internal medicine
CONTINUED RECOGNITION
When U.S. News & World Report recently released their rankings of medical schools and medical school specialties, the U-M Department of Internal Medicine was ranked 6th overall nationally, tying our rank for last year, and a repeat of our highest rank in more than 10 years. U-M’s Medical School tied for 10th overall for research medical schools, and 8th overall for primary care medical schools. This recognition by our peers and others is a testament to our efforts to make U-M the best place for education and training, for clinical care, and for research.

This past year, 2011, was no exception. Some of our most notable efforts included:

MAKING U-M A DESTINATION
Our 2011 annual report’s theme is “Destination Internal Medicine.” I wanted to feature our department’s participation in numerous Destination Programs, or Centers of Excellence, that are being highlighted by the U-M Health System. These amazing multi-disciplinary programs are bringing the best of U-M’s research and clinical care expertise together to create the ideal patient experience (page 22).

ADDRESSING NATIONAL EPIDEMICS
Two stories in this year’s report focus on how our department is contributing to groundbreaking work addressing health issues that are contributing to major health problems throughout the U.S. population. One describes our work with U-M’s Sleep Disorders Center (page 31) and the other details our leadership and extensive research efforts related to metabolic diseases such as obesity (page 40).

RESEARCH GROWTH
Our research funding and efforts are still going strong. Some of our research groups have moved or are planning to move to U-M’s North Campus Research Complex to take advantage of NCRC’s new facilities and their many advantages (page 50).

BUILDING A STRONG FOUNDATION
Internal Medicine continues to play a vital part in cultivating the next generation of clinicians and researchers through our extensive role in teaching at the U-M Medical School (page 58) and in our training of 280 residents and fellows (page 14).
PIONEERING ACOs
Two Internal Medicine faculty Caroline Blaum, MD, and David Spahlinger, MD, have been dedicated to exploring how Accountable Care Organizations (ACOs) can save money while improving patient care through demonstration projects at U-M. Their efforts have been so successful that U-M has been chosen as the site of the Centers for Medicare & Medicaid Services Innovation Center’s Pioneer ACO Model (page 36).

NEW APPOINTMENTS
Raymond Yung, MB, ChB, was appointed as Chief of the Division of Geriatric and Palliative Medicine and Co-Director of the Geriatrics Center on Nov. 1, 2011. He succeeds Jeffrey B. Halter, MD, who served as Chief of the Division of Geriatric Medicine since its inception in 1984 and remains Director of the U-M Geriatrics Center (page 74). The Division of Rheumatology announced the appointment of Dinesh Khanna, MD, MS, as Director of the Scleroderma Program in July 2011. Khanna is Associate Professor of Medicine and Marvin and Betty Danto Research Professor (page 75).

HONORING FACULTY
Our department is pleased to announce that the Laurence H. Baker Collegiate Professorship in Cancer Developmental Therapeutics in the Division of Hematology/Oncology has been established in recognition of Dr. Baker’s impressive contributions to medical oncology and his leadership in clinical cancer research, patient care, and education at U-M (page 76). After four decades of extraordinary service to U-M and the Division of Gastroenterology, Timothy T. Nostrant, MD, retired from active practice to join his family in South Carolina. The department hosted a two-day event last fall to celebrate his career, achievements, and many contributions at U-M (page 77).

A FEW FAREWELLS
Our department sadly lost two outstanding faculty members this past year. Giles G. Bole, an emeritus faculty and former Dean of the U-M Medical School who specialized in arthritis research and rheumatology, passed away on June 8, 2011. Galen B. Toews, MD, FACP, a pioneering lung researcher who led our Division of Pulmonary and Critical Care Medicine for more than 20 years, passed away Oct. 12, 2011. They both contributed significantly to our department and will be dearly missed (page 78).
After several years of major growth our clinical programs remained relatively stable in 2011. The amount of ambulatory care services provided dropped slightly while our specialty care services both on- and off-site continued to grow. While our outpatient facilities in Ann Arbor (Briarwood and Domino’s Farms), Livonia, and Brighton continue to perform well, there are new efforts to establish facilities in the Northville area. In addition to this, there are several other plans underway that will help us meet our patients’ growing needs and improve their care experience.

NORTHLVILLE EXPANSION
The U-M Health System is expanding its primary and specialty patient care in Metro Detroit with the construction of a new $39 million health center in Northville Township, near our existing Livonia Center for Specialty Care.

HOSPITAL ADMISSIONS

Health System’s newest health center will also offer a new musculoskeletal program combining the specialties of rheumatology, orthopedic surgery, and physical medicine; eye care; radiology services; an infusion for cancer and non-cancer treatment; and a medical procedure unit.

TAUBMAN UPGRADES
When the new C.S. Mott Children’s Hospital and Von Voigtlander Women’s Hospital opened this past December 2011, outpatient clinics for women, newborns, and children moved there—opening up nearly 30,000 square feet of space in the Taubman Center.

2011 Internal Medicine Annual Report
The U-M Health System is investing $20.5 million to renovate, reorganize, and revitalize this space.

The south end of the first floor will be converted to a multidisciplinary Transplant Center clinic by the end of summer 2013. This will provide one-stop access to specialized care for patients who are waiting for or have received an organ transplant at UMHS. Also new will be an outpatient infusion area. This will be the third such clinic opened by UMHS to help meet rising demand for such care.

As part of this effort, there are plans to update and redesign 27,500 square feet on the third floor where many clinics run by the Department of Internal Medicine will be renovated to improve the patient experience and the efficiency of clinic operations. This includes areas for gastroenterology, general medicine, pulmonary medicine, nephrology, infectious diseases and overseas travel, medical genetics, and rheumatology.

**STRATEGIC PLAN**
The Health System released the core of the UMHS Strategic Plan and five of the seven clinical focus areas involve Internal Medicine. They include transplant, critical care medicine, digestive diseases, cardiovascular medicine, and oncology.

**PIONEER MODEL**
It was also announced in 2011 that U-M will participate in the Pioneer Accountable Care Organization (ACO) model, in partnership with IHA Health Services Corporation. The Pioneer ACO Model is sponsored by the Centers for Medicare & Medicaid Services (CMS) Innovation Center. U-M and IHA will work with CMS to provide Medicare beneficiaries with higher quality care, while reducing growth in expenditures through enhanced care coordination. Caroline Blaum, MD, Professor of Internal Medicine and Geriatrics will serve as the Medical Director of the U-M/IHA Pioneer ACO (page 36).

It is through these many efforts to grow, improve, collaborate, and innovate that the U-M Department of Internal Medicine continues to provide some of the best patient care and clinical programs in the state and the nation.
The Department of Internal Medicine has realized phenomenal growth over the past four academic years. We continue to increase the size of our clinical faculty while our research faculty numbers are stable. The chart at right breaks down that growth by year and by faculty type. In total, the department has added 97 positions during this period.

ADVANCING DIVERSE PERSPECTIVES
The diversity of the faculty within the Department of Internal Medicine has been slowly expanding. The number of women and under-represented minorities in our higher academic ranks have been increasing gradually. The effort to increase diversity continues through initiatives that develop strategies to seek out and recruit the best faculty candidates from all demographic groups.

DEVELOPING CAREERS
The Department continues to utilize peer review committees to deliver constructive criticism to the faculty. A Promotions Committee assesses faculty members’ academic progress and a general Performance Review Committee appraises all aspects of their professional activities. To assist the faculty in improving their professional abilities, the Department has been developing leadership training programs that among other areas emphasizes improving communication skills.

We have been strongly supporting the general efforts of the Medical School that launched a new faculty career development website this past year. This is just the first component of a comprehensive faculty career development program currently being created. The site...
includes resources to help faculty with teaching, professional writing, acquiring research funding, and gaining prominence in their respective fields. There are plans to assemble networking groups so faculty can share experiences and advice with colleagues who hold similar interests and aspirations. Leadership development workshops are being established in partnership with the U-M Ross School of Business.

BUILDING DESTINATIONS
This year, our annual report is highlighting the U-M Destination Programs (page 22). The core of these efforts relies heavily on the Department’s high-quality faculty who are a major driving force behind these programs, having laid the groundwork upon which they are built. It is the talents, ideas, and dedication of our faculty that are bringing these programs to life by linking cutting-edge research to improving patient care.
The VA Ann Arbor Healthcare System continued to experience a significant increase in both outpatient and inpatient activity in 2011. There was a four percent increase in total unique patients, a five percent increase in outpatient visits, and an over three percent rise in the number of patient admissions. Through several ongoing initiatives and efforts, we’ve been able to keep our readmission rates steady, decrease length of stay, and continue to improve the patient-care experience this past year.

**FACILITY IMPROVEMENTS**

From a clinical standpoint, we have been making many improvements to our facilities. We were even joined by Michigan Governor Rick Snyder at the opening of our new chemotherapy infusion center in the fall of 2011. This $763,000 project, funded by the American Recovery and Reinvestment Act of 2009, features 16 treatment chairs and a vast amount of improvements and amenities for our patients and their families. Steps are also being taken to improve the situation for short-term stays with an observation unit of eight beds opening in the summer of 2012. Construction has started on the new 28-bed unit that is being added on our sixth floor. It is slated to open in early 2013.

**INITIATIVES**

**HOPE Initiative**

Sanjay Saint, MD, MPH, Associate Chief and Professor in the Division of General Medicine, has been working with Eric Young, MD, VAAAHS Chief of Staff, to lead the Hospital Outcomes Program of Excellence (HOPE) Initiative, which is funded by a Systems Improvement Capability Grant from the VHA Office of Systems Redesign. The HOPE initiative aims to create a stellar inpatient service that could eventually become a national and international model for how inpatient care should be provided in an academic setting. Preliminary results from this collaboration show decreased readmission rates, shorter room turn-over time, improved prevention of catheter-associated urinary tract infections, and improved communication between physicians and nurses. As a result of this preliminary success, the HOPE initiative was asked to provide data to the Office of Systems Redesign for a presentation by Robert Petzel, MD, VHA Under Secretary for Health, to Congress in April 2011.

**SCAN-ECHO Initiative**

Specialty Care Access Network - Extension of Community Healthcare Outcomes (SCAN-ECHO) is a specialty care transformative initiative from the Office of Specialty Care Services, Department of Veterans Affairs. Through this initiative, the Ann Arbor VA Liver Clinic, directed by Grace Su, MD, Associate Professor in the Division of Gastroenterology, is exploring innovative new ways to provide state-of-the-art care for veterans with liver disease. Using videoconferencing, SCAN-ECHO providers...
can evaluate and treat veterans in rural areas with chronic liver diseases without the cost and inconvenience of the patient traveling to the VA facility.

**NEW FACULTY**  
*William (Rick) Weitzel, MD*, a Professor in the Division of Nephrology recently joined the VA faculty as a physician and a researcher. His clinical interests include end stage renal disease and vascular access for dialysis. He conducts research in many areas of medical device development for application in patients with renal and vascular diseases.

**RESEARCH NEWS**  
*Ernesto Bernal-Mizrachi, MD*, an Associate Professor in the Division of Metabolism, Endocrinology & Diabetes and the Larry D. Soderquist Professor, recently received a research grant to support a shared effort between U-M and the VA. He has secured more than $1.3 million in funding from the National Institute of Diabetes and Digestive and Kidney Diseases for a four-year project titled “Nutrient Signals and Programming of Pancreas Development.” The project will study the processes by which certain conditions in the womb increase the potential for the fetus to develop glucose intolerance and type 2 diabetes during adult life. Although a primary developmental problem with beta cells has been described in the research literature, the overall *in utero* process for the increased susceptibility to diabetes is not yet well understood.

As the VAAAHS continues to evolve to meet the changing health care needs of veterans today, our dedicated faculty continue to provide expert care and develop exciting new ideas that will make a difference well into the future.
While the current funding forecast remains stable, there are many developments within the health system, the medical school, and our department, that continue to promote basic and translational research excellence that gets U-M recognized.

**NCRC OPPORTUNITIES**

They include the continued development of programming at the new North Campus Research Complex (NCRC). Its high-tech laboratory and research spaces are providing a wonderful opportunity to expand our basic and translational research programs. Having access to this valuable asset will also be a tremendous recruitment tool as we add programs that attract even more talented scientists to U-M. Due to restricted space on our main campus, we have already started to actively relocate some research programs to the NCRC. Our first group from the cardiovascular center moved there in October 2011 (see story on page 50).

**FEDERAL FUNDING**

Federal funding also remains strong. Research at the U-M Medical School brought hundreds of millions of dollars into the state of Michigan in 2011. The school ranked sixth among all medical schools in total funding from the National Institutes of Health and second among medical schools affiliated with public universities. This is U-M’s fourth consecutive year in the top 10.

U-M medical researchers were awarded $319.7 million in NIH funding in federal fiscal year 2011. From all sources, including industry, foundations, and other federal and state agencies, the school received $490.5 million in fiscal year 2011. Those dollars fund U-M research projects on everything from stem cells and genetics to specific diseases such as cancer, diabetes, heart disease, children’s health, depression, and a broad range of rare disorders. Department of Internal Medicine researchers are well represented among this group.

**DIABETES RESEARCH**

One of the newest large federally funded projects is a $3.5 million effort to study how diabetes disrupts the basic function of tissues in many areas of the body that is led by kidney specialist Frank C. Brosius, MD, Chief of the Division of Nephrology (see page 40). Just as diabetes impacts several systems of the body, the U-M research team represents a varied group of experts. Brosius, along with diabetes and obesity specialist Charles Burant, MD, PhD;
neurologist Eva L. Feldman, MD, PhD; ophthalmologist Thomas W. Gardner, MD, MS, of U-M's Kellogg Eye Center and Assistant Professor of Internal Medicine Subramaniam Pennathur, MBBS, will lead the consortium of investigators.

Their study is using the infrastructure of the Michigan Metabolomics and Obesity Center. This center has developed technology for assessing the utilization of different metabolites by tissues in animals and in humans, which may be the basis for the development of complications of diabetes.

As you can see from some of the events of the past year, Internal Medicine's basic and translational research programs are continuing to grow and flourish. We are hopeful that these developments will allow our faculty to make scientific breakthroughs that can truly transform and improve patient care.
There were many exciting developments in clinical research for the Department of Internal Medicine on both a global and local level this past year.

MAKING PROGRESS IN PEKING
In September 2011, James O. Woolliscroft, MD, Dean of the U-M Medical School led a delegation of Medical School researchers on a trip to Peking University Health Science Center (PUHSC) in Beijing, China, for a symposium celebrating the one-year anniversary of the schools’ Joint Institute for Translational and Clinical Research. Researchers visited laboratories, made progress on established projects, and discussed opportunities for the future.

For Department of Internal Medicine researchers already engaged in Joint Institute projects focused on heart, liver, and lung disease, this was a chance to move them forward. The three-day symposium provided us with a chance to meet with our Chinese partners. We all gained a better understanding of the facilities, workflow, and culture at our collaborating sites. There is tremendous enthusiasm and energy around the collaboration. I personally came away with great confidence that our project will work, and that we can rely on our Peking University colleagues to give it their best effort. Given that PUHSC has about 10 patients for every one of ours, there is tremendous potential to advance clinical research through this partnership.

In addition to investigators from the Joint Institute projects, the University of Michigan team was joined by faculty from the Medical School, Dental School, School of Nursing, and School of Public Health, who are interested in establishing collaborations with colleagues at PUHSC.

REVIVE-IT STUDY
The U-M Cardiovascular Center and the University of Pittsburgh were awarded $13.3 million by the National Heart, Lung, and Blood Institute and HeartWare, a maker of left ventricular assist devices, to conduct a clinical study comparing whether patients with heart failure less advanced than that of current LVAD recipients and ineligible for a heart transplant do better with implanted devices than with current medical therapy.

REVIVE-IT principal investigators from U-M include Keith Aaronson, MD, MS, Medical Director of the Heart Transplant Program and Center for Circulatory Support; and Francis A. Pagani, MD, PhD, Surgical Director of U-M’s Heart Transplant Program and the Center for Circulatory Support. This exciting pilot study will include 100 patients from selected hospitals across the United States, including U-M and Pittsburgh.

CLINICAL RESEARCH SUPPORT
We continued to provide guidance and improve our clinical research support systems.
in 2011. Many of our clinical research coordinators and technicians expressed a need for more formal training and a systematic orientation. We started a Study Coordinator Network, which now has more than 100 members that meet at annual luncheons and have quarterly forums on focused topics to provide training for new coordinators or new research policies and to share best practices. A study coordinator committee that meets monthly was also established.

We also continue to provide Internal Medicine faculty with proper training and resources so they can efficiently conduct research studies while remaining compliant with changing rules and regulations and protecting our patients. Through our partnership with the Michigan Institute for Clinical & Health Research, we’ve been providing new faculty orientations that give an overview of the responsibilities of principal investigators and the many resources at U-M. We also work closely with them on providing supplemental funding for faculty who successfully secure pilot grants.

The Department of Internal Medicine began many promising projects and helpful programs during 2011. We hope that these efforts will allow us to continue to grow clinical research at U-M, provide and evaluate new treatments, and remain leaders in patient care.
This year was marked by our continued growth, pursuit of excellence, and adjustment to new changes.

**INCOMING RESIDENTS**
The number, diversity, and caliber of our residency candidates continues to climb. The Internal Medicine Residency Program welcomed 53 incoming interns in June 2011, including 13 graduates of the U-M Medical School along with other top tier medical schools. Of this group, 32 percent are newly elected members of the Alpha Omega Alpha Honor Medical Society and 16 individuals have earned additional advance degrees. The program also recruited six outstanding MD, PhD graduates for the Physician Scientist track. Three of the incoming interns are with us 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.

This select group came from more than 2,700 applicants—an increase from years past; of which, approximately 480 medicine and medicine-pediatric candidates interviewed with our faculty and program leadership from November 2010 through January 2011.

**CHIEF MEDICAL RESIDENTS**
Every year the Department of Internal Medicine and Medicine-Pediatrics Residency Programs assign new Chief Medical Residents to an administrative role in their respective programs. For 2011, the CMRs for Internal Medicine are Timothy Bodnar, MD; Sophia Califano, MD; Anneliese Flynn, MD; and Javier Valle, MD. In the Medicine-Pediatrics program, the Chief Resident is David Stewart, MD. These residents were selected based on their outstanding performance during their residency period and strong commitment to their respective programs.

**NEW PROGRAM DIRECTORS**
Our residency program remains one of the top programs in the country, thanks to the expert guidance of our program directors, including two recently named ones, to enhance and refine our educational offerings. Anna Booher, MD, has been appointed to the Internal Medicine Residency Program as Assistant Program Director for Career Development. She completed her residency training here at the University of Michigan, including a year as a chief resident, and is now a member of the Cardiology Faculty. Her clinical interests include echocardiography, general cardiology, and aortic disease. Dr. Booher will be working with our residents on
career development through mentoring, retreats, and other educational activities. In addition, she will assist with resident advising and program.

Adam Tremblay, MD, has increased his involvement with the residency program to now serve as the Associate Program Director for Outpatient Programs. He completed his residency training here at the University of Michigan and is currently a member of the General Medicine faculty. He has been working with the training program for a few years to coordinate the medicine services at the VA hospital and will continue to do so. Dr. Tremblay will work with the training program to facilitate direction of the resident primary care clinical experience through our on-site, VA and community-based general medicine clinics. He will also be involved with resident advising and recruitment.

NEW LEADERSHIP
I would also like to thank James Beck, MD, for his many contributions as the Director of the Internal Medicine Fellowship and the Physician-Scientist Program. We welcome Subramaniam Pennathur, MBBS, as the new Director for both the fellowship and the program.

ACGME CHANGES
Our program instituted the Accreditation Council on Graduate Medical Education’s major duty hour change in July 2011. This has led to many changes in our program structure. Everyone has worked extremely hard to adjust to the changes. As we finish our first year of this new approach, we continue to evaluate its impact and make refinements as needed to our call structure and teaching methods.

2011 Residents/Clinical Fellows

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<tr>
<td>Cardiology (Core)</td>
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<td>Internal Medicine CORE</td>
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<td>Total Residents/Fellows:</td>
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</table>
DEPARTMENT OF INTERNAL MEDICINE DIVISION CHIEFS

Front row (left to right): Peter Arvan, MD, PhD (Metabolism, Endocrinology & Diabetes); Frank Brosius III, MD (Nephrology); John Carethers, MD (Chair of Internal Medicine); David Pinsky, MD (Cardiovascular Medicine); and Powel Kazanjian, MD (Infectious Diseases). Back row (left to right): Chung Owyang, MD (Gastroenterology); Raymond Yung, MB, ChB (Geriatric & Palliative Medicine); David Fox, MD (Rheumatology); Theodore Standiford, MD (Pulmonary & Critical Care Medicine); Kathleen Cooney, MD (Hematology & Oncology); Laurence McMahon, Jr., MD, MPH (General Medicine); Eric Fearon, MD, PhD (Molecular Medicine & Genetics). Not shown: James Baker, Jr., MD (Allergy & Clinical Immunology)
DEPARTMENT OF INTERNAL MEDICINE ASSOCIATE CHAIRS

(left to right): Benjamin L. Margolis, MD (Basic & Translational Research); Timothy J. Laing, MD (Clinical Programs); Cyril Grum, MD (Undergraduate Medical Education); John Del Valle, MD (Graduate Medical Education); John Carethers, MD (Chair of Internal Medicine); Richard H. Simon, MD (Faculty Affairs); Richard H. Moseley, MD (VA Programs); Anna S. F. Lok, MBBS, MD (Clinical Research); and Musty Habhab (Department Administrator)
DEPARTMENT OF INTERNAL MEDICINE CHIEF MEDICAL RESIDENTS

John Carethers, MD, Chair of Internal Medicine (center) with Chief Medical Residents (l to r): Anneliese Flynn, MD; Javier Valle, MD; Timothy Bodnar, MD; and Sophia Califuno, MD
The Dr. Jacob P. Deerhake Community Service Award
Catherine S. Bonham, MD
Fausta A. Ditah, MD

The H. Marvin Pollard Award for Outstanding Teaching of Residents Award
Theodore J. Iwashyna, PhD, MD

The Excellence in Continuity General Internal Medicine Teaching Award
Barbara Soyster, MD

The John G. Frohna Award for Outstanding Teaching in Medicine-Pediatrics
Namita Sachdev, MD

The Jerome W. Conn Award for Excellence in Research
Thomas Duen-Shyr Wang, MD, PhD

The Paul De Kruif Lifetime Achievement Award
Galen Toews, MD

The Chairman’s Award for Outstanding Service to the Department
Kathleen A. Cooney, MD

The Richard Judge Award for Excellence in Medical Student Teaching
Mary Kleaveland, MD, MPH

Special Recognition for Contributions to the Medical Student Teaching Program award
Seetha Monrad, MD
patient care
Any patient faced with a serious disease or condition would want access to top specialists in the field and to the most advanced treatment options available. While both of these options have always been available at Michigan, the University of Michigan Health System (UMHS) has taken this idea to heart and stepped it up a notch with the concept of Destination Programs. Internally at U-M, the term Destination Programs is being used to describe a group of multidisciplinary clinics that are serving as models for exceptional care delivery. To the world at large, they represent the very best of what UMHS has to offer: Faculty experts providing multispecialty care through innovative clinical programs and cutting-edge research—all focused on providing the best patient care possible.

The first cohort of seven Destination Programs was selected and launched in September 2008. Through 2011, the list has grown to 19 programs, 12 of which involve the leadership or participation of Department of Internal Medicine faculty (see highlight box on page 28).

COORDINATED, MULTISPECIALTY PATIENT CARE
In order to become a true destination, UMHS has made a system-wide commitment to creating the ideal patient experience. As models of this effort, the Destination Programs provide patient care representatives to help organize the flow of patient activities. They work directly with patients and coordinate schedules with many departments and services to ensure each patient receives the care needed during their time in Ann Arbor. They also help with accommodations and travel planning if needed.

This streamlined patient experience is also, in part, made possible by the structure of the multidisciplinary clinics. Due to the complexity of the conditions served, each clinic is staffed by a team of specialists from all areas related to the disease that work together to diagnose and provide the best treatment plan possible for the individual patient all in one location—and, in some cases, all in the same day.

For instance, U-M’s Multidisciplinary Aortic Program serves patients with aortic diseases including aneurysms, dissection, and stenosis. Anna Booher, MD, an Assistant Professor in the Division of Cardiovascular Medicine, who provides care for the diagnosis and management of non-surgical cases in the program explains, “If any of my patients do require surgery, it’s a seamless process. They have access to both excellent surgeons and cardiologists for longer term care and follow up. We all work together as their team. The program brings together specialists from cardiac surgery, cardiovascular medicine, hypertension, vascular surgery, and vascular/interventional radiology that work together to formulate a comprehensive plan for each patient, which may include an intervention, surgery, or a medical approach.”
The Multidisciplinary Interstitial (Fibrotic) Lung Disease (ILD) Program, co-directed by Professor Fernando J. Martinez, MD, MS, and Associate Professor Kevin R. Flaherty, MD, MS from the Division of Pulmonary and Critical Care Medicine, encompasses a broad range of lung diseases involving the inflammation and scarring of lung tissue. A multi-specialty approach to the diagnosis and treatment of ILD is required to most effectively care for these patients. The program has a bi-weekly meeting where cases are reviewed by clinicians, thoracic radiologists, cardiologists, and pulmonary pathologists in order to discuss diagnosis and treatment options, including the need for further testing.

“We’ve been doing this for more than 20 years now and have established the standard of care for diagnosis in these disorders used globally. As our clinic has grown and become more multidisciplinary, we can provide the most comprehensive approach to diagnosis and introduction of innovative therapies for these complex diseases. Through new therapeutic studies and our broad range of services, we can provide patients with information regarding what they have, how bad it is, what will likely happen over time and how to best treat it—all in one place,” explains Martinez.

Similarly, patients facing liver cancer can be seen during a single visit by physicians from...
all of the appropriate disciplines at U-M’s Multidisciplinary Liver Cancer Program where Michael Volk, MD, MS, an Assistant Professor in the Division of Gastroenterology provides care. Following an evaluation with a surgeon, medical oncologist, and/or hepatologist, each case is reviewed by at the Multidisciplinary Liver Tumor Conference—a weekly discussion of patients’ cases by surgeons, liver specialists, medical and radiation oncologists, and radiologists—for careful consideration of all radiological studies, pathologic information, treatment to date, and coordination of other needed studies. An individual treatment plan is then created for each patient.

EXCEPTIONAL CLINICAL PROGRAMS
While U-MHS is home to many exceptional clinical programs, the Destination Programs are prime examples of the vast expertise, experience, specialized care, and resources available at Michigan.

Expertise & Experience
U-M’s Heart Rhythm Center (Arrhythmia Program) directed by Hakan Oral, MD, a Professor in the Division of Cardiovascular Medicine, has been a national and international leader in the treatment of arrhythmias (abnormal heart rhythms) for more than 30 years and is still at the forefront of the field in caring for this common yet life threatening condition. “My mentor and the center’s first Director, Fred Morady, MD, a Professor in the Division of Cardiovascular Medicine, pioneered groundbreaking techniques in catheter ablation at U-M that have made a significant impact on the treatment of arrhythmias worldwide,” explains Oral. “Today, our center performs around 1,000 of these procedures a year and uses the latest research and technology to offer the newest treatments available,” he adds.

The Blood and Marrow Transplantation (BMT) Program at U-M is one of the largest in the country. “More than 200 adult BMT procedures are performed each year to replace damaged or destroyed bone marrow with healthy bone marrow stem cells to treat patients with leukemia, lymphoma, myelodysplasia, neuroblastoma, bone and soft-tissue sarcomas, brain tumors, and other conditions,” explains Daniel Couriel, MD, a Professor in the Division of Hematology & Oncology, who directs the Adult Bone and Marrow Transplant Program. “Now with our updated and expanded facility in C.S. Mott Children’s Hospital, we also offer one of the best transplant facilities in the State of Michigan.”
Specialized Care and Resources
The Multidisciplinary Sarcoma Program plays a vital role in the region due to the rarity of sarcomas—a family of cancers that arise in the body’s connective tissues that affect less than one percent of adults with cancer. If a patient has a sarcoma, they need a hospital with a dedicated program capable of diagnosing and effectively treating this type of cancer. The Multidisciplinary Sarcoma Clinic, which is co-directed by Scott Schuetze, MD, PhD, an Associate Professor from the Division of Hematology & Oncology, with J. Sybil Biermann, MD, an Associate Professor from the Department of Orthopaedic Surgery, cares for a large volume of patients—about 250 new cases annually—with these rare tumors. Most community-based practices see fewer than 10 cases a year.

The Multidisciplinary Endocrine Oncology Program directed by Gary Hammer, MD, PhD, a Professor in the Division of Metabolism, Endocrinology, and Diabetes, is composed of two multidisciplinary clinics, the Adrenal Cancer Clinic and the Thyroid Cancer Clinic, that also serve a very specific niche for patients. “There are only about 500-600 cases of adrenal cancer diagnosed in the United States each year,” explains Hammer. “It’s a rare cancer that requires specialized care and experience. Our program is one of the only fully integrated, interdisciplinary clinics available for patients with adrenal cancer in the world.”

U-M’s Kidney Transplant Program for adults is the first, the largest, and the most advanced in Michigan. It’s considered among the leading programs in the nation in terms of volume, patient survival, and transplant graft survival. “Because of our high volume, decades of experience, cutting-edge therapies and multidisciplinary team of specialists, we can perform transplants on patients who have been turned down by other centers, including people who are ‘sensitized’ due to high amounts of antibodies circulating in their blood,” explains Milagros D. Samaniego, MD, FACP, FASN, a Professor in the Division of Nephrology and the Director of the Kidney and Kidney/Pancreas Transplant Programs at U-M. “Our Michigan Sensitized Candidate Program is able to perform kidney transplants on patients who otherwise might be left with no other options. We can desensitize them by removing these antibodies using medications and a process similar to dialysis, improving
the chances that a donated kidney will not be rejected by their body."

**MAKING PATIENT CARE BETTER TODAY AND TOMORROW**

Another area where few can compete with Michigan in the region is the impact of our strong research programs on patient care. Many patients come to U-M, and in particular to the Destination Programs, for access to advanced treatments and clinical trials that are not available anywhere else. In addition, translational research and data collection taking place through the Destination Programs is helping to shape the future of patient care.

**Clinical Trials**

At any given moment, there are hundreds of clinical trials going on at U-M that are testing new, more effective drugs, therapies, and devices to create better treatments, outcomes, and quality of life for patients.

“Every day we are applying our research strengths to our patients’ care,” explains Volk. U-M’s Multidisciplinary Liver Cancer Program actually developed the radiological (imaging) criteria to more accurately diagnose primary liver tumors. They also have robust federally funded research programs in primary liver tumors and are considered worldwide pioneers in radiation therapy for primary liver tumors. About 15 percent of the program’s patients come from outside of Michigan. Their clinical research and the clinical research at the Comprehensive Cancer Center is a big draw for many in the region.

While over at the Cardiovascular Center, U-M’s Multidisciplinary Aortic Program is currently the only program in Michigan offering two alternatives for aortic valve replacement for patients who are not good candidates for open-heart surgery: the Medtronic CoreValve trial and the Edwards SAPIEN Heart Valve trial.

In spring 2011, physicians performed U-M’s first minimally invasive aortic valve replacement with the implantation of the Medtronic CoreValve Transcatheter Aortic Valve prosthesis on three patients. The U-M study team is lead by Internal Medicine faculty Stanley J. Chetcuti, MD, and Paul...
Michael Grossman, MD, Associate Professors from the Division of Cardiovascular Medicine with colleagues G. Michael Deeb, MD, and Himanshu J. Patel, MD, from the Department of Surgery.

In a new REVIVE-IT clinical study announced in 2011, researchers will compare whether patients with heart failure less advanced than that of current left ventricular assist device (LVAD) recipients and ineligible for a heart transplant do better with implanted LVAD devices than with current medical therapy. Principal investigators from U-M include Keith Aaronson, MD, MS, a Professor in the Division of Cardiovascular Medicine, and Francis A. Pagani, MD, PhD, a Professor from the Department of Surgery. The pilot study will include 100 patients from selected hospitals across the United States, including U-M and Pittsburgh.

Bridging Bench to Bedside

Everywhere you turn at U-M, there are labs and centers working behind-the-scenes and around-the-clock to discover the next big breakthrough in patient care. The Destination Programs are instrumental in promoting translational research, the interactive process between scientists and clinicians working together to inform the bedside about the bench and vice versa.

Dr. Oral’s Heart Rhythm Center works closely with the Center for Arrhythmia Research led by José Jalife, MD, a Professor from the Division of Cardiovascular Medicine. Because patients with chronic atrial fibrillation can be difficult to treat, the center is investigating viable options other than ablation to treat this condition. They’re currently working with cutting-edge technologies to utilize the molecule to find other options. “We have been successful at generating heart cells from a patient with an abnormal heart rhythm in order to study the molecular mechanisms of those cells. We do this by reprogramming the patient’s skin cells to become stem cells and then we modify their genetic makeup so they become heart cells. This is a very exciting breakthrough with many future possibilities," explains Jalife. “Our team is also using mathematical modeling software to create maps of electrical activity in the heart muscle. This research could lead to more precise treatment of areas of the heart muscle where abnormal rhythms might originate,” he adds.

As part of the Blood and Marrow Transplantation Program, U-M’s Extracorporeal Photopheresis Program directed by Couriel is the largest in the world. It researches graft-versus-host disease, a
disorder caused when a newly transplanted immune system attacks the patient’s skin and organs—one of the most common and dangerous consequences of allogeneic transplantation (when stem cells are donated from a genetically matched family member (usually a brother or sister). This research is helping to provide cutting-edge therapies to transplant patients with graft-versus-host disease, as well as lung transplant patients facing organ rejection.

The ongoing work being conducted in Hammer’s laboratory has led to the development of new national and international therapeutic trials with biological-based therapies for adrenal cancer that target the molecular defects in cancer stem cells while sparing normal tissue. “Because we have a cohesive group of scientists and clinicians interested in adrenal biology and clinical care at U-M, it’s been relatively easy to work together to ask clinically pertinent questions that are backed by basic science,” Hammer says. “Our research and clinical trials are working toward creating less toxic treatments for cancer patients.”

Joel Rubenstein, MD, an Assistant Professor in the Division of Gastroenterology, is a recognized expert in the diagnosis and management of Barrett’s esophagus, a precancerous lesion associated with esophageal cancer. His research with the Esophageal Cancer Program is helping to develop efficient management strategies for identifying Barrett’s esophagus. These efforts will help identify esophageal cancer early when it can be more effectively treated and reduce deaths from esophageal cancer.

“In addition to providing enhanced patient care and training opportunities at U-M, the Destination Programs are helping to provide a strong bond, better communication, and coordinated research between disciplines,” explains James Scheiman, MD, a Professor in the Division of Gastroenterology who serves as the GI lead in the Multidisciplinary Pancreatic Cancer Program and has an active research program in early diagnosis of pancreatic cancer. Since current diagnostic techniques can’t reliably distinguish between pancreatic cancer and inflammation, his research is exploring how
James Scheiman, MD

2011 Internal Medicine Annual Report

James Scheiman, MD

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to detect a disease signature for pancreatic cancer through optical spectroscopy. “We hope to develop a device to be used during minimally invasive endoscopies that could identify cancerous changes in pancreatic tissue. This would allow for earlier cancer treatment when needed and prevent unnecessary surgeries when no cancer is detected,” he explains.

Michelle Anderson, MD, an Assistant Professor in the Division of Gastroenterology, also contributes to the Pancreatic Cancer Program through her research on the discovery of markers to detect pancreatic cancer at an earlier stage through minimally invasive approaches such as endoscopic biopsies and blood tests.

Data Collection

In addition to the research taking place at U-M, the size, scope, and specialization of many of the Destination Programs is also providing valuable data and guidelines that are impacting research and patient care on a global scale.

Data and evaluation provided by Martinez and Flaherty from the Multidisciplinary Interstitial (Fibrotic) Lung Disease Program was used to create the international guidelines for the diagnosis and management of idiopathic pulmonary fibrosis published by the American Thoracic Society, European Respiratory Society, Japanese Respiratory Society, and the Latin American Thoracic Association.

The Aortic Program houses and manages the International Registry of Aortic Dissection to help us understand more about this aspect of aortic disease. Researchers can review the registry data and look for trends in this disease process. “Our group also recently established a Bicuspid Aortic Valve registry that is looking at patients with this congenital disease to identify its long-term effects,” explains Booher.

A FUTURE MODEL

The overall concept of the Destination Programs was created with the goal of making UMHS a global destination for exceptional health care. After just a few short years, those involved feel like they’re on the right track.

“We’re serving an important role as models right now. Ideally, the whole U-M Health System should eventually be a Destination Program. It will take time, but we’re headed in that direction,” says Samaniego. Hammer, whose Endocrine Oncology Program was
“The Destination Programs are serving as ambassadors of what U-M does best—they represent and, most importantly, deliver a strong commitment to patient care, access to multiple experts, and cutting-edge care grounded in science. That really is the Michigan Difference.”

If they can continue to combine the best bench-to-bedside research and faculty expertise with multidisciplinary care and ideal patient experiences, there’s no doubt that the Destination Programs will continue to serve as models for the future of health care delivery at U-M and beyond.
Approximately 50 to 70 million Americans suffer from sleep disorders, and the number keeps on growing. The effects of chronic sleep deprivation can be diverse and life-threatening. Lack of sleep is associated with motor vehicle crashes, workplace accidents, and injuries. It is also linked with impairments in cognitive performance and with serious physical ills, including heart disease, diabetes, depression, and obesity.

According to Ron Chervin, MD, MS, Professor of Neurology and Director of the Sleep Disorders Center at U-M, sleep deprivation is one of the most serious health issues facing the nation. "Americans," he notes, "are sleeping less per night with each passing generation. We’re sleeping about two hours less than we did before the invention of the light bulb in 1879, and we’re on the low end of the total sleeping time scale worldwide."

In parts of Scandinavia, for instance, children get two more hours of sleep per night on average than American children do."

Chervin attributes this national sleep crisis to a chronic busyness in our society and a refusal to prioritize sleep, as well as to the absence of sleep education in our schools. Many schools now educate students about proper nutrition, but they don’t emphasize the importance of getting an adequate night’s sleep for learning and overall physical well-being, he says. "When people don’t receive an adequate amount of sleep, neither their brains nor their bodies function well during the day," says Chervin. "Lack of sleep impacts our thinking, our ability to process memories and to modulate emotions, our motor coordination, and our sensory function. Studies conducted more than a decade ago demonstrate that a rat prevented from sleeping will die in about two weeks from multi-organ and immune system failure."

PROVIDING HIGH-QUALITY CLINICAL CARE

At the University of Michigan Sleep Disorders Center, physicians are helping patients with sleep disorders get a better night’s rest. One of the nation’s largest academic sleep

Helena Schotland, MD, created the Michigan CPAP bank at the U-M Sleep Center. The program checks, cleans, and redistributes unused CPAP equipment to patients who otherwise might not have access. CPAP machines are often given to patients with sleep apnea and other conditions that make breathing during sleep difficult.
medicine programs, the Center includes unique multidisciplinary clinics, three state-of-the-art sleep laboratories, and the interdepartmental U-M Center for Sleep Science (CSS), which is devoted to improving treatment for and educating the public about sleep disorders. Comprising 45 faculty members from 15 departments, CSS conducts research in laboratories and clinics across the campus.

One of the most powerful aspects of the sleep program at U-M is its interdisciplinary approach to understanding, diagnosing, and treating sleep disorders. In the Center’s multidisciplinary clinics, patients are seen by faculty from a variety of disciplines, including internal medicine, neurology, pulmonary medicine, psychology, child psychology, behavioral/developmental pediatrics, pediatric neurology, pediatric pulmonary medicine, otolaryngology, oral and maxillofacial surgery, and dentistry. These specialists work together to develop the most effective treatment regimen for each individual patient.

“We have, for instance, a terrific multidisciplinary clinic for patients with obstructive sleep apnea, who cannot tolerate treatment with CPAP” says Helena Schotland, MD, an Assistant Professor in the Division of Pulmonary and Critical Care Medicine. In the Alternatives to CPAP Clinic, patients are evaluated by a team comprised of a sleep medicine specialist, an otolaryngologist, an oral and maxillofacial surgeon, and sometimes a dentist. The team works together to create a therapy regimen for each patient, which might involve surgery to enlarge the airway, nasal surgery, or the use of an oral appliance that fits within the mouth.

Another interdisciplinary clinic—the Behavioral Sleep Medicine Clinic (Insomnia Clinic)—emphasizes cognitive-behavioral therapy as opposed to the long-term use of medications in the treatment of patients with chronic insomnia. In this program, a sleep specialist works with a psychologist who specializes in sleep problems to develop assessment and treatment plans that often need to address multiple underlying issues. Treatment often involves helping patients to
change beliefs that impair their ability to sleep, optimize their sleep schedules, and gain new understanding of sleep practices at home that will foster good sleep.

“When working with patients, I try to make it very clear that beds are for just two activities—sleep and sex—and bedrooms should be quiet, dark, and comfortable,” says Schotland. “I also coach patients to leave the bedroom and engage in a quiet activity when they can’t go to sleep and to only return when they feel drowsy.”

According to Drs. Schotland and Chervin, these kinds of behavioral approaches can be just as effective as medication in treating insomnia. “Studies have shown that cognitive-behavioral therapy can be highly effective for the long-term treatment of insomnia, and sometimes offers more long-lasting benefit than sleeping pills,” says Chervin.

The VA Medical Center also features a Sleep Disorders Clinic, where sleep specialists treat veterans with many types of sleep disorders, including sleep disturbances caused by post-traumatic stress disorder (PTSD). “Many PTSD sufferers develop sleep-related problems, such as severe nightmares and night terrors, related to their traumatic experiences,” says Qurratul A. Shamim-Uzzaman, MD, Clinical Instructor, Departments of Internal Medicine and Neurology and Director of the AAVA Sleep Medicine Program. “As a result, many avoid going to sleep (and sometimes even fear sleep), often staying up all night. And when they finally do fall asleep, their sleep is frequently disrupted by nightmares, dream enactment behaviors, or night terrors.”

PTSD sufferers are often referred to the clinic after they’ve completed a cognitive-behavioral therapy program, but continue to experience sleep problems. “When PTSD sufferers complete a therapy program and still have difficulty with nightmares,” says Shamim-Uzzaman, “we may use a medication called Prazosin, which has proven to be beneficial for these patients.”

The Center also features three large sleep laboratories with private bedrooms and bathrooms for patients, where a staff of more than 50 technologists conduct sleep studies. About 6,000 nocturnal studies are conducted each year. The third sleep laboratory, opened in May 2012 at Domino’s Farms, is designed to provide additional, state-of-the-art facilities for daytime sleep clinic visits and nocturnal sleep studies. This will shorten wait times for clinical sleep services.
In addition to clinical care, the Center is involved in educating both physicians and the general public about sleep disorders and the importance of sleep. One area Center faculty are focused on is including a discussion of sleep during routine primary care visits. “Oftentimes, sleep disorders are overlooked,” says Shamim-Uzzaman. “Sleep apnea may affect up to 18 million Americans, and is associated with both hypertension and stroke; yet this disorder often goes undiagnosed for years. We’re educating doctors to screen for this and other sleep problems as part of the routine check-up.”

ADVANCING TREATMENT THROUGH RESEARCH
Performing research that might lead to improved treatments for sleep disorders is another important aspect of the Center’s activities. Center faculty, for instance, have conducted a number of important investigations on the relationship between sleep disorders in children and disruptive behavior disorders, such as hyperactivity, inattention, and attention-deficit/hyperactivity disorder. These studies suggest that neurobehavioral disorders in children can be caused by undiagnosed sleep disorders and when the sleep disorders are treated, the behavior often improves.

“We have found, for instance, that there is a strong link between snoring in children and hyperactivity. Our data suggest that as much as 15 to 20 percent of children with hyperactivity would stand to benefit if their snoring and any underlying sleep apnea were treated,” says Chervin.

In one study, U-M researchers looked carefully at behavior and cognition in children with sleep-disordered breathing (SDB) before and after they had their adenoids and tonsils removed. “Children scheduled for an adenotonsillectomy often have SDB along with significant behavioral issues and cognitive impairment,” says Chervin. “Our study showed that their behavioral disturbances and performance on cognitive tests often improved one year after the procedure was performed.”

Another study conducted by U-M Medical School researchers demonstrated that urban schoolchildren who display aggressive behaviors are much more likely to experience daytime sleepiness than schoolchildren who don’t bully. According to the researchers, this sleepiness could be caused by a sleep disorder, such as SDB, or it could be caused by other factors, such as not getting enough sleep because of a chaotic home environment or stimulus from electronic devices. Although further research is needed, the study suggests that aggressive behavior in children might be reduced by efforts to help them get an adequate night’s sleep.

Center researchers are also working to improve understanding of sleep disorders in adults. For instance, a collaborative research project led by Associate Professor of Neurology Louise O’Brien, PhD, involves both the Center and the Department of Obstetrics and Gynecology. Results show
that one out of three pregnant women experience frequent snoring, a major symptom of sleep-disordered breathing, by their third trimester. Findings demonstrate that this snoring is associated with increased risk for gestational hypertension and pre-eclampsia, two blood pressure disorders seen by obstetricians every day. Research by Dr. O’Brien’s team has also shown that restless leg syndrome, a disorder in which there is a need to move the legs to stop unpleasant sensations, is common in late pregnancy (35 percent) and predictive of poor sleep quality and daytime functioning.

Given that blood pressure disorders during pregnancy can raise fetal morbidity and mortality, and cost the health care system millions of dollars each year, studies are now underway to determine the effect of maternal sleep problems on newborns, or the children they are destined to become. Treatment intervention studies are in progress to assess whether improvement in maternal sleep has a positive effect on both the health of the mother as well as her baby.

These and other groundbreaking studies have significantly advanced our understanding of sleep, its disorders, and the harmful effects of sleeplessness on the mind and body. “Sleep medicine is a new, rapidly growing, and exciting field that already helps so many people,” says Chervin. “Our research aims are to innovate evaluations and treatments that are even more effective.”

“There is no more exciting place to do this than the University of Michigan. With the support of a large, diverse, and talented faculty (including many from the Department of Internal Medicine); significant research funding from the federal government; and generous contributions from Michigan residents who are committed to helping to advance human health through improving sleep, we hope to have substantial positive impact on local, national, and international sleep health.”
CUTTING COSTS WHILE IMPROVING CARE:
Internal Medicine Faculty to Lead Pioneer Accountable Care Organization at U-M

In late 2011, it was announced that the University of Michigan Health System will be participating in the Pioneer Accountable Care Organization (ACO) model, a transformative new initiative sponsored by the Centers for Medicare & Medicaid Services (CMS) Innovation Center. In partnership with IHA Health Services Corporation, an Ann Arbor, Mich.-based multi-specialty group practice, U-M will work with CMS to provide Medicare beneficiaries with higher quality care, while reducing growth in Medicare expenditures through enhanced care coordination. Caroline Blaum, MD, Professor of Internal Medicine and Geriatrics, will serve as the Medical Director of the U-M/IHA Pioneer ACO.

The Pioneer ACO Model is designed to encourage the development of ACOs, where groups of doctors and other healthcare providers work together to provide high quality care for their patients. U-M and IHA are among top health care organizations from around the country, that were chosen by CMS to test the effectiveness of several models of payment in helping organizations make a rapid transition to higher quality care at a lower cost to Medicare.

BUILDING ON OUR SUCCESS
This new effort will build upon U-M’s recent success with the Medicare Physician Group Practice Demonstration. During that five-year project, U-M’s Faculty Group Practice, which includes nearly 1,600 U-M faculty physicians who care for patients at the three U-M hospitals and 40 U-M health centers, saved Medicare more than $22 million on the cost of care for patients. Of the ten groups that participated, U-M was one of only two that earned shared savings during all five years of the demonstration. And in the last year of the project, U-M scored a 98 percent grade on quality measures. U-M’s Faculty Group Practice also currently is participating in a similar project known as the PGP Transition Demonstration.

David Spahlinger, MD, Senior Associate Dean for Clinical Affairs and Director of the U-M Faculty Group Practice, says the results of the Demonstration show there are ways to cut costs but also improve quality of care. “U-M achieved both of the project’s aims: to provide the highest-quality care and reduce health care spending growth for all traditional Medicare patients, including those with costly chronic illnesses,” he explains.

AND NEW PROGRAMS AND INITIATIVES
The Medicare Physician Group Practice Demonstration at U-M began by focusing on the quality of care for patients with diabetes, but expanded in its second year to include congestive heart failure and coronary artery disease—both chronic heart conditions that carry a very high risk of emergency hospitalization and other higher-cost care if not managed appropriately. Since the third year, the project has included hypertension—another high-risk and costly condition—and breast and colorectal cancer screenings.
U-M has also launched a number of new programs to help improve care for all patients, including transitional care programs designed to assist patients with hospital discharge information and follow-up activity. Also started were complex care coordination programs designed to reduce unnecessary treatments, readmissions, handoffs, and wait times, as well as a medical home program where a patient and his or her personal physician partner to identify, provide, and coordinate all needed services across multiple locations and settings. Many of the programs and innovations put in place involved not only physicians but also pharmacists, nurses, social workers, care managers, and others who are involved in the care of Medicare patients at all U-M facilities.

"By virtue of our Demonstration’s success, U-M already has set up an ACO," explains Blaum. “The Pioneer model will help us build upon this experience and allow us to continue to improve the quality and efficiency of care we provide our patients and their families.”

Under the Pioneer ACO Model, CMS will provide incentives for participating health care providers who form an organization to coordinate care for patients. Providers who band together through this model will be required to meet quality standards based upon, among other measures, patient outcomes and care coordination among the provider team. Robust quality measures and other criteria will be used to reward ACOs for providing beneficiaries with a positive patient experience and better health outcomes, as well as for reducing growth in Medicare expenditures for the same patient population.

"U-M has already had longstanding partnerships with IHA. They’re one of the largest, fully integrated multi-specialty groups in southeast Michigan. We’re looking forward to a successful collaboration that will give both of our organizations a voice in how ACOs are developed over time," adds Blaum.
research
Metabolic Syndrome
How Internal Medicine researchers are chipping away at this pervasive and pernicious cluster of high glucose, high blood pressure, dyslipidemia, and central obesity

In many ways, metabolic syndrome—the grouping of factors that increase risk for type 2 diabetes, heart disease, and stroke—is a paradox. On one hand, almost any grade-schooler could tell you how to tackle it: Eat better and exercise. On the other, we don’t truly know why this is so hard to do—nor do we know why the 35 percent of us who meet the criteria for metabolic syndrome are more prone to an array of complications in tissues as varied as the kidneys, eyes, nerves, heart, liver, and joints.

But researchers throughout Internal Medicine are hoping to remedy that. They are looking in unprecedented scope and detail at everything from the root causes of obesity to how metabolic syndrome instigates tissue damage to how lifestyle interventions can change disease progression.

Molecular Underpinnings of Metabolic Syndrome and Its Complications
The thing about metabolic syndrome is that because it’s not a disease in its own right, it can be easy to ignore. The danger in this, many researchers point out, is that the same kinds of organ damage that happen in diabetes are already beginning in the glucose-rich milieu of metabolic syndrome. What happens on a conceptual level is characterized by Charles Burant, MD, PhD, Professor of Internal Medicine (Metabolism, Endocrinology, & Diabetes [MEND]), Molecular & Integrative Physiology, and Environmental Health Sciences; Dr. Robert C. and Veronica Atkins Professor of Metabolism; and Director of the Michigan Nutrition Obesity Research Center. “Metabolic syndrome is simply a physiological response to too much nutrition,” he says. “When you’ve gotten to a point where you can’t store any more fats and sugars, bad things start happening. You start getting metabolites being made within tissues that are associated with the over-activation of various pathways. These pathways normally play very important roles in the cell. But when they are chronically activated, it leads to inflammation, the production of reactive oxygen species, and other processes that result in insulin resistance. This can really damage tissues.”

Looking at this process at a granular level in terms of what happens to these excess nutrients, which metabolic pathways they influence, and how this results in tissue damage is the subject of a number of research efforts, including a $3.5 million multi-disciplinary DP3 grant from the National Institute of Diabetes and Digestive and Kidney Disease. This grant will allow researchers from Internal Medicine and departments like Ophthalmology and Neurology to determine what it is about this specific “milieu” that leads to complications—and what can be done to prevent it.

Tissue-Specific Complications
The Kidneys
One of the divisions working hard on these questions is Nephrology, including Frank Brosius, MD, Chief of Nephrology and...
Using both bottom-up (metabolomic) and top-down (genomic) approaches, they’re generating important new insights.

For example, by comparing the metabolic byproducts of hyperglycemic patients with advanced kidney complications to those without, they’ve identified two unexpected things. First, that glucose metabolism seems to be ramped up in the kidneys of those with complications. And second, that the situation is actually reversed in the tissues of the nerves and retina. “This was surprising,” says Brosius. “The paradigm in complications research has been that all the microvascular complication-prone tissues—the eyes, nerves, and kidneys—were likely to have the same underlying mechanism of disease. So we would have predicted increased glucose metabolites in all three tissue types.”

To figure out what’s happening, they’re conducting flux experiments in which they’ll follow labeled glucose through the entire glucose metabolic pathway to see whether metabolism is truly revved up in the kidneys or whether metabolites are just building up there because of a block in the cycle. They want both to understand the disease mechanisms and to develop a metabolomic profile that will identify which patients are prone to kidney injury. That way they can intervene before activation of the harmful pathways occurs.

Another pathway they’re exploring came to light through genetic analyses of kidney biopsies and was later validated in mouse models. They found that increased activation of the JAK/STAT signaling pathway in diabetes resulted directly in kidney scarring and dysfunction. This is a valuable finding because there are already JAK/STAT inhibitors on the market for other conditions that might hold promise for nephropathy patients.
“The exciting part of these insights is the personalized medicine aspect,” says Pennathur. “Ideally, we’d like to be able to do multiple panels on patients and be able to tell them which of their pathways are altered and therefore which set of drugs will prevent complications in their particular case.”

The Heart
Along with the microvascular complications of metabolic syndrome are the cardiovascular changes, which are being addressed by a number of Internal Medicine researchers, among them Rodica Pop-Busui, MD, PhD, Associate Professor of Internal Medicine (MEND) and Co-Director of the Michigan Peripheral Neuropathy Center. “There’s an interesting difference between hyperglycemic patients and those in the general population,” says Pop-Busui.

But it starts early. In a study she conducted with Melvin Rubenfire, MD, Professor of Internal Medicine and Director of Preventive Cardiology, they found cardiac risk factors already developing in patients with metabolic syndrome. “We found significantly altered cardiac nerve function and tone,” she says. “This can have detrimental consequences down the road in terms of cardiac structure, function, and the development of arrhythmias.”

To clarify how glucose fluctuations contribute to this risk, Pop-Busui is heading an R01 with co-investigators from Internal Medicine, Radiology, and Biostatistics, among them, Claire Duvernoy, MD, Associate Professor of Internal Medicine, Chief of Cardiology at the VA Ann Arbor Healthcare System, and founder of the Women’s Heart Program. With the use of continuous glucose monitoring and a number of state-of-the-art imaging techniques, the team aims to determine how the heart’s nerves, function, and metabolism are damaged by changes in glucose. “Is it the time spent with high or low blood glucose that is the problem—or is it the rate of change between these states that’s doing most of the...
damage?” says Pop-Busui. By clarifying this, her team hopes to determine the level of control required to prevent cardiac complications.

The Liver
Nonalcoholic fatty liver disease is yet another complication that is both associated with and can be exacerbated by metabolic syndrome. “Research from our group and others has shown that patients with fatty liver who also have components of metabolic syndrome have the most severe form of the disease with the most fibrosis/scarring,” says Hari Conjeevaram, MBBS, Associate Professor of Internal Medicine (Gastroenterology) and Director of the GI Fellowship Training Program.

To address this, he’s working not only on lifestyle interventions but on testing drug therapies that may halt disease progression. Among these was a recent Phase II study of GS-9450, a selective caspase inhibitor that is showing promise in reducing inflammation and patients’ liver test abnormalities.

He is also collaborating with Elif Oral, MD, Associate Professor of Internal Medicine (MEND) and Director of the MEND Obesity and Metabolic Disorders Program, on her R01 studying the role of the fat-derived hormone leptin in fatty liver disease. This work builds on Oral’s large body of work proving the efficacy of leptin in treating patients with lipodystrophy, who paradoxically have many of the same features of the metabolic syndrome despite having partial to almost complete loss of fat tissue. She has been one of the key international players in shepherding leptin therapy to the final stage of FDA approval last year, and she hopes that once it is approved for lipodystrophy, it may also help reverse the progression of fatty liver disease in a subgroup of patients with low levels of leptin.

Also bringing her expertise to bear on these issues is Elizabeth Speiotes, MD, PhD, MPH, Assistant Professor of Internal Medicine (Gastroenterology) and Computational Medicine & Bioinformatics. She is using genome-wide association studies to identify genes associated with fatty liver disease and obesity in the hopes of determining which traits share a common genetic cause. “We know that not everybody who becomes obese gets complications from obesity, and not everybody who develops fat in their liver goes on to develop cirrhosis or metabolic syndrome-related abnormalities,” she says. “We’re trying to get to the genetic root of why...
some people will get more of these abnormalities as they gain weight compared to others.”

Thus far she and her colleagues have identified and are working to characterize more than 90 loci associated with body-mass index or fatty liver disease. They’ve found that some genetic variants that promote fat in the liver also affect characteristics of the metabolic syndrome, while others do not. “This is exciting because it suggests that we can genetically dissociate epidemiologically correlated traits,” she says. “With this information we hope in the future to be able to subclassify people into disease-risk categories, so we can personalize their treatment.”

The Joints

Researchers are also making strides in addressing the joint pain that so often accompanies metabolic syndrome. One of these is Blake Roessler, MD, Professor of Internal Medicine (Rheumatology). Roessler is doing this by rethinking how fat is viewed with respect to the joints. “The prevailing thought has been that obesity puts people at risk for, say, knee osteoarthritis based simply on body mass,” he says. “If you’re bigger, you’d put more load on the knee, and it would fail prematurely like any mechanical device.” But it turns out that’s too simplistic a view, since large, lean people are actually protected from knee osteoarthritis.

So, he’s looking at fat not as a source of mass, but in terms of anatomic location and function. With this approach, his team has shown in culture that the fat-derived hormones leptin and interleukin 6 increase the activity of two biochemical pathways affecting bone and cartilage formation. He’s now looking at the levels of these hormones within the joints—in intra-articular fat and synovial fluid—to see if higher levels are correlated with more advanced disease. “If this turns out to be the case, we’d like to identify high-risk patients before they develop arthritic changes,” he says. “Then we could consider treating their knees with hormone inhibitors, some of which are already on the market.”

Another source of joint pain tied closely to metabolic syndrome is gout. This is the purview of Puja Khanna, MD, MPH, Assistant Professor of Internal Medicine (Rheumatology), who was recruited to U-M in 2011 to set up a Center of Excellence for Gout. “Once known as ‘the disease of kings,’ gout is now the disease of the common man,” says Khanna. “It used to be that only royalty had access to the excessive amounts of meat and alcohol, and the sedentary lifestyle that contribute to gout. But not any more.” Due to the rise in obesity, impaired glucose tolerance, and chronic kidney disease, gout now affects some 8.2 million Americans, and it’s showing up in ever-younger patients.

Gout’s signature attacks of acute inflammatory arthritis are caused by the deposition of uric acid crystals in the joints and soft tissues. What starts as painful flares can become chronic if poorly
managed, leaving some sufferers in wheelchairs with daily pain they rate 10 out of 10, says Khanna. She is working to reverse both the personal suffering and lost productivity attributable to gout with a focus on outcomes research, the development of treatment guidelines, and drug trials. “Michigan has an amazing tradition of cutting-edge bench research in gout,” she says. “We’re working to ensure this is translated bedside.”

**Root Causes**

Moving away from complications to the biochemical roots of obesity, one finds Martin Myers, Jr., MD, PhD, Associate Professor of Internal Medicine (MEND) and Molecular & Integrative Physiology, and Marilyn H. Vincent Professor of Diabetes Research. He is looking in detail at why we eat to excess by exploring leptin’s role in energy balance and body weight.

His approach has been to identify populations of neurons in the brain that express the leptin receptor then try to figure out what they do in a step-wise fashion. He works largely on mouse models but is collaborating with Elif Oral in studies of human lipodystrophy patients. His lab published work on three areas of the brain last year with long-term implications for understanding obesity. The first is the arcuate nucleus, which controls satiety. It turns out that over- or under-nutrition in utero for humans (or postnatally in mice) affects the development of this area and can actually program us for metabolic syndrome later in life. His lab is exploring the mechanisms by which this happens.

Another area he’s looking at is the lateral hypothalamic area, which influences the reward value of food. By understanding how this works, he’d ultimately like to be able to turn off the desire to eat beyond the point of feeling full.

He’s also looking at a group of neurons that express the neurotransmitter NOS1. By knocking out their leptin receptors to see how that would affect reproduction, Myers wound up creating mice that were, as he puts it, “very diabetic, very obese, very sluggish, and very hungry.” He’s hoping this surprising finding might one day pave the way for a drug target that could regulate food intake and energy balance.

The groundbreaking nature of Myers’ work was recognized last year with the Ernst Oppenheimer Award, endocrinology’s highest honor for a young investigator.
While Myers is looking at the causal mechanisms of common forms of metabolic syndrome, one of his endocrinology colleagues is looking at a less-common but long-overlooked source—benign adrenal tumors. **Richard Auchus**, MD, PhD, Professor of Internal Medicine and Director of the MEND Fellowship Program, has shown that there is a small but important group of patients with tumors that rev up cortisol production and lead to the symptoms of metabolic syndrome.

These patients have typically fallen through the cracks because they don’t produce enough cortisol to meet the traditional criteria for Cushing’s syndrome. This is, in part, because their tumors make not just cortisol, but intermediates on the pathway to cortisol production, which have similar biological effects but aren’t measured with current techniques. This is one of the reasons Auchus was recruited to U-M last year—to develop a platform for “steroidomics”—sensitive metabolomics-based tests for steroids and their intermediates. He hopes to help clinicians more readily identify this newly appreciated subset of people whose metabolic syndrome could be improved with adrenal-tumor surgery or targeted therapies.

**The Role of Aging**

A unique spin on the question of obesity and its associated morbidities comes from **Raymond Yung**, MB, ChB, Chief of Geriatric & Palliative Medicine, Professor of Internal Medicine, and Director of the Institute of Gerontology. He was interested in whether age-related obesity was distinct from diet-induced obesity in terms of generating the inflammation characteristic of metabolic syndrome.

The answer, he discovered, was yes. By looking at the belly fat of mice, his team noticed striking differences in the immune cells of older animals. “First, the number of T-cells was increased,” says Yung. “And, second, the macrophages were qualitatively different. They were in an activated state that produced a lot more inflammatory proteins.”

The reason, it turns out, was that the old macrophages didn’t produce enough of the inflammation-suppressor PPAR-gamma. However, by using a diabetes drug known to stimulate PPAR-gamma production, Yung’s team was able to reduce the inflammation generated by these older cells.

Yung quips that it’s not quite the fountain of youth, but he hopes that as he and others come to understand these processes better, they may be able to reduce the disease burden of aging.

**A SUSTAINABLE LIFESTYLE CHANGE**

Since reducing the disease burden is ultimately what all these physician-researchers are interested in, each acknowledges that however hard they may work to manage individual aspects of metabolic syndrome, the closest thing to a magic bullet is lifestyle change.
No one knows this better than Charles Burant and his MEND colleagues Amy Rothberg, MD, Assistant Professor of Internal Medicine and Medical Director of the MEND Weight Management Clinic, and Andrew Kraftson, MD, Instructor of Internal Medicine and Co-Director of the Post-Bariatric Surgery Clinic. Their work in the weight-loss clinic has shown that taking people from an average of about 3,000 to 800 calories a day reverses almost every aspect of the metabolic syndrome. “Once you start relieving cells of the stress of too much nutrition,” says Burant, “things heal pretty quickly.” His team has learned they have to cut patients’ diabetes drugs in half on the first day and are ultimately able to stop medications for conditions ranging from high blood pressure to depression. They’ve also seen anecdotally that patients’ joint pain improves—even before there’s a lot of real weight loss. They think this is the result of decreased inflammation.

However compelling the benefits, the trick is to get people to follow the program. “We generally have a very happy clinic population,” says Burant. “If people can get through the first couple days, they aren’t that hungry.” Most patients lose about 20 percent of their body weight over three to four months, and dieticians work hard to help them keep it off.

Thanks to the many resources available at U-M—like the Nutrition Center, the Metabolic Fitness Program, and the Laboratory for Physical Activity and Exercise Intervention Research—several departmental researchers, including Pop-Busui, Duvernoy, Oral, Rubenfire, and Conjeevaram, are looking at how diet and exercise affect their systems of interest.

Others are looking at how these kinds of lifestyle changes can be fostered among traditionally hard-to-reach audiences. One of these is Michele Heisler, MD, MPA, Associate Professor of Internal Medicine (General Medicine) and Health Behavior & Health Education, and Research Scientist at the VA Center for Clinical Management Research. On the global stage, Heisler co-mentors a team of medical students assessing quality of care for patients with metabolic syndrome in Quito, Ecuador. Closer to home, she’s running a number of studies on how patients can be supported in controlling their blood glucose and maintaining a healthy lifestyle between doctor visits.

In a study of VA patients, Heisler demonstrated that reciprocal peer support could be more effective than nurse care management in helping patients control their blood sugar. In studies at the Community
Kim Eagle, MD
Health and Social Services Center (CHASS), a federally qualified health center that serves the predominantly Latino and African-American communities of southwest Detroit, she is demonstrating how community health workers and web-based educational tools can be used to improve patient outcomes.

Equally promising is work being done among middle-school students by Kim Eagle, MD, Albion Walter Hewlett Professor of Internal Medicine, Chief of Clinical Cardiovascular Medicine, and Director of the Cardiovascular Center. While somewhat outside his usual research umbrella, the topic of childhood obesity drew him in while serving on an NIH advisory council. “Our committee asked the NIH to bring in the nation’s top intervention experts,” says Eagle. “What we saw was summarily disappointing; I was shocked at how poor the effort had been to sustain childhood health in a meaningful way.”

So he returned to U-M determined to make a change. By building a team from the university, its health system, and local middle schools and community groups, Eagle helped launch Project Healthy Schools. It aims to change the culture in which sixth graders form the habits that can prevent metabolic syndrome. “Our goals for the kids are simple,” says Eagle. “Eat more fruits and vegetables; exercise; and reduce sugary drinks, fatty foods, and screen time.” The program features engaging educational modules, health-promoting school events, and changes to the school’s food offerings.

The results have been impressive. His team has followed 550 students in Ann Arbor for three years, and found an improvement in self-reported behaviors as well as cardiovascular risk factors—and these benefits appear to be sustained into high school. The program is now expanding to 21 schools in Detroit and elsewhere in the state.

**WHY HERE?**
What is it about the department that has positioned it to chip away at metabolic syndrome from such a variety of angles? Two words: expertise and infrastructure.

“The department has done a great job of investing in resources that help us combine our expertise in phenotyping, animal models, metabolomics, and so forth to really understand the basis of obesity and metabolic syndrome,” says Burant. “This is critical because, as I tell my patients, 68 percent of us in this country are either overweight or obese—right now, the thin people are the ‘abnormal’ ones.”

The department is doing everything it can to change that.
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<td>Action of leptin in the brain</td>
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<td>Implicated JAK/STAT signaling pathway in diabetic kidney disease, plausible new drug target</td>
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<td>Frank Brosius, MD</td>
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<td>Subramaniam Pennathur, MBBS</td>
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<td>Claire Duvernoy, MD</td>
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<td>Fatty Liver Disease</td>
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<td>Michele Heisler, MD, MPA</td>
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<td>Kim Eagle, MD</td>
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<td>Hari Conjeevaram; Elif Oral; Claire Duvernoy; Melvyn Rubenfire; Rodica Pop-Busui</td>
<td>See above</td>
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The North Campus Research Complex:
Using Space as a Research Tool

By now, most University of Michigan watchers have read something about the North Campus Research Complex (NCRC), the 174-acre former Pfizer campus that U-M purchased in 2009 to “ignite improvements to humanity’s health and well-being.” The idea was a grand one: to replace research as usual with approaches even more innovative and impactful.

Can a facility really make that kind of a difference? It depends on how it’s used, say planners. The key is not just using it as overflow space, but using it to add value in subtle but powerful ways. “This is a remarkable window of time when space is a tool,” says David Canter, MB, ChB, NCRC Executive Director, “a tool for helping interesting, imaginative programs come to life.”

This can happen in a variety of ways—from clustering dispersed researchers working on similar topics to configuring the space so that key thinkers regularly cross each other’s paths.

This is precisely the plan. Collaboration, already a cultural hallmark of U-M, would get a structural boost by having disparate researchers working “cheek to jowl” with each other. This is what originally attracted Canter to the NCRC team. “Despite the fact that the Medical School and Health System had committed to the cost of purchasing and running the facility,” says Canter, “other schools were talked about in the same sentence as being involved. It was going to be Engineering, Information, LS&A, Dentistry, Public Health, Pharmacy, and so on. It would be that rare set of buildings that wasn’t allied to one particular school. It was too interesting to pass by.”

But it’s not just researchers from various disciplines that will mix. It’s mixing technology developers with technology users, lab researchers with data miners, faculty with industry, junior with senior, and basic with translational—all in a space designed for interaction.

“The facility is interconnected in a way that is unusual on an academic campus,” says Canter. “Every building, bar one or two, you could walk to without going outside. The facility is connected by corridors; it’s connected with social spaces—coffee bars, high tables, conference rooms. Most university buildings grow up as a series of separate entities, yet studies have shown that proximity and accessibility are keys to collaboration. This facility is designed for that.”

A series of high-tech core scientific services will also help bring research to the next level. This includes DNA sequencing, bioinformatics, methods support, microscopy, phenotyping, and the like. “We ultimately want to co-locate all the scientific services in a central mall environment,” says Joan Keiser, PhD, NCRC Director. “One barrier to researchers using core services is just not knowing they’re available.” This would make it virtually one-stop shopping.

But cutting-edge scientific services and collaborative spaces are only part of the picture. The space means different things to
José Jalife, MD

different people, and this is perhaps best exemplified by some of the Internal Medicine-affiliated groups who in 2011 planted their flags at the NCRC.

CARDIOVASCULAR RESEARCH CENTER:
Convenient Location with Room to Grow

The first lab-based researchers to set up shop at the NCRC were from the recently established Cardiovascular Research Center (CVRC), which includes members of the Cardiovascular Center and encompasses researchers from Internal Medicine, Pediatric Cardiology, Cardiac Surgery, Vascular Surgery, Pharmacology, Molecular & Integrative Physiology, and the College of Engineering. While a number of CVRC researchers remain on the medical campus, some 100 are now at the NCRC studying the mechanisms of cardiac muscle function and rhythm as well as vascular biology.

A large part of this group is from the Center for Arrhythmia Research, directed by José Jalife, MD, Professor of Internal Medicine and Molecular & Integrative Physiology, and Cyrus and Jane Farrehi Professor of Cardiovascular Research. For Jalife’s group, the move was a natural. Recruited as a group of 35, they’d been located off campus in leased space that was several miles from their collaborators in Engineering and the Medical School. The NCRC space brought them closer to colleagues and gave them critical room to grow. This allowed the recruitment last year of another leading arrhythmia expert, Héctor Valdivia, MD, PhD, Professor of Internal Medicine and Frank Norman Wilson Professor of Cardiovascular Medicine, and his group of 10 researchers from the University of Wisconsin.

“The space is ideal for what Héctor and the rest of us do,” says Jalife. “Our labs are designed specifically for molecular biology and cardiac electrophysiology-type studies. In addition, they’re set up in concentric circles— the labs surround the animal care facilities, and the offices surround the labs. Everything is totally seamless and convenient.”

They’re using this space to break important new ground, particularly with stem cells. “What we’re doing now,” says Jalife, “is generating stem cells, not from embryos, but from the skin of patients. We can convert their skin cells into stem cells, then convert the stem cells to heart cells.” Ultimately, he hopes to use this process to study converted heart cells from, for example, patients with hypertrophic cardiomyopathy and their siblings to try to understand the genetic contributions to this
and other causes of cardiac arrhythmia and sudden death.

DEPARTMENT OF COMPUTATIONAL MEDICINE & BIOINFORMATICS: Recruitment and Reach

Another group with deep connections to Internal Medicine that has set up an outpost at the NCRC is the newly formed Department of Computational Medicine & Bioinformatics (DCM&B). It is chaired by Brian Athey, PhD, Professor of Internal Medicine (Allergy) and Psychiatry.

Charged with developing novel informatics and computationally based methods, tools, and algorithms, the department has made the NCRC home to both its Bioinformatics Core and its first two recruits. Among these is Yuanfang Guan, PhD, Research Investigator of Computational Medicine & Bioinformatics and Internal Medicine (Nephrology). A perfect example of the way in which the two departments reinforce each other, Guan is collaborating with Matthias Kretzler, MD, Professor of Internal Medicine (Nephrology) and Computational Medicine & Bioinformatics, in identifying the genetic underpinnings of rare nephrotic syndromes. Guan will mine large data sets (including those Kretzler helped establish) for relevant pathways, and Kretzler will use transgenic mice to test her predictions.

The NCRC gives the DCM&B room to accommodate the 10 or so faculty they plan to hire over the next few years. It is also serving in some ways as a natural testbed as they contemplate whether the rest of the department will move. The idea of coming in regular contact with a whole new set of potential collaborators excites Gilbert Omenn, MD, PhD, Director of the Center for Computational Medicine & Bioinformatics, Internal Medicine (Molecular Medicine & Genetics), Human Genetics, and Public Health. He’s seen firsthand how incorporating bioinformatics into Internal Medicine research can be transformative.

He tells the story of a senior research leader in Infectious Diseases, David Markovitz, MD, Professor of Internal Medicine, who’d been seeking NIH funding for years for a special aspect of his work on endogenous retroviruses. “These are distant relatives of HIV that account for an amazing proportion—around 8 percent—of the DNA in our genome,” says Omenn. “People thought they were just relics, but David had evidence that some of these sequences were activated in Hodgkin’s lymphoma, and...
breast cancers, and perhaps other diseases. It was out-of-the-box, high-risk stuff that peer review doesn’t reward. Then the NIH announced a new class of grant—the Transformative R01 grant—which was perfect for him. So we helped him design these cutting-edge experiments with high-throughput DNA and RNA sequencing methods, and, lo and behold, he got the grant—a $6.9 million, potentially paradigm-changing grant."

**Institute for Healthcare Policy & Innovation: Identity and Influence**

Another group that plans to use the NCRC to intensify its research impact is the Institute for Healthcare Policy & Innovation (IHPI). Formally approved by the Regents in May 2011, the IHPI is bringing more than 150 health-services and health-care policy investigators and 250 research staff from across the University and partner institutions into a more cohesive and interconnected unit.

"The University already had one of the largest collections of health-systems researchers in North America and didn’t even know it," says Canter. This is because it was a series of successful individual groups without a larger sense of identity.

The IHPI hopes to change that. "This is a place where we can aggregate and share that incredible wealth of expertise, creativity, and innovation from throughout the University," says IHPI Interim Director Rodney Hayward, MD, Professor of Internal Medicine (General Medicine) and Public Health, and Senior Investigator at the VA Center for Clinical Management Research.

How will they do that? First, he says, by assembling a critical mass of co-located faculty along with a large cohort of others who will use flexible touch-down spaces to regularly drop in and work.

This cluster of relevant researchers is especially attractive to Lawrence An, MD, Associate Professor of Internal Medicine (General Medicine) and Director of the Center for Health Communications Research. His group works to develop communication tools that tend to pick up where other health-services researchers leave off. "A clear example," says An, "is Rod Hayward and his team in the VA Center for Clinical Management Research. One of their goals is to optimize care by personalizing treatments. So they do a lot of work—epidemiological, statistical, meta-analytical, and programming—to develop a mathematical model that shows how treating people in a more individualized way could, say, double the efficiency of health care. Then we can come in and develop the tools that help doctors and patients do it."

Because of the nature of his work, An already collaborates with some 20 health-services research groups spread across the University. He’s eager to have a centralized place that will help him strengthen existing collaborations and form new ones.

The second way researchers will share expertise is through the use of advanced research cores, says Laurence McMahon, Jr., MD, MPH, Chief of General Medicine, Professor of Internal Medicine and Public Health and Director of the NJ Cancer Research Center.
Laurence McMahon, Jr., MD, MPH, Health, and member of the interim IHPI leadership team. He’s especially enthusiastic about the data management core, which will provide access to and expertise in manipulating large databases like Medicare’s, as well as the methods core, which will offer advanced quantitative and qualitative approaches to health-services research.

“There are two important goals for all this,” says Eve Kerr, MD, MPH, Professor of Internal Medicine (General Medicine), Director of the VA Center for Clinical Management Research, and member of the interim IHPI leadership team. “The first is synergy. When we assemble people with different expertise, perspectives, and experience, we bring together ideas that by themselves may be very good but in combination could be game-changing.”

“The second area is impact. By being a voice for U-M in health-services research, we will be better able to translate our work to the local and national stage. I believe we will become known for doing some of the most rigorous and important health-services research in the nation. And through IHPI, we can communicate that work more effectively, and partner with private and public entities that can use our work.”

“I see the IHPI becoming like the U-M consumer confidence index,” says Canter. “Recommendations will not bear the label of an individual researcher; they will carry the voice of 400 researchers known for the quality and thoughtfulness of their work. The Institute will have that kind of gravitas.”

**TRANSLATIONAL ONCOLOGY: New Models for Funding and Translation**

The Translational Oncology Program also has big plans for the NCRC. Max Wicha, MD, Distinguished Professor of Oncology, Professor of Internal Medicine (Hematology and Oncology), and Director of the U-M Cancer Center, says he’s enthusiastic about bringing diverse groups together to work on translational goals. He sees groups from Internal Medicine, Engineering, Urology, Surgery, Pathology, and Pharmacy working together on cancer stem cells, detection of circulating tumor cells, and drug discovery.

But even beyond working across divisions and colleges, Wicha envisions entirely new research models based on partnerships with pharmaceutical companies.

And this is not just a vision. “Already our cancer stem-cell group is working with a company called MedImmune,” says Wicha. “We’ve worked out a new kind of deal. The company will fund selected research projects, and we’ll share the intellectual property. I think this is the future funding model—a lab that’s supported partially by the NIH and partially by these new arrangements with pharmaceutical companies. From our perspective, it’s not just funding; it helps get our ideas and drugs into the clinic—that’s what we really want to do.”

The NCRC couldn’t be better suited to this task. Not only was it originally set up as a...
space for pharmaceutical R&D, it now also includes space to co-locate public and private partners. There is even a Venture Accelerator designed to nurture any spin-off companies that emerge from University research.

THE ROAD AHEAD
As 2011 closed, the NCRC reached an interesting milestone—its first 1,000 faculty and staff had moved in. With 2,000 left to go, many leaders throughout the Health System and University were already hard at work considering who the next 1,000 should be. They hope the final mix will be a potent one—not merely in terms of advancing U-M’s research agenda or even rallying the region’s economy, but in truly igniting improvements to human health.
Cyril Grum, MD, a Professor in the Division of Pulmonary and Critical Care Medicine and the Senior Associate Chair of Undergraduate Programs for the Department of Internal Medicine is passionate about education and the role that Internal Medicine plays in training the next generation of clinicians and researchers at U-M. “It is a third of our mission: Education, patient care, and research. Faculty provide spectacular mentorship to medical students both during their basic science years [first and second years] and during their clinical years [third and fourth years],” he explains.

In the latest U.S. News & World Report rankings of medical schools, U-M’s Medical School tied for 10th overall for research medical schools, and 8th overall for primary care medical schools. “Our department should really be proud of this recognition. Internal Medicine faculty deliver more than a quarter of the entire four-year curriculum and our faculty hold key leadership positions within the Medical School,” Grum adds. “The quality of our faculty’s teaching and the vast amount of clinical opportunities we provide ensure that U-M’s medical students are extremely well-prepared to become doctors. Our graduates are considered top recruits for some of the best graduate residency programs across the country.”

PUTTING THE PATIENT INTO PATIENT CARE
In addition to his role as the Associate Chair for Undergraduate Programs, Dr. Grum is also the Clinical Director for U-M’s third- and fourth-year medical students. It is during these years students learn the art and science of medicine by taking care of patients. Dr. Grum has the pleasure of leading them into the brave new world of clerkships and related student curriculum. “It’s a real eye-opening experience for the students—being on the front lines—but they love it. I have never heard one of them wish to go back to the first two years of course work. I think the joy of taking care of patients is unlike any other. That’s why most of us went into the profession of medicine: to take care of patients and to be their doctors,” he explains.
This direct interaction between medical students and patients has been an important and long-standing tradition at Michigan. The Medical School was one of the first to successfully introduce the concept of the clinical clerkship in 1899. Because U-M owned its own hospital, clerkships could be set up directly at that hospital. Other medical schools had previously tried to incorporate clerkships into their curriculum, but privately owned hospitals would not allow medical students to work with their patients. Today, Michigan’s clerkships consist of a sequence of seven clinical rotations that are completed in family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery. The Department of Internal Medicine’s 12-week clerkship is the longest and most extensive of all of them.

“I strongly believe students learn best while participating in the care of patients, and the clinical years are marked by extensive practical application. Through this apprenticeship, they need to focus on learning about the patients in order to learn about medicine. They work closely with our faculty and house staff to gain the expertise and professional attributes that will make them excellent physicians,” explains Grum.

NEW INITIATIVES
The Department of Internal Medicine has also started several new initiatives this past year to make the clerkship even better:

Increased faculty observation of M3 physical exams were added to the curriculum to augment the extensive training students already receive during first and second years. Students are now working with faculty in clinics conducting physical exams to bolster their knowledge and access new skills.

The twelve conditions that every student should see were recently revised. They now are 1) chest pain, 2) dyspnea, 3) anemia or GI bleeding, 4) abdominal pain or liver disease, 5) preventive care, 6) fever, 7) hypertension, 8) diabetes, 9) kidney failure, 10) joint or back pain, 11) smoking cessation or nutrition counseling, and 12) a geriatric assessment. These conditions address both acute illnesses and chronic diseases and require a variety of communication and technical skills. “No matter what specialty a student eventually selects as their career choice, this Internal Medicine training is providing the foundation for good, solid, and well-rounded patient care,” explains Grum.

Formal mid-clerkship feedback evaluations to review each student’s progress (how many patients and how many conditions/diseases they’ve seen, etc.) have also been introduced. This ensures that students are right on track to gain the
necessary skills and meet the curriculum requirements that are needed.

The department has also put a premium on providing students with rapid feedback as well. “We are now getting grades and evaluations out much faster to students than ever before. One hundred percent of our grades were out in four weeks or less. This is much better than the national average. It’s also a culture shift for the faculty. It’s reinforcing our commitment to education, putting it on par with our clinical responsibilities,” adds Grum.

**A LASTING IMPRESSION**

It appears that Internal Medicine’s impact on medical education at U-M is making a strong impression on the next generation. “This past year the Medical School had the highest number of graduating students selecting Internal Medicine (25) and Medicine-Pediatrics (9) as a career—there were 34 students total. Of the 154 graduating medical students that makes 22 percent of graduates selecting Internal Medicine as their specialty. These are top-notch students. Ten of the 34 also hold advanced degrees such as a PhD or Master’s degree and five were inducted into the Alpha Omega Honor Society, the only national honor medical society in the world,” says Grum.

It also appears that Dr. Grum’s passion for teaching is not lost on his students. He was named the Class Marshal by the Medical School class of 2011. Class Marshals that are nominated and voted on by the students in recognition of their contributions to the class have the honor of leading the class processional into the auditorium on graduation day. This was his 13th year leading the class since 1990. There will most likely be many more.
2011 EDUCATION + TEACHING AWARDS

Student Awards
The William Dodd Robinson Award was given by the faculty of the Department of Internal Medicine to graduating seniors Stephanie Videka Sherman and William John Zacharias for their outstanding performance in the junior medicine clerkship and senior electives in internal medicine.

The Eli G. Rochelson Memorial Award was given to Melissa Isabelle Lygizos for the most outstanding performance in pulmonary and critical care medicine by a graduating medical student.

Faculty and House Officer Teaching Awards
The Galens Medical Society awards Bronze beepers to house officers who they feel have been exemplar in their teaching duties towards medical students. This year, five were awarded to house officers in Internal Medicine and Medicine-Pediatrics: Sophie Califano, MD; Carl Hammaker, MD; Eric Riles, MD; Jessica Tsui, MD; and Javier Valle, MD.

The Galens Medical Society Silver Shovel Award went to Sandro K. Cinti, MD, as the faculty member voted to be the most outstanding clinical teacher.

The Kaiser-Permanente Award for Excellence in Teaching was presented to two Internal Medicine faculty this year: Kim Eagle, MD, received the award for pre-clinical teaching and Sandro K. Cinti, MD, received the award for clinical teaching. The Kaiser Award is the highest teaching award at the Medical School, recognizing faculty for dedication to quality teaching, enthusiasm, and efforts to improve the experience of each student.

Kevin R. Flaherty, MD, MS, was presented with the Medical School Community Service Award.

Cary Engleberg, MD, DTM&H, from Internal Medicine’s Division of Infectious Diseases, was honored with a Lifetime Achievement in Medical Education award from the Medical School for his efforts and achievements in medical education at Michigan and abroad over the last 25 years.
outreach
In July 2011, the University of Michigan started its five-year term as the editorial team behind Gastroenterology, the most prominent journal in the field of gastrointestinal disease. The new Editor-in-Chief is Bishr Omary, MD, PhD, the Chair of the Department of Molecular & Integrative Physiology, Professor of Internal Medicine, and H. Marvin Pollard Professor of Gastroenterology. His editorial experiences include serving as Associate Editor of Gastroenterology from 2006 to 2011 and Molecular Biology of the Cell from 2004 to 2011.

“We have a wonderful team that works so well together. It’s also fun and exciting to be at the forefront of what’s going on in the field.”
“This is a ‘society’ journal that is published by the American Gastroenterological Association, and the editorial team rotates every five years. The Society selected U-M as the new team due to the strength of its Division of Gastroenterology and the research here. It’s a great honor for us and an opportunity for the faculty—nine out of the 16 editors are from Michigan (see page 64) and it brings instant visibility to the institution. It’s a highly respected journal that’s read internationally,” explains Omary. Being the editor of a major journal also takes a great commitment. Dr. Omary estimates that he is now spending an additional 20 hours a week on top of his usual duties on this task. “I wouldn’t trade it. We have a wonderful team that works so well together. It’s also fun and exciting to be at the forefront of what’s going on in the field.” he adds.

ABOUT GASTROENTEROLOGY
As the official journal of the American Gastroenterological Association Institute, Gastroenterology delivers up-to-date and authoritative coverage of both basic and clinical gastroenterology (www.gastrojournal.org). Regular features include articles by leading authorities and reports on the latest treatments for diseases. It also bridges the gap between basic and clinical science by publishing comprehensive reviews and perspectives on important topics such as pancreatitis and liver disease.

Gastroenterology is ranked first of 71 journals in the Gastroenterology and Hepatology category on the 2011 Journal Citation Reports® and its impact factor has been between 12 and 13 during the past few years, and only 12 percent of submitted manuscripts are ultimately accepted. Its immediacy index, which is a measure of how topical and urgent work published Gastroenterology is, is 2.9, the highest in the field. Gastroenterology is circulated to 19,000 individuals and institutions worldwide.
The year 2011 marked a tremendous amount of change for continuing medical education (CME) at the University of Michigan. The U-M Medical School stopped accepting any pharmaceutical funding for its CME offerings on January 1, 2011. They were the first in the country to do this and there were a lot of concerns about what the consequences would be. Would this result in less CME offerings? Less public outreach for U-M? How would this affect the care of patients throughout the state and region?

All practicing physicians in the state of Michigan must complete 50 hours of continuing medical education a year to maintain certification. U-M has always been the state’s leading provider of CME opportunities and the Department of Internal Medicine has traditionally offered the most CME course offerings.

The loss of industry funding did result in a major reduction in the number of CME events for community physicians offered by the Medical School. In 2010, there were 54 course offerings (38 of which were provided by the Department of Internal Medicine). For 2011, that number dropped by nearly 50 percent to 28 total (20 of which are provided by the Department of Internal Medicine).

In 2011, the Office of CME dissolved and oversight of the CME activities of the Medical School shifted to the Office of Continuous Professional Development (OCPD). The OCPD now designates AMA PRA Category 1 Credit™ for the Medical School’s more than 300 CME activities per year (e.g., grand rounds, journal clubs, and courses). Individual departments are now responsible for the production and finances of all of the CME activities they sponsor, including all of the marketing and event planning activities.

Internal Medicine CME Team: Allison Picinotti, James Froehlich, MD, MPH, and Jennifer Goodwine
INTERNAL MEDICINE’S NEXT STEPS

In the wake of these funding and structural changes, both the Medical School and the individual departments started closely examining their approach to CME. The Division Chiefs came to the Chair of the Department of Internal Medicine, John Carethers, MD, with their concerns about the future of CME. An Internal Medicine CME Steering Committee was created to explore how to best respond to these new changes. Given the department’s size and amount of offerings, it was decided that Internal Medicine would need to create its own CME team and office to best meet the needs of its 12 divisions.

In late 2011, Allison Picinotti, formerly the Marketing and Development Manager for the Division of Metabolism, Endocrinology and Diabetes/U-M Comprehensive Diabetes Center, was brought on board as Internal Medicine’s first CME Program Manager to create the new program from the ground up. She has been extremely busy in her first few months working closely with Internal Medicine’s CME Medical Director, James Froehlich, MD, MPH, an Associate Professor in the Division of Cardiovascular Medicine, implementing:

- Online registration processes
- Marketing strategies
- Redesigning marketing materials
- Refining data collection
- Streamlining mailing lists
- Hiring a program coordinator, Jennifer Goodwine

“Our Internal Medicine CME team is the first of its kind in the U-M Health System,” explains Froehlich. “We’ve been focusing on developing strategies and refining processes. Given all of the recent changes, everyone at Michigan is re-evaluating why and how they offer CME—its purpose, funding, and structure.”

“We are excited to build a successful CME program. We have done a lot of work over the past five months but we still have more to do. There are a lot of new strategies we want to incorporate into the program” adds Picinotti.

The team was able to go ahead with the 13 courses that had been planned for 2012 (listed at right). They are now in the process of planning for next year, which involves re-evaluating CME budgets, as well as identifying missed opportunities and events that could be combined. They also plan to videotape future courses so they can be offered online to physicians and other health care providers nationwide, and even reach our alumni and former fellows. This will allow them to reach largely untapped markets that would be interested in taking our CME offerings but not able to travel to Michigan. In addition, they are also exploring alternative funding sources that include non-pharmaceutical corporate sponsors.

As for the questions and concerns about CME at Michigan, many of them still remain, but for now the new team is positive about the future. “Right now, everyone here is excited about having this new office. We’re hopeful that our work and focus will actually end up working even better than the old CME formula for the Department of Internal Medicine,” adds Picinotti.
The new Department of Internal Medicine CME Office website can be found at: www.med.umich.edu/intmed/cme

**2012 CME COURSES**

- 16th Annual Common Problems in Office Practice
- Pathogenesis and Management of Systemic Sclerosis: An Update
- Advanced Liver Disease and Liver Transplantation Update 2012
- Update on Arrhythmias & Syncope: What’s New in Arrhythmia Management 2012
- Northern Michigan GI-Liver Wrap-up
- 30th Annual Internal Medicine Update
- 25th Annual Cardiology Update
- Clinical Issues in the Care of Older Adults: Updates in Medication Management
- 25th Annual Update in Pulmonary & Critical Care Medicine
- Updates in Nephrology for the Primary Care Provider
- Endocrinology & Diabetes Update
- 9th Annual IBD Update for the Practicing Physician
- 15th Annual Liver Disease Wrap-up
Preeti N. Malani, MD, MSJ, an Associate Professor in the Divisions of Infectious Diseases and Geriatric Medicine, didn’t always plan on being a physician. Her first love was writing. She started out writing for her high school newspaper. As an undergraduate at U-M, she wrote for the Michigan Daily and majored in communication with a self-designed focus on medical journalism. She went on to complete a master’s degree in journalism at Northwestern University’s Medill School of Journalism.

A CHANGE IN DIRECTION
While fascinated by the field of medicine, she was undecided about it as a career until she covered a story for the Dayton Daily News about a young man who had died in a motorcycle accident. His family had donated his organs. This act benefited the lives of five people. While researching this story, the medicine, and the medical professionals involved, she explains, “I thought to myself, I want to be a part of this. I don’t want to just write about this, I want to do this.”
Malani went back to medical school and earned her M.D. degree from Wayne State University School of Medicine and completed her internal medicine residency and infectious diseases fellowship at the University of Michigan, where she also received a master’s degree in clinical research design and statistical analysis. She completed fellowship training in geriatric medicine at the Oregon Health and Science University. She came back to join the faculty of the U-M Department of Internal Medicine in 2004.

**THE BEST OF BOTH WORLDS**

Even though her career path took a twist that brought her here, Malani regularly incorporates her passion and talent for writing into her work. In fact, she still dedicates about 25 percent of her time to it. She worked for the *Journal of the American Medical Association* throughout graduate school and medical school and still contributes to their media and books section. She now serves as the Associate Editor for *Infection Control and Hospital Epidemiology* and the Assistant Deputy Editor at *Clinical Infectious Diseases*, a leading journal with a broad international readership. She is also Co-Editor of the third edition of *Practical Healthcare Epidemiology* and the second edition of *Best Practices in Infection Prevention and Control: An International Perspective*.

Malani also finds that she’s regularly applying these skills in both clinical and research settings. “I feel that my journalism background actually helps a lot with my clinical work. I know how to ask the right questions, how to interview my patients, how to investigate answers. I also use my editorial experience to help colleagues communicate about their research. I teach junior faculty how to craft a story. I ask them ‘What’s going on?’ ‘What’s your angle?’ ‘What can you tell me that will help me do my work?’” she explains.

As for the future, Malani has no plans to alter her combined career path. If anything, she hopes someday to be the Editor-in-Chief of a top tier journal and also pursue her interests in nonmedical writing.

“Working behind the scenes on a top journal, you really need to be in the clinical loop to maintain quality. You’re communicating to the entire field—changing practice and improving care. That’s what I love. I don’t want to give that up.”
department updates
NEW APPOINTMENTS

RAYMOND YUNG NAMED CHIEF OF DIVISION OF GERIATRIC AND PALLIATIVE MEDICINE

Raymond Yung, MB, ChB, was appointed as Chief of the Division of Geriatric and Palliative Medicine in the Department of Internal Medicine and Co-Director of the Geriatrics Center at the University of Michigan on Nov. 1, 2011.

He succeeds Jeffrey B. Halter, MD, who served as Chief of the Division of Geriatric Medicine since its inception in 1984 and remains Director of the U-M Geriatrics Center.

Yung is a U-M professor of Internal Medicine who is board-certified in both geriatric medicine and rheumatology. As Division Chief, he is responsible for faculty matters and all aspects of the clinical, research and education missions of the Division, including fellowships in geriatric medicine and palliative care medicine. With Yung’s appointment, the Geriatric Medicine Division has been renamed the Geriatric and Palliative Medicine Division. This change highlights the Division’s role in geriatric palliative care and the Hospice and Palliative Medicine fellowship, and the commitment to advancing palliative medicine as a core mission.

“Ray is an outstanding clinician, researcher, and educator, and is ideally suited to shepherd the Division for the foreseeable future,” says John Carethers, Chair of the Department of Internal Medicine. “He will work closely with Geriatrics Center Director Jeff Halter, who has guided and grown the Division to its highly recognized national stature.”

A specialist in the care of older adults with arthritis, Yung is a sought-after clinician who has been recognized in Best Doctors in America. He is a member of both the geriatric and rheumatologic societies and is a regular reviewer of manuscripts and grants. He also serves as the associate director for research for the Geriatrics Research, Education and Clinical Care Center (GRECC) of the Ann Arbor VA Health System. Yung is nationally recognized for his research on inflammation and aging. He joined the U-M faculty in 1996.
SCLERODERMA PROGRAM WELCOMES DINESH KHANNA, MD, AS NEW DIRECTOR

U-M’s Division of Rheumatology, Department of Internal Medicine, announced the appointment of Dinesh Khanna, MD, MS, as Director of the Scleroderma Program in July 2011. Khanna is Associate Professor of Medicine and Marvin and Betty Danto Research Professor.

The Scleroderma Program is a multidisciplinary group of caregivers, scientists, and clinical researchers dedicated to advancing knowledge about scleroderma and related conditions. Scleroderma, meaning “hard skin,” causes abnormal growth of connective tissue, which affects the skin and internal organs.

Khanna was most recently Assistant Professor of Medicine at UCLA and Director of its scleroderma clinic. The author of more than 120 peer-reviewed publications and book chapters, Khanna is also the recipient of the 2011 “Best Doctor of the Year” award from the National Scleroderma Foundation. He is currently funded by the National Institutes of Health and is leading efforts to develop guidelines for the management of scleroderma and gout.
The U-M Department of Internal Medicine is pleased to announce the completion of the Laurence H. Baker Collegiate Professorship in Cancer Developmental Therapeutics in the Division of Hematology & Oncology.

This professorship recognizes the importance of Dr. Baker’s impressive contributions to medical oncology and his leadership in clinical cancer research, patient care, and education at the University of Michigan. He has devoted his career to the improvement of cancer care with a multidisciplinary team approach focused on the patient, innovative clinical trials, and the integration of laboratory and clinical research findings to advance new treatments and developmental therapeutics. Dr. Baker has been Chair of SWOG since 2005, leading one of the largest federally funded cancer clinical trials cooperative groups in the world. Additionally, he is an internationally recognized authority in early and late stage translational research and survivorship in sarcomas.

Dr. Baker serves as a scientific consultant to the National Cancer Institute as well as many university cancer center scientific advisory boards. He has authored more than 200 articles in peer-reviewed journals and more than 50 books or book chapters. He is the recipient of numerous awards, including the University of Michigan Dean’s Award for Achievement in Clinical and Health Sciences Research and Token of Appreciation from Medical Students Award, the American Society of Clinical Oncology Distinguished Service Award for Scientific Leadership and Statesman Award, the American Cancer Society Distinguished Service Award, the Sarcoma Foundation of America Nobility in Science Award, and the Jeffrey A. Gottlieb Memorial Award for Outstanding Achievement in Cancer Therapeutic Research.

Through this named permanent endowed professorship, the Division of Hematology/Oncology and the Department of Internal Medicine wish to honor Dr. Baker for his myriad contributions to the University of Michigan and the field of cancer developmental therapeutics.
TIMOTHY T. NOSTRANT, MD, RETIRES

After four decades of service to the University of Michigan and the field of gastroenterology, Dr. Timothy T. Nostrant retired from active practice to join his family in South Carolina. A two-day event celebrating his career and achievements took place on September 23–24, 2011, at U-M.

Dr. Nostrant joined the Department of Medicine as a House Officer in 1973 and completed his Gastroenterology fellowship in 1979, whereupon he became a faculty member at U-M. From the very start, he exhibited the attributes of a master clinician: trusted by his patients, respected by his colleagues, and admired by his students. His tremendous clinical knowledge and expertise, made him the “go-to” person in the Division for any GI problems.

He guided the creation of the infrastructure and foundation of the clinical operations for the Division of Gastroenterology. In the early 1980s, he spearheaded and developed clinical procedures and systems, many of which are still in place. His talents as a clinician and administrator led Dr. Nostrant to serve in a broad spectrum of clinical roles including Physician Leader, Outpatient Clinic Director, Inpatient Chief for the Division of Gastroenterology, and Acting Division Chief for Gastroenterology. He was the lead physician and architect for the Faculty Diagnostic Unit, which was designed to serve as a national model for the development of the Clinician Scholar Track. Its multi-subspecialty approach to consultations has become a blueprint for other departments within U-M. In the 1980s, Dr. Nostrant recognized that endoscopy would become one of the major diagnostic tools in gastroenterology. With this in mind, he convinced U-M to build the Medical Procedures Unit, which is the model for all endoscopy units in the nation today.

Over the years, Dr. Nostrant trained more than 300 fellows who are now practicing in 33 states. His clinical knowledge and judgment have made him one of the most popular clinical gastroenterologists in the state of Michigan. He received numerous awards for his teaching contributions, including the Outstanding Clinician Award from the Dean’s Office in 2008.

Throughout his career, Dr. Nostrant was also recognized nationally as an authority in clinical gastroenterology and a serious educator. He participated in over 70 visiting professorships, seminars, and extramural invited presentations. He authored over 100 peer review papers on digestive disorders and has been a member of the editorial board for several gastro-intestinal journals. At the state level, Dr. Nostrant served as the President of the Detroit Gastro-enterology Society and as Governor of the Michigan chapter of the American College of Gastroenterology. On a national level, he served on several committees for both the American Gastroenterological Association and the American College of Gastroenterology.
GILES G. BOLE

Giles G. Bole, a former dean of the Medical School who specialized in arthritis research and rheumatology, passed away in June 2011. He was 82 years of age.

Dr. Bole spent nearly his entire academic career at the University of Michigan, earning his BS in 1949 and his MD in 1953. In 1959 he joined the Medical School faculty and from 1969 to 1986 was director of the Rackham Arthritis Research Unit. In 1975, Bole became chief of the Rheumatology Division in the Department of Internal Medicine, a position he held until 1986 when he joined the Dean’s Office. He served as the Medical School’s associate dean for clinical affairs, then as senior associate dean and executive associate dean until 1990. In 1990 Bole was appointed interim dean of the Medical School and was formally named dean in July 1991. The Medical School was recognized in several notable ways during Bole’s tenure, receiving a Robert Wood Johnson Clinical Scholars Program Grant and being re-designated one of the top members of the NIH Medical Science Training Program. The School also was re-funded with the largest General Clinical Research Grant provided by the National Institutes of Health. The Medical School moved up from sixteenth to ninth in the U.S. News & World Report rankings of research-intensive medical schools, and in 1996 it ranked ninth in total research funding from the NIH. Bole also oversaw the appointment of 12 department chairs, as well as the appointment of the director of the NIH General Clinical Research Center and co-directors of the Mental Health Research Institute. In 1992, the School started using a radically new curriculum, and to better serve the students, class size was reduced from 207 to 170. Near the end of Bole’s tenure as Dean, the Medical School commissioned a cultural diversity audit, helping the School to critically assess itself and develop new ways of integrating the values associated with diversity into the School’s culture. Bole’s leadership brought about improvement and growth in the physical plant of the Medical School and the entire U-M Medical Center.

The Medical Science Research Building III was built, and the older Medical Science Buildings I and II were renovated and remodeled. The Medical School administration worked with the Michigan delegation in Congress to obtain funding for the remodeling and reconstruction of the Ann Arbor VA Medical Center. In July 1996, Bole announced his intention to step down from the Deanship and return to the faculty; he was named Dean Emeritus of the Medical School shortly thereafter. He retired from U-M in 2003.
Galen B. Toews, MD, FACP, a pioneering lung researcher who led the Division of Pulmonary and Critical Care Medicine at the University of Michigan Health System for more than 20 years, passed away in October, 2011, after stepping down in September due to illness.

Toews was a leader in the field of respiratory research for more than 30 years. Based on his contributions to the field, he was nominated by his colleagues for the Distinguished Achievement Award from the American Thoracic Society. His research focused on the body’s immune response and the role it played in human lung disease, including idiopathic pulmonary fibrosis (IPF). Toews was also known for fostering collaboration between basic science research and clinical investigators. His efforts helped to make U-M one of the premier institutions for the diagnosis and treatment of IPF and other lung diseases. Pulmonary divisions throughout the country followed his template for patient-oriented research training.

Toews graduated from the University of Oklahoma School of Medicine in 1971 and completed an internship and residency in internal medicine at Parkland Memorial Hospital in Dallas, Texas. He served as an Army doctor at Fort Polk in Louisiana and then completed pulmonary and immunology fellowships at The University of Texas Southwestern Medical Center before joining the faculty there in 1979. In 1987, he was appointed the Chief of the Division of Pulmonary and Critical Care Medicine in the Department of Internal Medicine at U-M. He was promoted to full professor in 1991 and served as Associate Dean for Research at the U-M Medical School from 2006–2008. In 2002, he was given the Michigan Thoracic Society’s Bruce H. Douglas Award for contributions to pulmonary medicine. In recognition of his major contributions to the areas of research, education, clinical care, and service, Toews was awarded the Paul De Kruif Lifetime Achievement Award from the U-M Department of Internal Medicine in 2011.
For more information about the University of Michigan Department of Internal Medicine, go to:
www.med.umich.edu/intmed

For detailed information about individual divisions, please visit their website:

- **Allergy and Clinical Immunology**: [www.med.umich.edu/intmed/allergy](http://www.med.umich.edu/intmed/allergy)
- **Cardiovascular Medicine**: [www.med.umich.edu/cvc](http://www.med.umich.edu/cvc)
- **Gastroenterology**: [www.med.umich.edu/gi](http://www.med.umich.edu/gi)
- **General Medicine**: [www.med.umich.edu/intmed/genmed](http://www.med.umich.edu/intmed/genmed)
- **Geriatric Medicine**: [www.med.umich.edu/geriatrics](http://www.med.umich.edu/geriatrics)
- **Hematology & Oncology**: [www.med.umich.edu/intmed/hemonc](http://www.med.umich.edu/intmed/hemonc)
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- **Nephrology**: [www.med.umich.edu/intmed/nephrology](http://www.med.umich.edu/intmed/nephrology)
- **Pulmonary & Critical Care Medicine**: [www.med.umich.edu/intmed/pulmonary](http://www.med.umich.edu/intmed/pulmonary)
- **Rheumatology**: [www.med.umich.edu/intmed/rheumatology](http://www.med.umich.edu/intmed/rheumatology)

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