

The team also plans to start identifying patients who are at “high risk” for being readmitted by using the “LACE” assessment — a popular tool used by hospitals that calculates a readmission risk score based on length of stay, acute admission through the emergency department, comorbidities and emergency department visits in the past six months. Upon each admission, patients will be assigned a LACE score — the higher the score the higher the risk for readmission. These patients will then be provided with more attention and more support.

“Larger hospitals like U-M that provide care for more poor, vulnerable patients and more complex conditions are more likely to have high readmission rates in general. But with these efforts, we are starting to see results in our patient satisfaction data regarding the discharge experience. Ratings have gone up for both adult and pediatric patients,” he adds.

TRANSITIONAL CARE CLINIC
The U-M Geriatrics Centers has a Transitional Care Clinic that provides services to older patients who are making the transition from hospital to home or from sub-acute care to home. It serves patients who have had acute hospitalizations, complex emergency room visits or sub-acute care stays and require urgent follow-up care. This clinic specializes in patients with multiple medical problems or those who may need short- or long-term placement to prevent re-hospitalization. Both medical care and social work support are provided for patients and their families.

“I think there are several elements that make geriatrics programs like the Transitional Care Clinic successful,” says Raymond Yung, MB, ChB, professor and chief of the Division of Geriatric and Palliative Medicine. “One would be the involvement of not just the patient but the whole family. Number two would be providing culturally and educationally appropriate material. And three is writing things down rather than relying on people to remember. We know that if someone comes out of the doctor’s office or hospital room, and their son or daughter says, ‘What did the doctor say to you, Mom?’ Many times the answer is, ‘Nothing’. They don’t remember what was communicated.”

Follow-up at home is also critical. “We have a pharmacist or pharmacy students call all our patients at home before their outpatient clinic visits to reconcile their medication and ask if there is anything they want to talk to the doctor about. That’s something we’ve found reduces error rates dramatically. We also get a note in MiChart, our electronic medical records system, before the appointment that flags if the patient has any specific questions or concerns. Before the patient even sees us, we can have a good grasp of what their needs are.”

MICHIGAN TRANSITIONS OF CARE COLLABORATIVE
In addition to efforts within the health system, we are also leading statewide efforts to improve transitions of care. From 2010 through 2014 the Michigan Transitions of Care Collaborative (M-TC2), was part of the Blue Cross Blue Shield of Michigan Provider Group Collaborative Quality Initiative that
supported and facilitated practice transformation by rewarding physician organizations (PO) for improved performance in health care delivery. The goal of M-TC2 was to improve care transitions between inpatient and outpatient settings, with a primary focus on the transition from hospital to home. The objectives of the initiative included promoting collaboration among POs (hospitalists and primary care providers, in particular), hospitals as well as promoting quality and safety by increasing discharge communication. U-M acted as the M-TC2 coordinating center. It was directed by Christopher Kim, MD, an associate professor from the Division of General Medicine.

"Through M-TC2, we asked all participating hospitals to implement the Ideal Transitions Bundle (see highlight box) and to apply relevant interventions to mitigate risks. The impact on the patient experience measures at all 17 participating hospitals was overwhelmingly positive. There was a consistent increase in patient satisfaction at high levels," explains Kim.

Pilot sites indicated that M-TC2 tools are well received by health care teams and patients as it improved communication and collaboration across the hospital and with outpatient physicians. Patients reported a very positive response to what they perceive as an increased level of service and medical attention.

THE INTEGRATED MICHIGAN PATIENT-CENTERED ALLIANCE ON CARE TRANSITIONS (I-MPACT)
The Integrated Michigan Patient-centered Alliance on Care Transitions (I-MPACT) is a new Blue Cross Blue Shield of Michigan and Blue Care Network funded Collaborative Quality Initiative that replaces the M-TC2, which ended at the end of 2014. The I-MPACT coordinating center will also be located at U-M and directed by Dr. Kim.

I-MPACT has a broader reach and a goal of maximizing the effectiveness of health care coordination activities across the state of Michigan through regional partnerships of hospitals, physician organizations, patient and family members, other post-acute care providers and community organizations.

The initiative aims to: promote the participation of both hospitals and provider organizations interested in improving health care transitions between inpatient and outpatient care; improve transitions of health care process by promoting continuous quality improvement activities; and identify and implement areas of opportunity in transitions of health care processes through the analysis of registry data, hospital discharge data and administrative claims readmission data.

"We’re hoping that this initiative will help us all learn the same lessons together, instead of individually, which in turn can be shared and disseminated throughout the state for the benefit of our citizens" says Kim.
To a casual observer, it might seem that in today’s content-rich world, patients should have access to all the information they might need on whatever condition they might be facing. Between office visits; patient portals; racks of pamphlets on various diagnoses, tests, and procedures; and websites from MedlinePlus to WebMD, could there really be anything left to offer?

The answer is a resounding yes, according to internal medicine practitioners working in this arena.

There are many reasons patient education is by no means a fait accompli. With the rise of so much Internet content, sidestepping the irrelevant and misleading are perennial challenges for patients. Managed care visits can leave limited time for in-depth teaching. And the lack of reimbursement for certain types of patient education remains a barrier to innovative, comprehensive programs.

Another key reason there is so much room for improvement is an evolution in the concept of patient education itself. “The role of health care providers is changing,” says Professor Michele Heisler, MD, MPA, from the Division of General Medicine and the School of Public Health. “Previous generations of physicians often felt their job was just to tell people what to do — to lose weight, eat better, and take their medications. But we’ve discovered that this approach is just not effective. In the current state of trying to promote wellness, much of our role as health care providers is going to be as coaches.”

While this still means explaining patients’ health status, preventive-care recommendations and treatment options, this is just the start. It also means, she says, helping patients prioritize their medical concerns; articulate their needs and preferences; develop and achieve action plans; and implement difficult behavioral changes in the context of real life. It means finding ways to employ the larger health care team to keep patients motivated and on track between office visits. Ultimately, it means empowering patients to make informed decisions and become full partners in their care.

This is where the art of education comes in. “Of course you are using evidence-based practices, but the ‘art’ of it is being individualized,” says Lauren Van Dam, MS, RD, CNSC, a senior dietician in the Division of Gastroenterology.

“Patients are complex and a one-size-fits-all approach is not effective in facilitating behavior change. You have to find ways to motivate them, help them see the benefit in following your recommendations, and show them how to incorporate changes into their unique lifestyle.”

This is a tall order, but an essential one in any system committed to providing excellent care. And it’s one that internal medicine providers across the divisions are tackling head on in realms from prevention to diagnosis, treatment planning to end-of-life care. But whether high-touch or high-tech, public awareness campaign or one-on-one counseling, these efforts are most successful when they balance listening with teaching and provide information that is personalized, relevant and empowering.

At UMHS, classes are just the beginning of patient-education efforts for diabetes and other complex conditions.
If the art of patient education is making messages personal, meaningful and relevant, and the science is making them evidence-based, nowhere are these tasks executed more skillfully or brought to as wide an audience than at the Center for Health Communications Research (CHCR).

A unique and highly valued resource at U-M, the center is directed by Larry An, MD, associate professor in the Division of General Medicine, and aims, he says, to develop tools that help health care providers “deliver the right message to the right person at the right time in the right way.”

This means learning about a patient’s information needs, attitudes, beliefs, concerns and symptoms, and personalizing both the content and method of delivery to inform and motivate that person to make healthier choices.

The center’s team of behavioral scientists, health counselors, communication professionals and software developers works with physicians and researchers to develop an array of tailored interventions, from apps and animations to automated calls, print materials and emails. These tools combine the reach of a mass media campaign with the nuanced, personalized communication of a one-on-one counseling session.

It’s a sophisticated effort that produces real results. “We’ve done research showing that if we put together the message in the right way, we can increase activation in areas of the brain associated with decision making and memory formation,” says An, “and that when we activate those areas of the brain, people are more likely to go on and successfully change their behavior.”

This is why the CHCR has been a key, behind-the-scenes partner in nearly 200 patient-education efforts across campus, including several of those highlighted in this section — and additional projects are underway.

The center is also playing a major role in UMHS’ new Learning Health System model; please see page 68 to learn more.
If anyone needs proof that patient education is still a fertile area for development, chronic kidney disease (CKD) provides it. "Studies have repeatedly shown that among people who have evidence of very advanced kidney disease, less than 20 percent are even aware of it," says Assistant Professor Julie Wright Nunes, MD, MPH, from the Division of Nephrology. What’s perhaps more startling is that this lag in awareness persists even when such people are under the care of kidney specialists.

“During my fellowship I’d see established patients who’d been with the kidney clinic for a couple of years, and I’d mention the words ‘kidney disease’ during a visit, and they’d start crying, saying, ‘I have kidney disease?’” says Wright Nunes.

This troubled her, so she began researching the issue and discovered that it was by no means uncommon. “Even among patients who are being treated by a nephrologist, some 30 percent aren’t aware that they have something called ‘chronic kidney disease,’” she says.

The problem is more than just a name. Not being aware of the diagnosis was associated with a poor understanding of its causes and how to keep the kidneys healthy — and ultimately with poorer outcomes.

The possible reasons for this are many. Early CKD often has silent symptoms, may be viewed by providers as more of a downstream effect of hypertension or diabetes rather than an entity in its own right, has not yet had the success of high-profile awareness campaigns like amyotrophic lateral sclerosis (ALS) or breast cancer, and to patients doesn’t appear to carry the immediacy that a later-stage diagnosis would.

To be sure, the areas of nephrology where patient education is more evolved are those where the situation is more specifically defined. Wright Nunes cites U-M’s efforts in kidney transplant, kidney stones, and lupus nephritis as examples of mature, comprehensive models of individualized patient education.

In order to drill down into the issues with early CKD education and possible solutions, Wright Nunes joined the patient education coordinating panel for the National Kidney Disease Education Program (NKDEP), which was established by the National Institutes of Health for just this purpose. She also launched follow-up studies to tease out what patients know and want to learn regarding kidney function, CKD and self-care.

Her research revealed that patients want more information about their diagnosis earlier in the disease process and seek a heavy focus on prevention. “They want to know what CKD means, how it could impact their life, what the labs mean and how medications can help them,” says Wright Nunes.

UMHS already does important work in this area. It supports free kidney disease education classes — an early-stage class that provides an overview of kidney function, CKD, treatments, dietary considerations and social resources, as well as an advanced class that covers renal replacement therapies. It participates in a mini-fair for World Kidney Day to provide information and screenings. In addition, Wright Nunes teamed up with UMHS patient education librarian Ruti Volk, MSI, AHIP and nephrology colleagues Panduranga Rao, MD, and Therese Adamowski, RN, to create an easy-to-use website of vetted CKD educational materials for patients and providers to draw from.

To enhance these efforts, Wright Nunes and fellow researchers also recently tested a simple educational tool (see image) based on an NKDEP worksheet that doctors can use to address key gaps in patient understanding during a standard office visit. They found that in only one to two minutes, the tool helped
patients better understand the kidneys’ function, important medical terms, as well as their diagnosis and its severity.

While Wright Nunes feels CKD education research is still in its infancy, she says U-M is particularly well-positioned to help it mature into a comprehensive effort that seamlessly supports patients through the course of their disease.

“Kidney disease care has the potential to be a bit fragmented,” she says. “You might see one provider if it’s mild, another as it gets more severe, and yet another when you move to dialysis. But U-M’s integrated health system helps us as providers stay better informed about our patients’ care. For example, in our multi-disciplinary clinic, each patient generally sees a pharmacist, a social worker, a renal dietician, and a nephrologist. The pharmacist explains medications, and checks for interactions and concerns related to decreased kidney function. The social worker helps with medication costs and psychosocial support as kidney function declines. The renal dietician checks the labs for metabolic abnormalities and advises about dietary changes. And the nephrologist helps coordinate these pieces. We talk about each patient together then ensure we convey everything to the patient and the primary care provider. I think this model is one of the best ways I’ve found to really help meet CKD patients’ multi-faceted educational and clinical needs.”

They found that in only one to two minutes, the tool helped patients better understand the kidneys’ function, important medical terms, as well as their diagnosis and its severity.

U-M nephrologists are using tools like this National Kidney Disease Education Program worksheet to help close the “understanding gap” in chronic kidney disease.
Another area where internal medicine faculty have worked to fill major gaps in patient understanding is chronic heart failure. Todd Koelling, MD, professor in the Division of Cardiovascular Medicine and co-director of the Heart Failure Program, says this is one of the first things that struck him when he began working on IT tools for managing heart-failure patients in the late ‘90s.

“I found there were patients coming into the clinic who had profound gaps in their understanding of how they were supposed to be managing their condition,” he says. “Repeatedly I’d see patients, whom I felt we’d spent an adequate amount of time instructing, return to clinic and not remember what they were supposed to be doing or be admitted to the hospital for reasons that were preventable had they been following their care plan.”

About this time an analysis was released by the University HealthSystem Consortium, a group of academic hospitals that share data on quality, suggesting that providers bore no small responsibility for this gap. An analysis of discharge summaries showed that fewer than 20 percent of patients were being given adequate discharge instructions, with the biggest omissions in key areas like weight management and what to do if symptoms worsened.

The data motivated Koelling to act. He decided to test whether better education could help his patients manage their health and stay out of the hospital.

It was a high-stakes test; heart failure is the most common reason for hospital admission among elderly Americans and the most common reason for early readmission, as well. In a randomized controlled trial Koelling compared two groups: those receiving standard discharge instructions and those spending an hour with a nurse-educator. Though the same factual content was provided, the nurse-educator had two presumed advantages. She focused on engaging patients – keeping them on task, proceeding at their speed, and using “teach-back” to verify that they were capturing key concepts. She also focused on the “why.”

“We thought it was important to explain to patients why we were asking them to do what we wanted them to do,” says Koelling. “Not just, this pill is for your heart – but, this pill will improve this symptom or will reduce your risk of death or rehospitalization. Also, why are we asking you to follow a low-sodium diet or drink less fluid, why do you feel so thirsty when you actually have too much fluid in your body, and so on.”

Koelling’s group followed their study participants for six months post-discharge, and the results amazed them. There was a 35 percent reduction in deaths and rehospitalizations in the nurse-educator group.

The trial was so successful that peer institutions like Johns Hopkins sent nurse-educators to U-M to learn the techniques. Koelling also believes the study contributed to making patient discharge education a standard quality indicator in heart failure.

Since then he’s worked on other interventions, such as a web portal and educational videos that are streamed on hospital television.

And in 2014, UMHS provided funding for his group to test a tablet-based heart-failure education tool he hopes will be another...
leap forward. Called Health Buddy Web and created by Bosch, the tool contains a number of features that UMHS hopes will help keep patients well.

One of these is daily self-monitoring. Patients are asked to enter their weights, blood pressures, heart rates and symptoms, and can observe how these measures change over time. And, while a health team also monitors them remotely, the patients are empowered to intervene on their own behalf through a flexible diuretic regimen with specific instructions on how to adjust the dose as their weight changes.

“I think of it like having brakes and an accelerator on your medication, and putting patients in the driver’s seat to keep their weight as stable as possible,” says Koelling. “Patients are the ones who know first if their weight is changing, and they’re probably aware why. They may have gone to a family gathering and couldn’t control their sodium. If they’re armed with a plan for what to do, they can have a quicker response — and the quicker response may be more effective.”

His group has recently begun enrolling patients for the estimated three-year study. In the meantime, he and two colleagues from the School of Pharmacy are working on a smartphone app to support heart-failure patients. He envisions users scanning foods’ sodium content on the go and employing wearable technology to monitor activity levels and vital signs. But because heart-failure patients tend to be elderly — the average age is 72 — Koelling says computer- and phone-based systems are not yet a great fit across the board. But he wants to be ready when they are.

While he admits that it’s hard for technology to compete with passionate human educators in areas like empathy and engagement, computers offer a different advantage that he hopes will make them an important complement to interpersonal communication: They are great at managing data.

“Giving patients the ability to see their progress shows they’re an important part of their own success,” says Koelling. “Ultimately, I think, this is how these tools will be successful.”
Gastroenterology is another division that is combining the strengths of in-person educational encounters with the best of technological innovation.

In recognition of our burgeoning understanding of the link between lifestyle and gastrointestinal (GI) symptoms, Division Chief and H. Marvin Pollard Professor of Internal Medicine Chung Owyang, MD, has made patient education a priority, adding three core GI dieticians and a clinical health psychologist to his staff.

The bulk of their work focuses on highly personalized, one-on-one education on the role of diet and stress management in a patient’s constellation of symptoms. For example, senior dietician Lauren Van Dam, MS, RD, CNSC, spends a good deal of time doing what she calls “detective work” with patients to discover which foods trigger distress.

“I do a lot of education on the low-FODMAP diet,” says Van Dam. “This diet approach eliminates poorly digested fermentable carbohydrates for two to three weeks, then reintroduces foods one at a time to help patients identify their triggers.”

About 75 percent of patients with irritable bowel syndrome (IBS) improve on a diet low in FODMAPs (Fermentable Oligosaccharides, Disaccharides, Monosaccharides, And Polyols). The education challenge among her population, she says, is less about motivation, as it can be with complex chronic conditions. “This is a highly motivated patient population,” she says. “Many have been suffering from various GI symptoms for years and are willing to try anything, even if it means giving up foods they enjoy. Others need a little more convincing, but ultimately relief from their symptoms is the main motivating factor.”

Her challenge has been more to correct misinformation patients have found online. “There’s a lot of outdated or incorrect information — even on high-profile university websites,” says Van Dam. “GI is a quickly changing field and this diet is a newer approach, so research is still being done on the FODMAP content of foods. I’ve had patients do research on their own and tell me they’ve been on the elimination diet, but after a diet recall I find they are actually still consuming several high-FODMAP foods.”

To address this, she counsels patients one on one, then arms them with a bounty of curated materials such as information on the diet, food lists, label-reading guidelines, sample menus, a food and symptom diary, and a list of valid resources, from websites to cookbooks. She also has materials for patients who need vegetarian, vegan, low-fat, low-fiber or gluten-free versions of the diet.

Such individualized work is also done by Van Dam’s colleague and clinical health psychologist Megan Riehl, PsyD. Riehl specializes in helping patients deal with the psychosocial aspects of chronic GI disease and gain insight into the impact of lifestyle choices on their symptoms. She teaches evidence-based strategies to reduce hypersensitivity in the gut, like relaxation techniques and gut-directed hypnosis, as well as stress-management skills to improve patients’ overall health. Riehl was hired in 2014 to establish at UMHS one of only a handful of GI psychology programs in the country. She and Van Dam have recently brought their expertise to online education by creating modules for GI’s popular IBD School.
They’ve added YouTube segments on the low-FODMAP diet and stress management to the series developed by divisional colleague and Associate Professor Peter Higgins, MD, PhD, to help patients and their families better understand inflammatory bowel disease, including Crohn’s disease and ulcerative colitis.

Another colleague is taking telehealth to a new level of interactivity with a computer and smartphone app called My GI Health. With support from gastrointestinal therapeutics company Ironwood Pharmaceuticals, William Chey, MD, the Timothy T. Nostrant MD Collegiate Professor of Gastroenterology, and fellow gastroenterologist Brennan Spiegel, MD, formerly of the University of California, Los Angeles, and now with Cedars-Sinai hospital, have developed a tool to help doctors collect better information about patients’ GI symptoms and translate it into tailored “education prescriptions.”

My GI Health is all about patient-provider communication. Instead of using a large part of a patient’s visit entering medical history data, doctors can ask patients to answer a symptom questionnaire beforehand via computer, tablet or smartphone. Patients have the opportunity to gather information while responding, plus there’s less reluctance about reporting embarrassing symptoms face to face. Their answers are translated into a color-coded heat map that provides a snapshot of the user’s GI illness experience as well as an instant medical history that can be shared with a provider. A recent study found this history more complete and useful than data collected by a physician.

Using this process, doctors can zero in on key symptoms and complaints quickly and use more of their visit communicating with patients. Patients leave with a tailored prescription of educational materials available through My GI Health, such as animations of normal vs. abnormal GI function, and explanations of the patient’s key symptoms and their causes.

“We’ve developed rich, engaging multimedia content that helps doctors address frequent questions and explain challenging topics around why people have abdominal symptoms even though their scan or scope is normal,” says Larry An, MD, associate professor in the Division of General Medicine and director of the U-M Center for Health Communications Research, which helped develop My GI Health’s educational content.

The program is now being beta tested through select gastroenterologists, and Chey has spun off a company, My Total Health, to develop a consumer version of the app that also allows patients to contact GI experts and form virtual support groups comprised of users with similar symptoms.

Chey and his collaborators feel the app has platform potential and could be used for a variety of health conditions. With support from Nestle Health Sciences, they’ve already developed a nutrition version that aims to help patients discover food intolerances and allergies. It includes a wearable sensor to analyze users’ stomach sounds and guides patients through the use of tools like the low-FODMAP diet.

To bring GI health and nutrition information to an even broader audience, Chey and his colleagues have produced a TED video on gluten. It is slated to be used nationwide as a teaching tool for high schools and colleges on one of the hottest yet most misunderstood topics in the field today.
In the world of diabetes, teaching patients how to manage their condition is just the warm-up. The real work lies in helping them stay motivated over time.

“When people think about diabetes education, they have this image of a group in a classroom talking about diet,” says Jennifer Wyckoff, MD, clinical assistant professor from the Division of Metabolism, Endocrinology & Diabetes (MEND) and medical director of the Adult Diabetes Education Program. “But that’s just the beginning. Diabetes is a self-managed disease. It’s a 24-hour-a-day, 7-day-a-week, 365-day-a-year job for patients. They have to know what to do and they need a lot of support to be able to do it.”

That is why, she says, U-M’s Adult Diabetes Education Program starts with classes – American Diabetes Association- and state-certified classes for Type 1, Type 2, and gestational diabetes. But it also offers one-on-one training and support with a diabetes educator and, for patients who choose them, provider-facilitated support groups.

The one-on-one coaching is indispensable, says Wyckoff, because it allows diabetes educators to take a personalized approach. “Every patient is so different,” she says. “They have different learning needs and different barriers to overcome. There can be time-management challenges, financial issues, eating disorders, fears about blood sugars being too high or too low, and concerns about medication side effects. That one-on-one relationship with an educator gives you somebody to call when you have problems and to meet with periodically for redirection or fine tuning.”

Health services researcher Michele Heisler, MD, MPA, professor from the Division of General Medicine, says her research on diabetes care confirms the importance of ongoing support. “Patients with chronic illness spend the vast majority of their time not in the doctor’s office, so their health really depends on what they do between office visits,” she says. Heisler has demonstrated that support from community health workers and peer coaches can improve outcomes among diabetes patients in low-resource settings in the U.S. and overseas. She’s recently begun testing the value of having such facilitators use mobile health tools to enhance their efforts. These tools can incorporate elements of personalization, like assessing an individual’s risk for complications and identifying their unique medication-adherence barriers. They can also guide facilitators through techniques like motivational...
interviewing and action-planning. Heisler is eager to see whether this functionality can simulate some of the winning elements of U-M’s rich diabetes support system in other settings.

Along with classes, coaching and support groups, UMHS hosts an array of other diabetes education activities, ranging from the very private preconception counseling clinic, which helps patients achieve the tight blood-glucose control recommended for a healthy pregnancy, to public outreach events like World Diabetes Day, which features the newest diabetes devices, informational sessions and an array of free screenings.

Of course, the best way to beat diabetes is to prevent it. This is critical; a full third of the U.S. population is now at risk for the condition. Inspired by the Diabetes Prevention Program’s findings that losing 7 percent of one’s body weight and walking at least 150 minutes a week reduced people’s risk of developing diabetes by about 60 percent, Wyckoff’s team helped launch the National Diabetes Prevention Program (DPP) at UMHS.

With grant funding from the Michigan chapter of the National Kidney Foundation awarded to internal medicine-pediatrics resident Dina Hafez, MD, the program is being piloted with three groups at two UMHS locations by MEND dietician and certified DPP trainer Shirley Kadoura, RD, CDE. It is aimed at people with prediabetes, diagnosed by a lab test.

The program is now collecting outcome data to become a certified DPP site so it can expand to interested primary care locations throughout UMHS. The challenge, says Wyckoff, is that prevention programs have traditionally not qualified for insurance reimbursement.

There are other diabetes education priorities that have been held back by the same barrier. One is a class for patients who are transitioning from pediatrics to adult diabetes programs. “With our colleagues in pediatrics, we’re hoping to expand the education we offer to young adults and their families to include things like how to deal with insurance, how to get prescriptions and how to cook for yourself,” says Wyckoff.

They’d also like to set up a DPP-like class for women with gestational diabetes and for those at high risk due to obesity or strong family history to prevent them from developing the condition. Another ambition is creating virtual classes for diabetic cystic fibrosis patients. Communicable disease concerns prevent these patients from gathering in person, so they often miss out on the communal information-sharing and support that can help them achieve tight control of their blood sugar, which is essential to maintaining their weight and fending off infection.

Wyckoff says U-M is well-positioned to lead in these areas because of its strong adult and pediatric diabetes education teams; its array of diabetes clinics, like the cystic fibrosis-related diabetes program; and — for prevention efforts — the Weight Management Program directed by Amy Rothberg, MD, assistant professor from the MEND Division, and her dedicated team of dieticians focused on obesity. “We have a great group that is committed, focused and passionate about empowering our patients to manage their health,” Wyckoff says.
There are certain diagnoses where fear and multiple treatment options conspire to make decision making particularly challenging for patients. Such is the case in breast cancer. Associate Professor Sarah Hawley, PhD, MPH, in the Division of General Medicine and the School of Public Health, is among a group of internal medicine faculty working to understand how women make treatment decisions during this difficult time. They’re also creating and testing tools to help patients evaluate their treatment options in a systematic, informed manner.

The research she and her colleagues on the Cancer Surveillance and Outcomes Research Team (CanSORT) have done on breast-cancer decision making has enriched the public discussion, with coverage in outlets from TIME Magazine to NBC News. They generated particular buzz in 2014 with a paper flagging concerns over the rising use of preventive double mastectomy. Hawley’s team studied 1,447 women who had been treated for breast cancer and had not had a recurrence in the following four years. They found that in more than two-thirds of cases where women chose to have both breasts removed, the procedure was not clinically indicated – meaning the patient had neither the BRCA mutations nor a strong family history of breast cancer.

“We were very interested in why use of this procedure has been increasing, especially when a couple decades ago women pushed very hard for the ability to have less surgery for breast cancer,” says Hawley. “For the last five to 10 years, we’ve been seeing a big shift in the other direction.”

Certainly some of this can be attributed to well-publicized decisions by stars like Angelina Jolie and Christina Applegate to undergo double mastectomies, making the procedure more acceptable to women. However, for these women the procedure was clinically indicated. What was driving the others?

Hawley’s group found that women who opted for double mastectomy tended to report more worry over recurrence and to be white, younger, better educated and of higher socioeconomic status. They also tended to have had follow-up MRIs. This suggests to Hawley that the women making this choice are knowledgeable about the health care system and able to advocate for their choice. It’s also likely, she says, that MRIs may have picked up “incidental findings,” abnormalities that may turn out to be nothing but can be very concerning to patients.

Their findings also raised the question of whether patients, despite being well-educated, truly understood the nature of the risk reduction they were seeking.

“So Hawley and CanSORT Director Steven Katz, MD, MPH, professor in the Division of General Medicine and School of Public Health, decided to drill down into this issue of patient understanding with a follow-up study: Their team found that patients’ knowledge about the difference in survival with various treatments and the distinctions between recurrence and new primary disease were, in fact, quite low.
They also delved into why patients chose double mastectomy. Did it have to do with the plastic surgeon and what they were told about the cosmetic outcomes of reconstruction? Was it for peace of mind? Was it to avoid surveillance?

The group is presenting their findings this year. In the meantime they’ve begun testing an educational tool they’ve developed for patients with support from the Center for Health Communications Research.

Called “I Can Decide,” this computer program walks newly diagnosed breast-cancer patients through a series of questions that help them identify which treatments best fit their goals. It includes a first phase focused on surgery and radiation, and a second addressing systemic therapies like chemotherapy and hormones. It includes factual information about the various treatments tailored to the patient’s level of knowledge, exercises to clarify her preferences and tips for communicating with her doctor.

Hawley’s team is testing it at 20 sites, including the U-M Breast Care Center. Hawley hopes the tool will help patients make decisions that are informed by the data and in line with their lifestyle, goals and preferences. But as she looks to the future, she feels there are other areas in which the health care community can better educate and support patients with breast cancer.

One is conveying how the various treatments compare over the long term from a quality-of-life perspective. “We need to do studies on what it means to have a double mastectomy and double reconstruction,” Hawley says. “That’s an area where we don’t have a lot of data. We need to be able to tell women about previous patients’ experiences: Have they had complications? Were they happy with the outcome? What does follow-up care look like compared to other procedures?”

Another is managing anxiety. “I’d like us to focus on coping interventions,” she says. “Breast cancer is not an emergency. Patients want peace of mind, but we should encourage them to take their time with this important decision.”

The “I Can Decide” computer program was developed by U-M experts to help breast-cancer patients make informed treatment decisions aligned with their goals and preferences.
There is art involved in every type of patient education. Nowhere is this clearer, however, than in the realm of palliative care.

“When we talk about end-of-life decisions, there are no right or wrong answers,” says Raymond Yung, MB, ChB, director of the Institute of Gerontology, and professor and chief of the Division of Geriatric & Palliative Medicine. “It’s not like chemotherapy, where you can say this is the right treatment for this disease. It’s often about patient preferences.”

Some of these preferences involve medical decisions, such as how to balance disease burden with the burden of treatment. Others are social decisions: Should patients stay at home, or consider assisted living or a nursing facility? What role should the family play in decision making? And what do providers do when families haven’t had end-of-life discussions — or if they have, but don’t all agree?

Of course, there are places where data can be helpful, and the art lies in how to communicate it. “For example, there is data that says if you require CPR, the likelihood that you’ll come out of the hospital is X percent,” says Yung. “As people start hearing this, they realize, Oh, it’s not like what I see on TV, not everyone who gets resuscitation comes out fine. There’s an art to conveying that.”

But many physicians don’t feel prepared for this aspect of patient communication, he says. For some, this is a training issue. Others simply don’t have room in their schedules for these time-intensive conversations and are reluctant to make palliative-care referrals because of the message they think it sends to patients. Still others aren’t certain what patients need and are ready to hear at various stages in treatment.

Internal medicine faculty are addressing all of these issues. Assistant Professor Erika Manu, MD, from the Division of Geriatric & Palliative Medicine, for example, has developed a video addressing a topic many providers find uncomfortable — talking with families about eating problems in patients with advanced dementia. Providers struggle with this, she says, because food is such an elemental part of life, so the topic can be highly emotional. In addition, dementia is often not viewed as a terminal disease requiring end-of-life discussions.

But it is, of course, and as the condition progresses, patients have trouble eating. To ensure trainees feel prepared to educate families about appropriate expectations and feeding-support strategies, Manu’s video models just such an exchange. It features discussion points where trainers can pause the video and address issues like the causes of eating difficulties in advanced dementia, available tests and evidence-based concerns about the use of feeding tubes for these patients. The video, which was produced through the Medical Education Scholars Program with funding from the Hartford Foundation and the U-M Center for Research on Learning and Training, was introduced to internal medicine residents in 2014. It has been well-received, and Manu hopes to use it with interns, nurses and speech pathologists to support them in having constructive, proactive conversations with families about this important issue.
Ellen Hummel, MD, launched the Cardiovascular Center Palliative and Supportive Care Program to encourage cardiologists to offer palliative consults to these patients. The program aims to create opportunities for patients to discuss symptoms and symptom management, quality of life, aspirations and worries, advance directives, options for home-based care, prognosis and spiritual concerns. The goal is to lay out a “preparedness plan” that makes a patient’s preferences clear.

Though available to all patients with advanced cardiovascular illness, the program has placed a heavy initial emphasis on reaching those slated to receive a left ventricular assist device (LVAD), not as a bridge to transplant but as a “destination therapy.”

“Nationally we’ve recognized the need to talk more with these patients about goals of care and what’s ahead,” says Yung. “We don’t want to just send them back to their doctors with this shiny new device thinking everything will be OK. The reality is that it might extend life by a certain number of months or maybe years, but that’s about it. So we need to be sure we talk with them about what’s next.”

Hummel says the nature of these conversations has often made doctors uneasy about making palliative-care referrals, but she hopes her program will change that. “Many physicians feel like it’s telling patients they’re going to die right now or that we’re giving up on them,” she says. “But that’s not the case. What they perceive as a difficult conversation actually starts quite simply by talking about how we can manage a patient’s symptoms, like pain or difficulty breathing, and improve their quality of life. For the LVAD, we ask specific questions like how a patient might feel if the pump had to be changed. The rest of the conversation happens very naturally from here.”

Seriously ill patients truly welcome these conversations, says Mina Rakoski, MD, MSc, clinical lecturer from the Division of Gastroenterology. She received a palliative care pilot grant in 2014 to conduct surveys and interviews with advanced liver-disease patients with the goal of helping providers better understand these patients’ informational, emotional and care-related needs.

“Obviously we want the best for our patients and as a transplant team, we always strive to transplant, if possible,” says Rakoski. “But I think in our passionate drive to give our patients a curative option, we forget that so few of them actually accomplish it. So we talk about transplant, transplant, transplant, and we often forget to talk about Plan B. Plan B is what happens if they don’t get the transplant.”

Rakoski is gathering data on things like patients’ knowledge about hospice and advance directives, and communication with their providers about end-of-life preferences. She’s also exploring their symptoms, treatment and quality of life to get a complete picture of their “lived experience” with end-stage liver disease. Her goals are to ensure that providers fully understand this experience so they know how to provide high-quality care and appreciate what patients want to learn about end-of-life planning and when.

“It’s hard for providers and patients to talk about transplant and Plan B simultaneously,” says Rakoski. “But my data is already showing that patients want this. They’re OK dreaming and hoping for a transplant, but at the same time they want physicians to start that conversation about what dying will look like and what they have to plan for.”

Having these conversations early on, she says, is particularly important for liver-failure patients who can have complications that leave them confused and unable to make decisions. If the family and clinicians haven’t explored their wishes beforehand, everyone’s left guessing. “We can only provide excellent care to patients when we ask them the hard questions about what they want at the end of their lives,” says Rakoski. “If it’s transplant and we can accomplish that together, that’s wonderful. But if that’s not possible, then let’s make certain we’re respecting their wishes and offering a death that’s acceptable to them and their family.”
2015 INDUCTEES

The Department of Internal Medicine’s Clinical Excellence Society held its third annual induction dinner on Thursday, March 19, 2015 at the Rackham Graduate School, Assembly Hall. Members are elected into the society based on a nomination and review process. With this year’s induction of 13 members, the society now includes 50 members from within our 12 divisions.

The society’s newly elected officers began their official appointments April 1, 2015.
2015-2016 OFFICERS

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Michael Shea  
Councilor

Mark McQuillan  
Councilor

Linda Terrell  
Councilor

Left to right: Roma Gianchandani, MD; Linda Terrell, MD; Michael Shea, MD; Mark Kaminski, MD; John Carethers, MD; William Chey, MD; Mark McQuillan; and Michael Heung, MD
STEFAN S. FAJANS, MD

Stefan S. Fajans, MD, active professor emeritus, passed away on June 22, 2014 at the age of 96. His medical career spanned over seven decades, spent entirely at the University of Michigan. He became a member of the faculty in 1949, hired by Jerome Conn. Although officially retired for the last 25 years, Dr. Fajans still played an active role in the Metabolism, Endocrinology & Diabetes (MEND) Division continuing his important research, and publishing a paper in 2011, at the age of 93. He was recognized nationally and internationally as a distinguished endocrinologist and as a pioneer in his specialty of diabetes.

Dr. Fajans, affectionately known to his colleagues and friends as Steve, was born and raised in Munich, Germany, to Polish parents. His father, Kasimir Fajans, became a chemistry professor at the U-M. Steve Fajans received his bachelor’s of chemistry and medical degrees from the U-M and became a member of the U-M Medical School faculty in 1949, hired by the renowned Jerome Conn.

He went on to serve as chief of what was then called the Division of Endocrinology & Metabolism from 1973 to 1987 and as the director of the NIH-funded Michigan Diabetes Research and Training Center, which he helped to found, from 1977 to 1986. Dr. Fajans is best known for the discovery of a genetic form of diabetes that he named MODY (Mature Onset Diabetes of the Young).

He garnered numerous awards and recognition in his lifetime. Among his honors were: the presidency of the American Diabetes Association, the vice-presidency of the Endocrine Society, and invitations to give many national and international awarded lectureships, including the Banting Memorial Lectures of three countries. He was also inducted into the Institute of Medicine of the National Academy of Science.

At the University of Michigan, Dr. Fajans received the Henry Russell Award and Lecture, the highest honor the University bestows on a faculty member. In addition, the Stefan S. Fajans/GlaxoSmithKline Professorship in Diabetes was established in the MEND Division in 2003 with William Herman, MD, MPH, as its recipient.

Another U-M honor is the Annual Stefan S. Fajans Lectureship in Diabetes, which was established in 2010 to pay tribute to Dr. Fajans’s remarkable professional and personal accomplishments. This annual lecture recognizes a renowned diabetes investigator and/or physician who has made significant contributions to the field.
D. EDUARDO SCHTEINGART, MD

David Eduardo Schteingart, MD, received his medical degree from the University of Buenos Aires School of Medicine and proceeded to a fellowship in medicine at Mount Sinai Hospital in New York City and an endocrinology fellowship at Maimonides Hospital in Brooklyn. He was recruited to the University of Michigan by Jerome Conn, MD, in 1959. What began as a second residency and endocrinology fellowship became a lifelong professional career at the University of Michigan. He became professor of Internal Medicine in the MEND Division in 1973 until his retirement as an emeritus faculty member in 2010.

Dr. Schteingart authored 98 publications in peer-reviewed journals, 33 book chapters, and 80 abstracts. His interests ranged from basic science studies using cell lines and animal models to clinical endocrinology of the adrenal gland, including Cushing’s Syndrome, adrenal adenomas, adrenal cancer, and the biology of stress. Together with his wife of more than 50 years, Dr. Monica Starkman of the Michigan Department of Psychiatry, Dr. Schteingart’s NIH-funded collaborative research focused on brain effects of chronic glucocorticoid exposure, using Cushing’s disease as a model. They were the first to show the effect of glucocorticoid excess on the hippocampus and its reversibility after normalization of cortisol levels. Dr. Schteingart gained widespread recognition in the field, and he served as associate editor for the Adrenal Section of the Year Book of Endocrinology, as well as a reviewer for multiple medical journals.

Dr. Schteingart was a recognized international expert in the treatment of adrenal cancer. With support from U-M football coach Bo Schembechler in honor of Schembechler’s wife, Millie, who was stricken with adrenal cancer, Dr. Schteingart founded the Millie Schembechler Adrenal Cancer Program in 1993 and served as its director through 2005. He and his collaborators went on to publish collectively in the New England Journal of Medicine, and the U-M Adrenal Cancer Program gained national and international recognition for its leadership in the management of patients with this rare disease. From these beginnings emanated the current Endocrine Oncology Program of the U-M Comprehensive Cancer Center.

Dr. Schteingart first established the U-M NIH-funded K30 Clinical Research Curriculum program and the NIH-funded K12 Clinical Scholars Program. As director of these training programs, Schteingart supported and trained more than 100 young investigators in clinical research across disciplines, including individually mentoring many of them himself. In March 2012, Dr. Schteingart was honored with a special Lifetime Achievement Award for Mentoring in Clinical and Translational Research from the Michigan Institute for Clinical & Health Research (MICHR) for his commitment to excellence in research training.

Ed Schteingart showed a never-give-up spirit in his academic and personal life. He was committed, through and through, to the essential missions that make the U-M Medical School and the Department of Internal Medicine strong: care of people who needed him, the quest for knowledge, and the passing of that knowledge to others.
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