



UNIVERSITY *of* MARYLAND
MEDICAL SYSTEM AND SCHOOL OF MEDICINE

The Power of Partnership



ALL *for* ONE 2015

ANNUAL REPORT

Contents

A Shared Vision

2

•

Medical System Board of Directors

4

•

School of Medicine Board of Visitors

5

•

ALL *for* ONE

6

•

Delivered from Danger

•

Mobilizing Against Ebola for All the World

•

The Best Shot for Successful Kidney Transplants

•

Lung Rescue and Healing

•

Joined Forces Against the Deadliest Lung Cancers

•

An All-Out Effort for Isaiah

•

Core Labs Support a World of Research

•

Team Effort in Sports Medicine

•

Commitment to a Healthier Community

School of Medicine Highlights

26

•

Medical System Highlights

34

•

School of Medicine Financial Report

46

•

Medical System Financial Report

47

•

Leadership

48

•



The **Power of Partnership** means that we bring academic and clinical knowledge and experience to bear for each patient. The University of Maryland School of Medicine, as one of the leading medical schools and research institutions in the nation, is the fertile ground on which the University of Maryland Medical System has grown into a network of clinical leadership.

When we say **All for One**, we include our educational mission, our basic science laboratories, our multidisciplinary collaborations and our advances in clinical technology — all to provide the best care for each patient and foster healthier communities in Maryland and around the world.

The University of Maryland School of Medicine and Medical System are facing the challenges in health care, biomedical research and education with a shared belief in innovation, discovery-based medicine and high-value health care.

The desire to deliver the best possible outcomes for our patients drives our faculty and staff, who work to meet the needs of Marylanders while developing a global model of an integrated health system and medical school.

Together, we create innovative programs in clinical and academic medicine and biomedical research.

Our two organizations form a partnership that enhances the work that each of us does. Our faculty and staff work together, side by side or in a sequence, with an **ALL for ONE** mindset to benefit all of Maryland and, more than ever, the world. The prominent role that faculty and hospital staff played in the Ebola outbreaks of 2014/2015 and the effort to develop a vaccine to protect the world from this deadly disease exemplify our global impact.

Nationwide, medical schools and health systems face increasing fiscal challenges. The entire country — Maryland in particular — has embarked on a new approach to delivering and paying for health care. Population health is an important facet of national health care reform, meeting the needs of a community and finding the best way to pay for it.

Maryland hospitals have a unique arrangement with both the federal and state governments, in which hospitals' revenue growth is capped. This provides incentive to actively manage each patient's care outside the hospital walls, improve quality and partner with communities to reduce acute care hospital utilization.

HIGH-VALUE HEALTH CARE

The partnership between the School of Medicine and Medical System plays a critical role in sustaining and improving the health and well-being of our communities in Maryland, as well as around the world in countries where our faculty extend their research and patient care.

We share a common mission to teach future health care practitioners, to conduct innovative research, and to provide a full range of health care services to diverse patient populations across the region.

MEDICAL SYSTEM GROWTH

UMMS comprises 12 member hospitals whose affiliated physicians and care teams are dedicated to delivering world-class care. UMMS member hospitals employ nearly 24,000 people. The Medical System has a combined total of 2,405 licensed beds and recorded 115,049 patient admissions in Fiscal 2015, along with 395,583 emergency visits and 1.5 million outpatient visits.

Our strategic growth will offer greater value to patients. In September 2014, UMMS entered into a clinical affiliation with CVS Health to increase patient access to high-quality, affordable care and improve medication adherence. In May 2015, UMMS entered into an agreement to acquire Riverside Health Inc., a Medicare and Medicaid managed care organization with 25,000 enrollees statewide.

A RESOURCE TO THE REGION

Physicians across the region rely on our flagship academic medical center, the University of Maryland Medical Center (UMMC), to refer their patients for specialized care. This year, our own patient-transfer service, Maryland ExpressCare, recorded 11,884 referrals for urgent patient transfers from community hospitals.

UMMC is a hospital of choice throughout the Mid-Atlantic for its expertise in the delivery of time-sensitive critical care. In June, UMMC cut the ribbon on the new Neonatal Intensive Care Unit, part of the University of Maryland Children's Hospital (UMCH). The UMCH last year treated a total of 42,000 children, from newborns to young adults, through hospital and outpatient services.

UMMS also is increasing the capacity and accessibility of non-hospital-based medical care in communities across Maryland. Our faculty physicians provide compassionate, world-class care at more than 30 different locations throughout the state.

A SCHOOL ON THE RISE

The UM School of Medicine, founded in 1807, has more than 3,000 faculty members dedicated to training the next generation of physicians, research scientists and allied health professionals.

As the health care environment changes and the need for discovery-based medicine intensifies, the SOM continues to rise as one of the pre-eminent biomedical research institutions in the nation, and as an expanding leader in clinical care.

In FY 2015, the School advanced two major capital projects that will place its medical and research facilities as among the most advanced in the nation and the world:

- the topping out of the new \$305 million, 450,000 square-foot research building, and
- the near completion of the Maryland Proton Treatment Center.

In research, the School continued to rebound in total grants and contracts, despite federal and state budget cuts. Significantly, grants and contracts increased for the second

year in a row. This exemplifies how undaunted our faculty are in the face of new challenges. Overall, according to the Association of American Medical Colleges, we are now ranked 8th among all public medical schools and 23rd among all 144 public and private medical schools nationwide in research grant and contract expenditures.

SAFETY AND QUALITY OF CARE

Several UMMS hospitals have continuously earned national safety and quality awards from organizations such as the Delmarva Foundation, the Joint Commission, the American Heart Association/American Stroke Association and the Maryland Patient Safety Center.

Our system-wide safety initiatives are built on collaboration among clinicians practicing across the system and an advanced information technology platform that supports clinical decision-making and secure sharing of data.

INCREASING ACCESS TO CARE

Working together, we identify where physician and health care professional shortages exist and work with the community and our hospital partners on solutions. Residents throughout Maryland now have more access than ever to our world-renowned transplant specialists, neurosurgeons, cardiologists and pediatricians. The University of Maryland Cancer Network provides access to cancer services and clinical trials across the region.

Despite the fiscal challenges faced by the health care industry nationwide, we continue to demonstrate strong financial performance through responsible stewardship across our organizations.

In relentless pursuit of excellence, we remain sincerely yours,



Robert A. Chrencik, MBA, CPA
President and Chief Executive Officer
University of Maryland Medical System



E. Albert Reece, MD, PhD, MBA
Vice President for Medical Affairs, University of Maryland
John Z. and Akiko K. Bowers Distinguished Professor and
Dean, University of Maryland School of Medicine

A photograph of two men standing in front of a modern glass building. The man on the left is white with a mustache, wearing a dark suit and a red tie. The man on the right is Black with a mustache, wearing a dark pinstripe suit and a red bow tie. They are both looking off to the side with slight smiles.

VISION

In the pages ahead, you can read stories about our teams working **All for One** — whether it's one patient in distress, one community facing challenges, or one world fighting a deadly disease outbreak. These highlights demonstrate our bold and strategic advancement of discovery-based medicine and high-value health care — not just in Maryland, but across the nation and throughout the world.

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"The University of Maryland Medical System delivers a special blend of expertise, innovation and caring in each community we serve, by sharing the teaching, research and specialty expertise based at our academic medical center with each of our affiliated hospitals, health centers, doctors and care teams. All focused on the people we serve.
With 'Maryland' in our name, we wouldn't have it any other way."

— Stephen A. Burch, Esq., Chair, UMMS Board of Directors





“The University of Maryland School of Medicine Board is proud to be part of the ‘All’ that we bring to delivering the best care to each patient. The advances that our researchers and physician-scientists are making in critical areas — from diabetes, transplantation, lung disease and brain science to malaria, Ebola and other infectious diseases — are having more impact than ever on improving people’s lives, in our community and around the world.

At this critical time in history, our partnership with UMMS and shared commitment to excellence in our key mission areas of education, research and clinical care could not be more important and necessary.”

— Michael E. Cryor, Chair, SOM Board of Visitors

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*Alumnus - UM Carey School of Law



"Our Maternal Fetal Medicine experts are highly trained to care for complex pregnancies, but we can't do it alone. It's imperative to have the support of other disciplines throughout the Medical Center. Together, we can tackle the most challenging cases."

— Ozhan Turan, MD, PhD

2015

ALL *for* ONE

Behind each patient is a mosaic of experts — observant and compassionate physicians, nurses and other clinical care specialists and innovative scientists whose research leads to better care. When one pregnant and very sick young mother arrived with a complex and life-threatening condition, ***it took an all-out effort*** to deliver her — and the baby — from danger.

...

To read about it, turn the page.

More than 50 staff from several specialties who went all out for one mother and her baby included, from left to right: Garrett Fitzgerald, MD; Diana Vaughan, LCSW-C; Catherine Miller, LCSW-C; Tara Stocksdale, BSN, RN; Alphonso Jones, MS, RN; Ozhan Turan, MD, PhD; Abby Zukor, BSN, RNC-OB; Jeffrey Hasday, MD; Tracie Brown, BSN, RN; Katherine Ford, RN; Doug Corwin, MD; and Nirav Shah, MD.

DELIVERED *from* DANGER



"The way I see it is, in Ivory Coast, I would have died because we don't have that level of care over there. I'm lucky to be here and to have my daughter and son and to have access to that care. I'm really sick, but I'm really happy to be in this position."

- Tinan Doualou Kouame

Transatlantic flights are the norm for Tinan Doualou Kouame, 36, who splits her time between Maryland and Africa's Ivory Coast, where her husband and 8-year-old son live. Early this spring, on a flight to Maryland, she became so short of breath she needed the crew to provide oxygen. She was scared. And she was 29 weeks pregnant.

Mrs. Doualou was brought to the Medical Intensive Care Unit (MICU) at the University of Maryland Medical Center. The right side of her heart was failing. She couldn't get enough blood flow through her lungs to provide enough oxygen for her body and her baby. Every breath was a struggle.

What she had always thought was asthma turned out to be an underlying lung disease that caused pulmonary hypertension — a serious condition with often deadly consequences for pregnant women. A team of specialists from every corner of the hospital came together to save her life and deliver her baby daughter.

Coordinating all of her care were intensivists — physicians who specialize in critical care medicine — led by **Jeffrey Hasday, MD**.

"Blood volume and oxygen requirements change a lot during pregnancy and even more so during labor. Women with pulmonary hypertension are often counseled not to become pregnant because the risk of death is so high," said Dr. Hasday.

"This case shows not only how deep we are in expertise, but how well we work together here," Dr. Hasday said.

The only way to save Mrs. Doualou's life was to deliver her baby early at 32 weeks.

Obstetricians transformed Mrs. Doualou's MICU room into a labor and delivery suite. The MICU staff and neonatology staff, led by **Hyung Woo, MD**, turned the room next door into a neonatal ICU. Obstetric anesthesiologist **Shobana Bharadwaj, MBBS**, and nurses from labor and delivery arrived to assist. Teams from cardiology and from pulmonary and critical care medicine supported Mrs. Doualou's lung and heart function throughout the delivery. And social worker **Catherine Miller, LCSW-C**, had managed to get Mrs. Doualou's husband, Fernando Kouame, a visa in just one day, so he could be present for the birth.

"Mrs. Doualou's care really did take a village, and was a completely collaborative approach," said cardiologist **Stacy Fisher, MD**. "It was wonderful to work with such a phenomenal group."



Jeffrey Hasday, MD



Stacy Fisher, MD



MATERNAL-FETAL MEDICINE SPECIALISTS

At 11 pm, on March 11, Lauren Kouame was born at 3.4 pounds, delivered by obstetricians with a subspecialty in high-risk pregnancy and births. The obstetrics team was led by **Ozhan Turan, MD, PhD**, and included maternal-fetal medicine fellows **Dana Block-Abraham, DO**; **Sarah Crimmins, DO**; and **Garrett Fitzgerald, MD**.

She had no complications and left the Neonatal Intensive Care Unit after four weeks, with additional post-acute care at Mt. Washington Pediatric Hospital, part of the University of Maryland Medical System.

THE ALL-OUT EFFORT FOR MRS. DOUALOU AND HER BABY INCLUDED:

Shobana Bharadwaj, MBBS, assistant professor of anesthesiology

Stacy Fisher, MD, assistant professor of medicine and director of women's and complex heart diseases

Jeffrey Hasday, MD, the Dr. Herbert Berger Endowed Professor of Medicine and head of the Pulmonary and Critical Care Medicine Division

Kerry Sue Mueller, MBA, RN, CCRN, MICU nurse manager and **Miryam Ali, RN**, **Bridget Taylor, RN**, and **Gayle Yuzon, RN**

Ozhan Turan, MD, PhD, associate professor of obstetrics, gynecology and reproductive sciences and director of fetal therapy and complex obstetric surgery

Hyung Woo, MD, assistant professor of pediatrics

Caryn Zolotorow, MS, RNC-OB, Labor and Delivery nurse manager and **Tracie Brown, BSN, RN** and **Abby Zukor, BSN, RNC-OB**

MOBILIZING AGAINST EBOLA *for All the World*



Myron Levine, MD, DTPH, and Kirsten Lyke, MD

FACULTY INVOLVED IN THE VACCINE DEVELOPMENT, RESEARCH AND GLOBAL EFFORTS INCLUDED:

Myron M. Levine, MD, DTPH, Simon and Bessie Grollman Distinguished Professor of medicine, and associate dean for global health, vaccinology and infectious diseases

Kirsten E. Lyke, MD, associate professor of medicine, unit head for immunoparasitology

Robert R. Redfield Jr., MD, professor of medicine and division head for infectious diseases, and associate director of the Institute of Human Virology

Lewis Robinson, MD, PhD, associate professor of medicine and medical director of UMMC's Critical Care Resuscitation Unit

Alan L. Schmaljohn, PhD, professor of microbiology and immunology

Samba O. Sow, MD, MS, adjunct professor of medicine and coordinator for the UM Center for Vaccine Development-Mali

Milagritos Tapia, MD, associate professor of pediatrics

In the fall of 2014, an epidemic of the deadly Ebola virus in West Africa led to a growing number of deaths and an urgent need to protect health workers. The UM School of Medicine and the UM Medical Center deployed their experts: infectious disease specialists with a potential vaccine; virologists who have studied Ebola for decades; trained hospital teams here and an international expert who flew to Africa to care for the sick.

The UM SOM joined an unprecedented global consortium assembled by the World Health Organization and the National Institutes of Health to accelerate testing of a new Ebola vaccine candidate. Myron M. Levine, MD, DTPH, one of the pre-eminent infectious disease scientists in the world, has devoted more than 40 years to the development of vaccines for diseases such as Ebola, malaria and cholera.

Dr. Levine mobilized the UM SOM's Center for Vaccine Development, with Kirsten E. Lyke, MD, in Baltimore and Samba O. Sow, MD, MS, and Milagritos Tapia, MD, in Mali, one of the West African countries affected by the outbreak. They administered the experimental vaccine to health care workers who volunteered to participate in the first clinical trials.

Alan L. Schmaljohn, PhD, has studied the Ebola virus for more than 20 years and was a lead researcher in the US Army Medical Research Institute of Infectious Diseases. He and other UM SOM scientists were regularly in the news explaining the virus and how a further spread could be contained.

As a world leader in critical care, UMMC was designated by federal and state agencies as one of three hospitals in Maryland prepared to receive patients under evaluation for or diagnosed with Ebola.

While UMMC remains in a constant state of readiness for emerging public health threats, a disease such as Ebola required the diligence and training of a large interdisciplinary work group. Specialists in a myriad of functions worked around the clock for weeks refining protocols for triage, isolation and treatment scenarios, policies, operational response, staff training, facility preparedness, continuity of operations, waste disposal, and a host of other patient care services. Training and preparedness drills ensured continual refinement. Whether preparing for a potential patient, or actually caring for patients under evaluation for Ebola, the team performed with unparalleled professionalism and compassion.



Clinicians and facilities staff at UMMC sprang into action to equip a special two-room Biocontainment Unit, managed by nurse leaders Christina Cafeo, DNP, RN, and Theresa DiNardo, MSN, RN, CCRN. Michael Abraham, MD, and other emergency staff were trained to evaluate patients in the ER with symptoms or travel history that could mean they were exposed to the virus. The unit continues to be ready, whether for Ebola or another highly contagious virus.

Lewis Robinson, MD, PhD, is an international expert in disaster management. He was among several intensivists selected by the World Health Organization to fly to Sierra Leone to care for those stricken with Ebola. At the time, very few clinicians were willing to travel to Africa to assist. While there, he provided direct care to hundreds of people with Ebola at Kenema Government Hospital.



FACULTY AND UMMC STAFF INVOLVED WITH THE UMMC EBOLA RESPONSE INCLUDED:

Michael K. Abraham, MD, clinical assistant professor of emergency medicine

Christina Cafeo, DNP, RN, director of nursing and patient care services at UMMC

Theresa DiNardo, MSN, RN, CCRN, nurse manager of the Biocontainment Unit

Anthony Harris, MD, MPH, professor of epidemiology and public health

Surbhi Leekha, MBBS, MPH, assistant professor of epidemiology and public health, and UMMC medical director for hospital epidemiology and infection prevention

Michael Anne Preas, RN, BSN, CIC, director of infection prevention and hospital epidemiology at UMMC

Craig R. Savageau, MS, emergency management coordinator for UMMC and clinical instructor in the Department of Emergency Medicine, UM School of Medicine



Matthew Weir, MD, and Terry Watnick, MD

The BEST SHOT *for* Successful Kidney Transplants

Close collaboration between top physicians across the departments of Medicine and Surgery has positioned the University of Maryland Medical Center as a leader in the treatment of kidney disease — particularly in the management of polycystic kidney disease (PKD) — before and after transplantation.

PKD is the most commonly inherited kidney disease, and is marked by the development of clusters of cysts. As the cysts accumulate fluid, the diseased organs grow as large as 20 pounds each, causing complications such as high blood pressure and difficulty breathing. The enlarged and diseased organs interfere with the patient's quality of life. After many years, the cysts displace normal tissue, causing the kidneys to stop working, and signaling time for a transplant.

While most hospitals are performing kidney transplant surgery in PKD patients in two separate procedures, the **UM Division of Transplantation is one of only a handful of centers in the country that will remove both dysfunctional kidneys and replace them with a kidney from a living donor in one operation**, resulting in a shorter recovery time and more positive patient experience.

Terry Watnick, MD, has helped keep UMMC's transplant efforts at the forefront through the Baltimore Polycystic Kidney Disease Research and Clinical Core Center. Funded by the National Institutes of Health, this Center of Excellence was created to research PKD and implement a system to better understand why so many people are affected.

Working with their kidney transplant surgeon colleagues, the team is able to effectively care for patients prior to the development of kidney failure and keep them in good health before the time of transplant.

The team approach requires collaboration among specialists in the Department of Medicine, led by **Stephen N. Davis, MBBS**, and the Department of Surgery, led by **Stephen T. Bartlett, MD**. The success of the transplant surgery relies on highly trained surgeons and, just as importantly, the specialists in medicine who manage the patients long-term, giving them the best shot for a great outcome.

This teamwork for the benefit of the patient, backed by research colleagues, make UMMC a leader in PKD and kidney disease treatment worldwide.



When former Pittsburgh Steeler Chris Kemoeatu needed a kidney transplant, he found his gift in his brother and former Baltimore Raven Ma'ake Kemoeatu. Chris' search for care led him to **Matthew Weir, MD**.



Dr. Weir helped Chris avoid dialysis as long as possible and worked with the transplant team to prepare him for surgery. When Chris learned his brother was a match, the team at UMMC made it happen, and both were out of the hospital and on the road to recovery within days — even landing an appearance on *The Ellen DeGeneres Show*.

When all was said and done, 70 patients — 35 donors and 35 recipients, including four at UMMC — participated in the longest paired kidney exchange chain in history, made possible by the National Kidney Registry. UMMC's participation in paired exchange opens a wider range of options to patients to secure the best match possible.

Included in the chain were a brother and sister from Maryland. Eastern Shore resident LaTwanja Goslee donated a kidney to a stranger, while her brother, Charles Muse of Baltimore, received a donation from a stranger who matched him. Prior to surgery at UMMC, Ms. Goslee received pre- and post-operative evaluation and care at University of Maryland Shore Medical Center at Easton.



FACULTY WHO FOCUS ON KIDNEY DISEASE MANAGEMENT AND TRANSPLANT SURGERY INCLUDE:

Stephen T. Bartlett, MD, the Peter Angelos Distinguished Professor of Surgery and chairman of the Department of Surgery, and executive vice president and surgeon-in-chief for UMMS

Jonathan Bromberg, MD, PhD, professor of surgery, head of the Division of Transplantation

Stephen N. Davis, MBBS, the Dr. Theodore E. Woodward Endowed Chair and professor in the Department of Medicine and physician-in-chief at UMMC

David B. Leeser, MD, associate professor of surgery and head of kidney and pancreas transplantation in the Division of Transplantation

Terry Watnick, MD, associate professor of medicine, director of the Baltimore Polycystic Kidney Disease Research and Clinical Core Center

Matthew Weir, MD, professor of medicine, head of the Division of Nephrology

Raymond Rector, CCP, LP

LUNG RESCUE *and* HEALING



"We worked to bring the Hemolung to the Medical Center on an emergency basis. UMMC is only the second hospital in the US to use the device."

- Si M. Pham, MD

The University of Maryland School of Medicine launched the innovative **Program in Lung Healing** this year to provide a gateway for research, education and treatment for the growing number of patients with ailments of the respiratory system.

Bartley P. Griffith, MD, one of the leading surgeons in the nation for heart and lung transplantation, aortic diseases and pulmonary thromboendarectomy, is executive director of the program. **Aldo T. Iacono, MD**, is the director of outreach and consultative services. The program integrates physicians from several departments, with leadership from **Stephen N. Davis, MBBS**, chair of the Department of Medicine; **Stephen T. Bartlett, MD**, chair of the Department of Surgery; and **Thomas M. Scalea, MD**, **Si M. Pham, MD**, and **Jay Menaker, MD**, of the Program in Trauma's Critical Care Division.

The Program in Lung Healing directly translates to patient care through the innovative Lung Rescue Unit (LRU) at the University of Maryland Medical Center (UMMC). The LRU is a collaboration between faculty in Medicine and Surgery, and in the R Adams Cowley Shock Trauma Center, where staff excel at the advanced critical care of patients with severe lung disease.

Dr. Menaker and Dr. Pham are the medical directors of the unit. **Theresa DiNardo, MSN, RN, CCRN**, nurse manager, and **Karen Doyle, MBA, MS, RN**, vice president for nursing and operations at the R Adams Cowley Shock Trauma Center, are the nursing and patient care leaders for the unit and the Program in Lung Healing.

"Through enhanced clinical care and integrated training and research activities, the UM SOM Program in Lung Healing will save lives, generate important new knowledge, and produce the next generation of superbly trained lung and critical care physicians and scientists," said Dr. Davis, physician-in-chief at UMMC.

Just days after the formal launch of the Program in Lung Healing, a Maryland man was transferred to the Lung Rescue Unit with an infection on top of his already advanced hereditary lung disease. The LRU turned to an investigational respiratory dialysis machine that pumps blood from the body through a cannula in the neck, removes the carbon dioxide, then returns the processed blood.

After a day on the Hemolung, the patient was taken off the ventilator, and once his lungs recovered enough to breathe on their own, the Hemolung was removed altogether.



In the LRU, the team of pulmonologists, critical care specialists, cardiothoracic surgeons and nurses immediately determine the most effective treatment for each patient and serve as a bridge to either lung healing or transplantation.



Raymond Rector, CCP, LP, and other perfusionists at UMMC are the professionals who initiate patients on extracorporeal membrane oxygenation (ECMO) and manage their care.

Aldo T. Iacono, MD, is the first Hamish S. and Christine C. Osborne Professor in Advanced Pulmonary Care. The Osbornes are among the founding supporters of the Program in Lung Healing. Mr. Osborne received a life-saving double-lung transplant at UMMC. Other founding philanthropic gifts have been provided by the Grayce B. Kerr Fund and an anonymous donor.



KEY TO THE PROGRAM IN LUNG HEALING AND THE LUNG RESCUE UNIT:

Stephen T. Bartlett, MD, the Peter Angelos Distinguished Professor of Surgery and chairman of the Department of Surgery, and executive vice president and surgeon-in-chief for UMMS

Stephen N. Davis, MBBS, the Dr. Theodore E. Woodward Endowed Chair and professor in the Department of Medicine and physician-in-chief at UMMC

Bartley P. Griffith, MD, the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery

Jay A. Menaker, MD, associate professor of surgery and medical director of the Lung Rescue Unit at UMMC

Si M. Pham, MD, professor of surgery, UMMC surgical director of the Lung Rescue Unit and director of heart and lung transplantation, circulatory assist device and ECMO programs

Thomas M. Scalea, MD, the Honorable Francis X. Kelly Distinguished Professor in Trauma Surgery, physician-in-chief of UMMC's R Adams Cowley Shock Trauma Center and system chief for critical care services for UMMS

"This team exemplifies the whole being greater than the sum of the parts. We bring to bear our combined expertise with the sole motivation of providing patients with a seamlessly integrated multidisciplinary treatment plan that is specifically tailored to them. The treatment plan incorporates both the physical and emotional needs of patients and includes their existing health care providers as part of the team."

— Joseph Friedberg, MD



JOINED FORCES AGAINST *the* DEADLIEST LUNG CANCERS

H. Richard Alexander, MD, Martin Edelman, MD,
Minesh Mehta, MBChB, and Joseph Friedberg, MD



Physicians and nurses from medical and surgical oncology

A team of experts has formed this year around one mission: To provide the best care available in the world, now and in the future, for patients with mesothelioma and other thoracic malignancies.

The new University of Maryland School of Medicine Mesothelioma and Thoracic Oncology Treatment and Research Center was established in early 2015 in connection with the University of Maryland Marlene and Stewart Greenebaum Cancer Center to provide personalized, cutting-edge treatment to patients with lung cancer, mesothelioma and other cancers of the chest.

Providing the best care in the world is a bold mission, and the UM SOM Mesothelioma and Thoracic Oncology Treatment and Research Center is positioned to deliver.

The Center's director is **Joseph S. Friedberg, MD**, a renowned thoracic surgeon and expert in mesothelioma and other thoracic cancers. Soon after he was recruited, he assembled a talented clinical team whose combined expertise crosses all modalities of cancer treatment throughout the entire University of Maryland Medical System: medical, surgical and radiation oncology; pulmonary medicine; pathology; radiology; nursing; occupational and environmental health; integrative medicine and palliative medicine.

The team meets twice a week to evaluate patient profiles, discuss treatment plans and examine innovative treatments that could benefit each patient. They ensure that care is optimally coordinated and patients have access to the latest proven treatments and clinical trials within a supportive environment.

Equally important to providing superior cancer treatment is furthering knowledge and developing innovative treatment options. The Center promotes basic science, translational and clinical research, and facilitates collaboration with like-minded researchers around the world.

"The UM Greenebaum Cancer Center prides itself on providing specialized care for the most complex cases," said **Kevin J. Cullen, MD**, director of the Cancer Center. "The addition of the UM SOM Mesothelioma and Thoracic Oncology Treatment and Research Center is a tremendous boon for patients in Maryland and beyond who are diagnosed with mesothelioma or any cancer of the chest."



THE UNIVERSITY OF MARYLAND CANCER NETWORK

The Cancer Institute at **UM St. Joseph Medical Center** was one of only 75 accredited cancer programs in the US to receive the 2014 Outstanding Achievement Award from the American College of Surgeons Commission on Cancer.



Thoracic surgeon **Linda W. Martin, MD**, spearheaded the lung cancer screening program at **UM Upper Chesapeake Medical Center**.



The Tate Cancer Center at **UM Baltimore Washington Medical Center** is one of only four programs in Maryland accredited by the Commission on Cancer as an Academic Comprehensive Cancer Program.



FACULTY INVOLVED WITH THE NEW CENTER AND THORACIC ONCOLOGY INCLUDE:

H. Richard Alexander, MD, professor and associate chairman for clinical research, Department of Surgery

Kevin J. Cullen, MD, Marlene and Stewart Greenebaum Distinguished Professor of Oncology and professor of medicine, UM School of Medicine, and director of the UM Marlene and Stewart Greenebaum Cancer Center

Martin J. Edelman, MD, FACP, professor of medicine and head of the section of solid tumor oncology

Joseph S. Friedberg, MD, Charles Reid Edwards, MD, Professor of Surgery, UM School of Medicine, and thoracic surgeon-in-chief for UMMS

Linda W. Martin, MD, assistant professor of surgery

Minesh P. Mehta, MBChB, FASTRO, professor of radiation oncology and medical director of the Maryland Proton Treatment Center

An ALL-OUT EFFORT *for* ISAIAH

"I'm not supposed to play contact sports for now, but I love throwing the football with my friends. We do that every day. I ride my bike a lot. And I can swim."

— Isaiah Cannon



John Cannon Sr. and Marcy Cannon
with son Isaiah

A seemingly minor scrape on Isaiah Cannon's knee while he was playing football silently unleashed deadly bacteria. By the time he got to the **UM Children's Hospital (UMCH) Pediatric Intensive Care Unit**, the staff prepared his family for the worst. And then everyone — including Isaiah and his family — gave it their best.

His knee wound had healed normally, but he later developed a fever and achiness. His parents, Marcy and John Cannon Sr., took him to an urgent care clinic that diagnosed the flu — twice. His big brother, John Cannon Jr., an EMT and firefighter for Baltimore and Harford counties, stopped by the house, took one look at Isaiah, and called an ambulance.

At **University of Maryland Upper Chesapeake Medical Center**, doctors stabilized him for transfer. He was flown to UMCH, as his condition began to rapidly decline. He went into cardiac arrest within the first hour after arriving.

Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria had seeped into his blood, bones and organs. Pediatric critical care specialists were working around the clock to preserve his organ function with extra-corporeal membrane oxygenation (ECMO), dialysis and other intensive care.

Isaiah's core medical team included eight pediatric critical care physicians, a pediatric heart surgeon, and a pediatric nephrologist, perfusionists, and dedicated nurses who administered expert care at his bedside around the clock. They saved his life, but poor circulation from his ailing heart turned his toes black. Doctors were able to save one leg, but had to amputate his right leg below the knee.

"Isaiah's case was an extremely complex one that required expertise from all the UMCH doctors and nurses," said **Adnan Bhutta, MBBS, FAAP**. "But this is what we excel at — treating patients whom other physicians refer to us and working as a coordinated team to manage every aspect of these sick kids' care. We treat them as if they were our own."

After 59 days in the PICU, Isaiah was transferred to the **University of Maryland Rehabilitation & Orthopaedic Institute** to continue his recovery. He walks on his own, rides his bike, swims and throws a football as well as he ever did.

"Nothing seems to stop him now," his mother said.



Isaiah Cannon's care exemplifies how the University of Maryland Medical System provides a complete continuum of care. At his community hospital, **UM Upper Chesapeake Medical Center**, **Timothy Chizmar, MD, FACEP**, **Carla Janson, MD**, and **Heather Morrison, BSN, RN**, quickly assessed him and arranged for quick transport to the system's flagship — **UM Medical Center**. Once he was out of danger, it was a smooth transition to **UM Rehabilitation & Orthopaedic Institute**, where his team included **Rachel Dorsey, OTR/L**, and **Heather Mascetti, PT, DPT**.



Watch a powerful video about Isaiah's road to recovery at umm.edu/Isaiah

ISAIAH'S CARE TEAM AT THREE UMMS HOSPITALS INCLUDED:

Timothy P. Chizmar, MD, FACEP, emergency medicine physician at UM Upper Chesapeake Medical Center

Carla L. Janson, MD, emergency medicine physician at UM Upper Chesapeake Medical Center

• • •

Adnan T. Bhutta, MBBS, FAAP, associate professor of pediatrics and head of the Division of Pediatric Critical Care at UMMC

Jason W. Custer, MD, assistant professor of pediatrics and medical director of the PICU at UMMC

Mary Jo Simke, MS, RN, nurse manager for pediatrics at UM Children's Hospital

• • •

Rachel Dorsey, OTR/L, occupational therapist at UM Rehabilitation & Orthopaedic Institute

Heather Mascetti, PT, DPT, physical therapist at UM Rehabilitation & Orthopaedic Institute

DANGER
13,200 VOLTS

Ron Zielke, PhD

CORE LABS SUPPORT *a* WORLD *of* RESEARCH

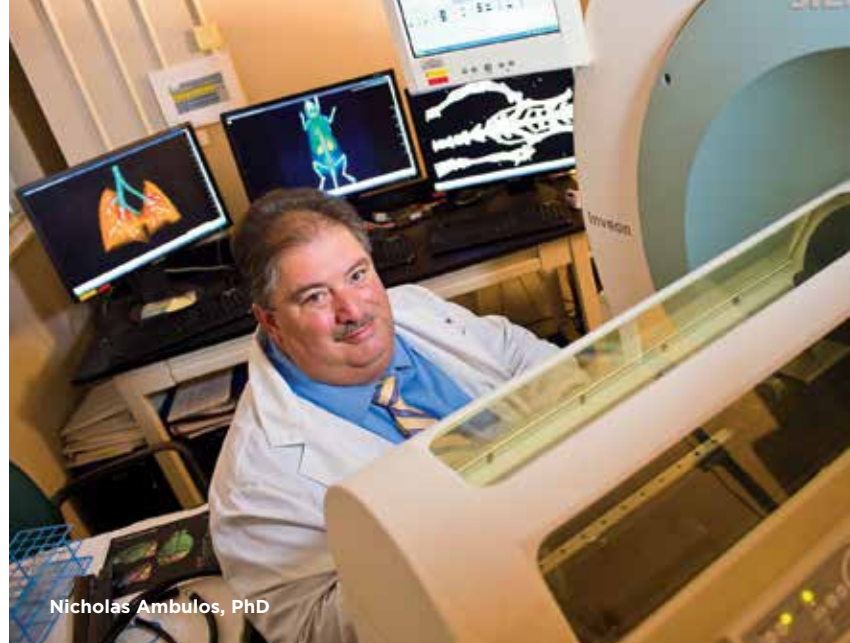
Two innovative shared laboratories — including a world-class brain tissue bank — at the UM School of Medicine keep the faculty on the brink of discovery by enabling every department to conduct research using shared resources.

The **Center for Innovative Biomedical Resources (CIBR)**, directed by **Nicholas Ambulos, PhD**, associate professor of microbiology and immunology, is the organizational framework for the School of Medicine's biomedical core resources. **The now-consolidated core labs have carried out experiments for nearly every program in the UM School of Medicine, offering state-of-the-art technologies and expertise to UM researchers.**

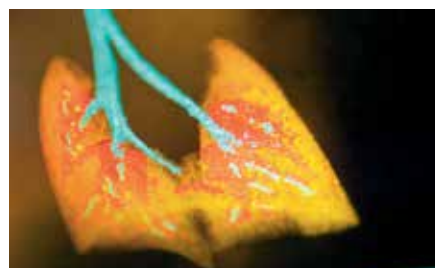
A \$7.3 million grant from the National Institutes of Health funded the renovation of nearly 30,000 square feet of space in the Bressler Research Building. The new space allows for the physical consolidation of many core facilities in a common space, creating a dynamic environment that promotes high-impact research and the flow of information across disciplines. This open approach provides the broadest array of core services and optimizes efficiency to support a successful biomedical research environment.

Another important shared resource at the UM SOM is the **University of Maryland Brain and Tissue Bank (UMBTB)**, overseen by **Ron Zielke, PhD**, professor of pediatrics. The UMBTB collects high-quality post-mortem brain tissue, which is distributed to three NIH institutes to advance research of developmental and neurological disorders. The emotional and physical well-being of those involved in the donation process is of the utmost importance, and every effort is made to fully realize the hopes of all generous donors and their families. Concurrent with strides for the equitable distribution of tissue, special respect is paid to each specific case, furthering research into improved treatments and possible cures for the disorder of the donor.

Representing one area of special interest, the UMBTB has collected tissue from donors affected with autism since 1993 and is **the only facility that has this type of tissue available for distribution to researchers around the world.** Thanks to a 2014 NIH grant that enabled the purchase of a liquid nitrogen freezer, the UMBTB is able to carefully store and closely monitor samples to meet the needs of the research community. As a result of this unique resource, more than 100 autism researchers worldwide have received tissue from the UMBTB, resulting in 145 published papers.



Nicholas Ambulos, PhD



Nicholas Ambulos, PhD, leads the CIBR, which serves nearly every program in the UM School of Medicine.

The CIBR specializes in eight core categories: structural biology, clinical resources, nucleic acid and genomics, animal model resources, imaging technologies, drug-development resources, cytometric and bioassay, and bio-informatics and statistics.



KEY TO THE CORE LABS:

Nicholas Ambulos, PhD, associate professor of microbiology and immunology, and director, Biopolymer Core Facility
Ron Zielke, PhD, professor of pediatrics and head of the Division of Pediatric Research

Standing: Andrew Pollak, MD, and Valerie Cothran, MD
In front: Yvette Rooks, MD, and David Stewart, MD

TEAM EFFORT *in* SPORTS MEDICINE

"We have an outstanding team of sports medicine physicians, in the departments of orthopaedics and family medicine, who work with the student-athletes at the University of Maryland, College Park."

- David Stewart, MD



Craig Bennett, MD

Athletes — from the Terrapins basketball team to the weekend warriors out for fun and fitness — all have two things in common: They want to perform at their peak, and they sometimes get hurt.

With the increasing need for understanding and treating the spectrum of athletic injuries, the University of Maryland School of Medicine (UM SOM) has teamed up with the University of Maryland, College Park (UMCP) to create a new center to study athletic performance and health.

The Center for Sports Medicine, Health and Human Performance brings together a team of expert faculty from two universities, complementing one another's expertise to give Marylanders of all fitness levels a world-class resource.

The new center will enable faculty from the UM SOM to treat sports-related injuries in UMCP student-athletes, other students and the general public. UM SOM faculty include those from the departments of Orthopaedics, Family and Community Medicine, Anesthesiology, and Physical Therapy and Rehabilitation Science.

The Department of Family and Community Medicine's sports-medicine certified members train primary care practitioners — including pediatricians, internists and emergency medicine physicians — to diagnose and treat many injuries that don't require surgery.

Research at the new center will focus on areas including concussion, traumatic brain injury, muscle-brain physiology and biochemistry, exoskeleton-robotic treatments and clinical and medical biomechanics.

Under the leadership of **Andrew N. Pollak, MD**, the Department of Orthopaedics at the UM SOM is collaborating with the UM School of Public Health's Department of Kinesiology and the A. James Clark School of Engineering's Fischell Department of Bioengineering on projects to prevent and treat athletic injuries of all types.

The research could lead to applications for athletes, the military and first responders. The Center builds on the UM SOM's research, academic and clinical leadership in the field of orthopaedics and sports medicine. **UM SOM physicians already serve as the official team physicians for all UMCP teams.**

"This new center leverages our broad expertise in sports medicine, orthopaedics and clinical care," said **David L. Stewart, MD**, chair of Family and Community Medicine.



UNIVERSITY OF MARYLAND REHABILITATION NETWORK

With more than 20 locations throughout Maryland, the UM Rehabilitation Network offers a full range of physical rehabilitation services to help people recover from illness or injury, such as stroke, joint replacement or traumatic injury. The Network brings together expert teams at facilities within the University of Maryland Medical System, in the Baltimore metro area, the Eastern Shore, Southern Maryland and Harford County.

The patient-centered approach tailors therapy to the individual's needs. Patients have access to specialized rehabilitation programs, such as balance therapy, aquatic therapy, amputee walking clinics, speech therapy and hand therapy.

There also are programs to benefit patients with neurological conditions, including ALS, aphasia, balance disorders and spinal cord injuries.



The UM Charles Regional Rehabilitation Center opened in La Plata, Md., in March 2015, offering sports and orthopaedic rehabilitation services in an outpatient setting. More than 1,000 patients had come to the center in the first two months after it opened.



At UM Upper Chesapeake Medical Center and UM Shore Regional Health, patients with Parkinson's disease and other movement disorders participate in the Lee Silverman Voice Treatment Big and Loud Program. Therapists work with patients on "big" movements to help with walking, balance, writing and other activities of daily living, while speech pathologists help the patient improve voice and overall verbal communication.



At UM Rehabilitation & Orthopaedic Institute, some patients with spinal cord injuries are now able to use a robotic exoskeleton to stand and walk during therapy sessions.

FACULTY IN THE CENTER FOR SPORTS MEDICINE INCLUDE:

Craig Bennett, MD, assistant professor of orthopaedics, team orthopaedic surgeon for the University of Maryland Terrapins

Valerie Cothran, MD, assistant professor of family and community medicine

Alan I. Faden, MD, the David S. Brown Professor in Trauma and director of the Center for Shock, Trauma and Anesthesiology Research

Andrew N. Pollak, MD, the James Lawrence Kernan Professor and Chair of the Department of Orthopaedics;

head of orthopaedic traumatology; chief of orthopaedics for UMMS

Mark Rogers, PhD, PT, professor and chair, Department of Physical Therapy and Rehabilitation Science

Yvette L. Rooks, MD, assistant professor, vice chair and director of residency training in the Department of Family and Community Medicine

David L. Stewart, MD, associate professor and chair of the Department of Family and Community Medicine



COMMITMENT *to a* HEALTHIER COMMUNITY



The University of Maryland Medical System and University of Maryland School of Medicine maintain a deep commitment to Baltimore, the city where each is based.

This commitment includes training those who want jobs — and employing them; educating the community; preparing the doctors of the future; studying the psychosocial factors that affect health; and anchoring Baltimore's West Side.

The University of Maryland Medical Center (UMMC), and its second location, UMMC Midtown Campus, participate in **more than 65 health fairs** throughout the year, providing free health screenings to check blood pressure, cholesterol, HIV, and body mass index along with risk assessments for vascular disease, stroke, diabetes and glaucoma.

In Pediatrics, the Division of Growth and Nutrition, led by **Maureen Black, PhD**, is currently involved in several studies, including trials **to prevent obesity among toddlers and adolescents**, follow children prenatally exposed to illegal drugs, and monitor the growth and development of young children as a Children's HealthWatch site.

The Center for Injury Prevention and Policy at the R Adams Cowley Shock Trauma Center seeks to reduce the incidence of injuries from preventable causes.

The program includes a hospital-based intervention program and an initiative to combat domestic violence.

Safe Kids — a program run through Women's and Children's Health — focuses on preventing unintentional injuries to children.

The Safe Environment for Every Kid (SEEK) project, led by **Howard Dubowitz, MBChB, FAAP**, trains health care providers to identify and address psychosocial problems, such as parental depression, substance abuse and domestic violence, that can endanger children.

A new **diabetes prevention program at UMMC's two campuses** works with people at risk for developing Type 2 diabetes. Another program, funded by a grant from the Baltimore City Health Department, identifies African-American men who need to control their high blood pressure, and provides healthy grocery store tours and cooking instruction, as well as free gym memberships to help these men improve their health.

The Center for School Mental Health, directed by **Sharon Stephan, PhD**, and **Nancy Lever, PhD**, serves children and families through a shared family-school-community agenda.



Mary Beth Bollinger, DO, leads the Breathmobile, a custom-built pediatric asthma clinic that travels to schools to deliver long-term, reliable asthma care. UMMC also delivers health education, information and screening to people where they live via a community health van.



Students in the UM SOM Master of Public Health program, led by **Diane Marie St. George, PhD**, are placed in positions with the Baltimore City Health Department, Health Enterprise Zones, federal agencies and other organizations to prepare them for leadership roles in public health.



UMMC, one of the largest employers in Baltimore, employs thousands of city residents. The Medical System and all member hospitals partner with community organizations to build, train and support a strong workforce. Job training is offered to city residents who face challenges such as homelessness and extended unemployment, and more than 35 city residents in this program were hired this year after successfully completing training. **Kelsey Good** came to UMMC for career training and was later hired full time as a technician sterilizing and preparing instruments for surgery. Youth career programs served more than 400 in FY2015, including summer jobs for 102 students.



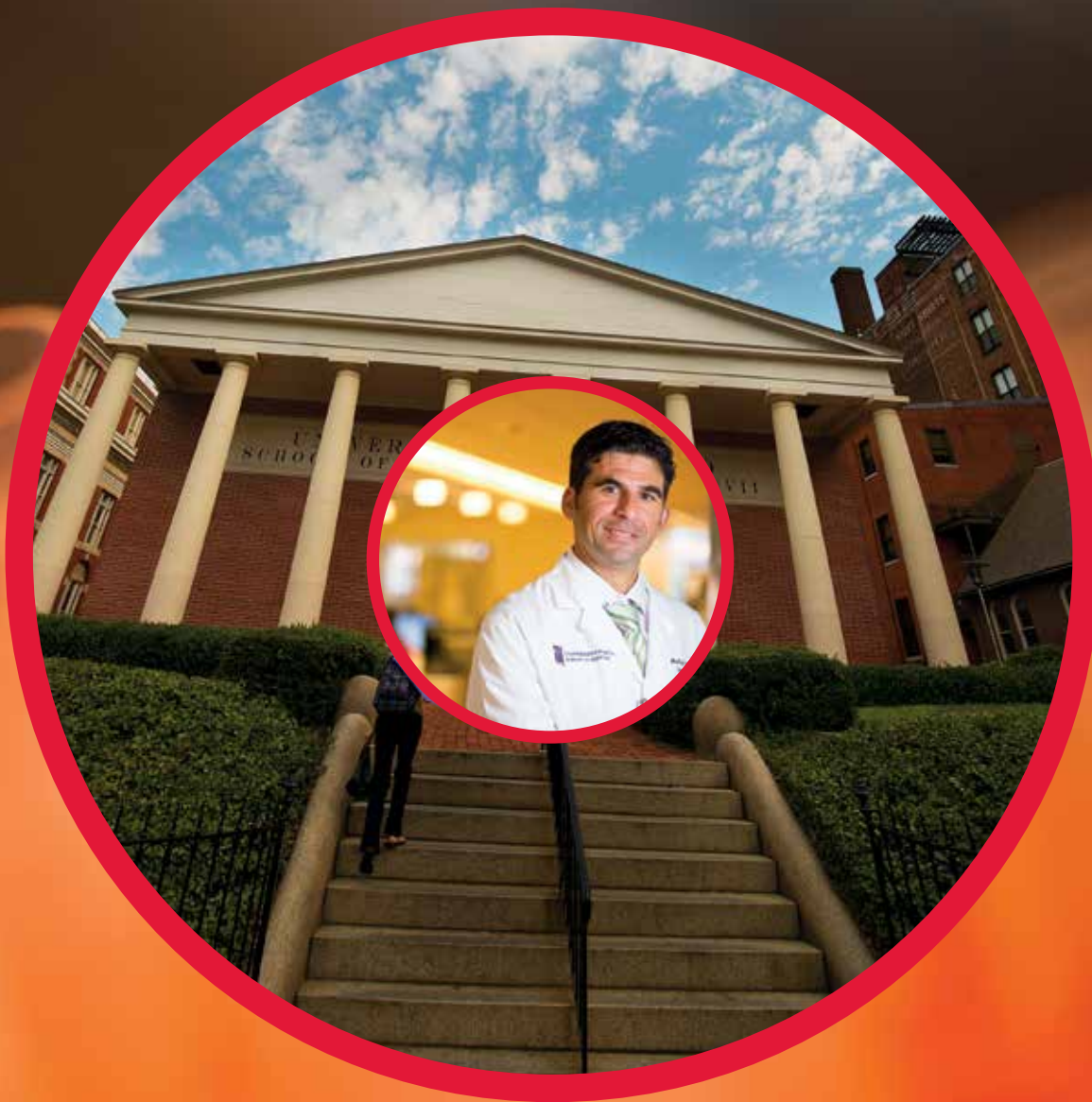
LEADERS IN COMMUNITY OUTREACH:

Maureen Black, PhD, the John A. Scholl, MD, and Mary Louise Scholl, MD, Professor of Pediatrics
Mary Beth Bollinger, DO, associate professor of pediatrics, medical director for the Breathmobile
Howard Dubowitz, MBChB, FAAP, professor of pediatrics, head of the Division of Child Protection
Karen Hardingham, BSN, RN, coordinator, Safe Kids Baltimore, UM Children's Hospital
Nancy Lever, PhD, associate professor of psychiatry and co-director of the Center for School Mental Health
Sharon Stephan, PhD, associate professor of psychiatry and co-director of the Center for School Mental Health
Diane Marie St. George, PhD, assistant professor of epidemiology and public health, and director, MPH Program
Anne Williams, DNP, RN, director of community health, UMMC and UM Rehabilitation & Orthopaedic Institute
Jo-Ann Williams, manager of workforce development and community partnerships, UMMC

UNIVERSITY *of* MARYLAND SCHOOL OF MEDICINE

2015

HIGHLIGHTS



More than ever, faculty collaborate across departments and laboratories
at the University of Maryland School of Medicine.
With an **All for One** approach to our collective goals, we are venturing
toward new challenges on both local and global levels.
Here are a few highlights and milestones that inspire us to continue.

research

Partners in Success

Collaboration between biomedical research investigators has become increasingly important as the pool of public — and private — funding for research has declined. Interdisciplinary research teams that blend clinical and basic science have significant advantages when applying for large federal grants. One of the key priorities for the School of Medicine has been fostering joint projects among the diverse groups of researchers at the School and across the University System of Maryland. The Dean's Challenge Award provided seed money to four of these projects, with the added bonus that many of the runners-up were able to find alternative funding to get their projects off the ground as well. The UMB-UMBC and UMB-UMCP Seed Grant competitions have enhanced and promoted long-term partnerships between faculty at the University of Maryland, Baltimore (UMB), the University of Maryland, Baltimore County (UMBC) and the University of Maryland, College Park (UMCP), netting a return on investment in the form of successful NIH grant applications.

New Tick-Borne Illness Discovered

J. Stephen Dumler, MD, professor of pathology, along with colleagues in China, uncovered a previously unknown disease transmitted by ticks. It's possible that the disease could be a substantial health threat to humans and animals in areas where the carrier tick is common, the authors theorized in their paper, since this is an entirely new species of bacteria that has not been seen in humans before.

A Probiotic with the Power to Influence Others

Claire Fraser, PhD, professor of medicine and director of the Institute for Genome Sciences, and her collaborators found that one type of probiotic — *Lactobacillus rhamnosus* GG, often known as LGG — may modify the way other organisms work in the gut, potentially reducing inflammation, which has been linked to cancer and chronic diseases such as diabetes.

MERS Treatment May Be Within Reach

Matthew Frieman, PhD, associate professor of microbiology and immunology, in partnership with Regeneron Pharmaceuticals, Inc., led a team that discovered and validated two therapeutics that show early promise in preventing and treating Middle East Respiratory Syndrome (MERS), which can cause severe respiratory symptoms, and has a death rate of 40 percent. These therapeutics are the first to succeed in protecting and treating animal models of the MERS virus.



Matthew Frieman, PhD

Newly Discovered Pathway Links the Brain to High Blood Pressure

John Hamlyn, PhD, professor of physiology, and Mordecai Blaustein, MD, professor of physiology and medicine, were among the researchers who found a new link between the brain and increased blood pressure, namely

a little-known steroid called ouabain (pronounced WAH-bane). Ouabain was discovered in human blood more than 20 years ago by Dr. Hamlyn and Dr. Blaustein, along with scientists at the Upjohn Company. The new study is the first to identify the particular pathway that connects the brain to ouabain's effects on proteins that regulate arterial calcium and contraction. Through this mechanism, ouabain makes arteries more sensitive to sympathetic stimulation, and as a result the enhanced artery constriction promotes chronic hypertension.



Mordecai Blaustein, MD

Hearts Beating in Perfect Time

The average heart beats 35 million times a year — 2.5 billion times over a lifetime. Those beats must be precisely calibrated; even a small divergence from the metronomic rhythm can cause sudden death. W. Jonathan Lederer, MD, PhD, professor of physiology and director of the Center for Biomedical Engineering and Technology (BioMet), and his colleagues at the Cardiovascular Research Institute of Vermont, found that myosin-binding protein C (C protein) allows the muscle fibers in the heart to work in perfect synchrony. This is the first time the mechanism has been described; the discovery could eventually help scientists treat heart problems that kill millions of people every year.



J. Stephen Dumler, MD



Claire Fraser, PhD



W. Jonathan Lederer,
MD, PhD



John Hamlyn, PhD



Thomas MacVittie, PhD

SOM HIGHLIGHTS

Radiation Sickness Treatment

Neupogen (filgrastim), a chemotherapy drug, was proven effective for the treatment of acute radiation injury in research done by Thomas MacVittie, PhD, professor of radiation oncology, and Ann Farese, MA, MS, assistant professor of radiation oncology. This led the US Food and Drug Administration to approve the use of the drug to treat the deleterious effects of radiation exposure following a nuclear incident.

Brain 'Gender' May Be More Flexible Than We Think

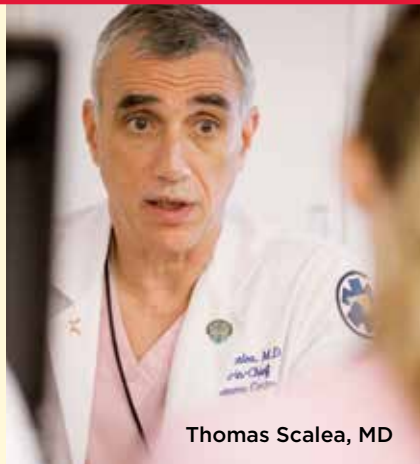
During prenatal development, the brains of most animals, including humans, develop specifically male or female characteristics that can be easily seen but are not well understood. Margaret McCarthy, PhD, professor and chair of the Department of Pharmacology, and her colleagues, studied how this differentiation might occur. They found that the process involves a group of enzymes known as DNA methyltransferases (DNMTs), which can control expression of genes that play a role in inflammation and immunity, as well as in the sexual differentiation of the brain.



Margaret McCarthy, PhD

Innovative Transfusion Approach Proven Effective

Thomas Scalea, MD, professor of surgery, director of the Program in Trauma, and physician-in-chief at the R Adams Cowley Shock Trauma Center, oversaw a study comparing two different methods of blood transfusion in treating trauma patients. It found that one approach gave patients a significantly better chance of survival within the first 24 hours.



Thomas Scalea, MD

Getting a Jump on High-Risk Prostate Cancer Diagnosis

Mohammad Minhaj Siddiqui, MD, assistant professor of surgery, led a large-scale study that found targeted biopsy using a new fusion technology that combines magnetic resonance imaging (MRI) with ultrasound is 30 percent more effective than standard biopsy in detecting high-risk prostate cancer. In addition, 17 percent fewer low-risk cancers were diagnosed with the new approach, compared to a standard biopsy.

Possible Trigger Found for Common Eye Disease

Richard Thompson, PhD, associate professor of biochemistry & molecular biology, along with a multidisciplinary international team, found that tiny lumps of calcium phosphate may be an important triggering factor for age-related macular degeneration (AMD), a degenerative eye disease that can cause severe vision loss and blindness. This is the first time these mineral deposits have been implicated in the disease, which affects more than 10 million Americans.

Making Flu Less Deadly

The influenza virus can be lethal to those who are infected. What is often just as dangerous is the body's own reaction to the virus. This immune response consists of an inflammatory attack, meant to kill the virus. But if it gets too aggressive, this counterattack can end up harming the body's own tissues, causing damage that can lead to death in vulnerable patients. Vladimir Toshchakov, PhD, assistant professor of microbiology & immunology, uncovered new details about how this response plays out. Furthermore, he identified a "decoy" molecule that can rein in this runaway inflammatory response.

Study Unravels Why Common Blood Pressure Medicine Can Fail

Paul Welling, MD, professor of physiology, and his post-doctoral fellow, P. Rick Grimm, PhD, found the specific genes and pathways used by the kidneys to compensate for activity by thiazides, a group of salt-lowering medicines used to treat high blood pressure. These drugs are usually very effective. However, in some patients they are not; in others they lower blood pressure for a while but then stop working. This study revealed a key mechanism of that failure, which Dr. Welling hopes will lead to the development of drugs that will prevent the body from counteracting thiazides. The researchers also identified a molecule that increases when the kidney is acting to counteract thiazides and are looking into how that might be used as a biomarker to allow doctors to quickly and easily detect when thiazides won't work or have stopped working.



Ann Farese, MA, MS



Mohammad Minhaj Siddiqui, MD



Richard Thompson, PhD



Vladimir Toshchakov, PhD



Paul Welling, MD

clinical care

Saving Millions from HIV

The Institute of Human Virology (IHV), directed by Robert C. Gallo, MD, professor of medicine, reached a patient milestone in 2015, surpassing one million HIV/AIDS patients who have been cared for and treated in its overseas clinics. Since 2004, IHV has partnered with the

governments of Guyana, Haiti, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda and Zambia to address each country's growing HIV/AIDS epidemic, funded by more than \$300 million from the US President's Emergency Plan for AIDS Relief (PEPFAR). Robert Redfield, MD, professor of medicine, associate director of IHV, and director of IHV's clinical care and research division, led the implementation of PEPFAR programs in all nine countries.

William Blattner, MD, professor of medicine, associate director of IHV, and director of the epidemiology and prevention division at IHV, established the affiliated Institute of Human Virology — Nigeria (IHVN) in 2004, and since then, it has grown to include 315 antiretroviral treatment programs in hospitals, 950 prevention of mother-to-child treatment programs in local clinics, 193 TB centers, and 1,030 HIV testing sites, just in that country alone.

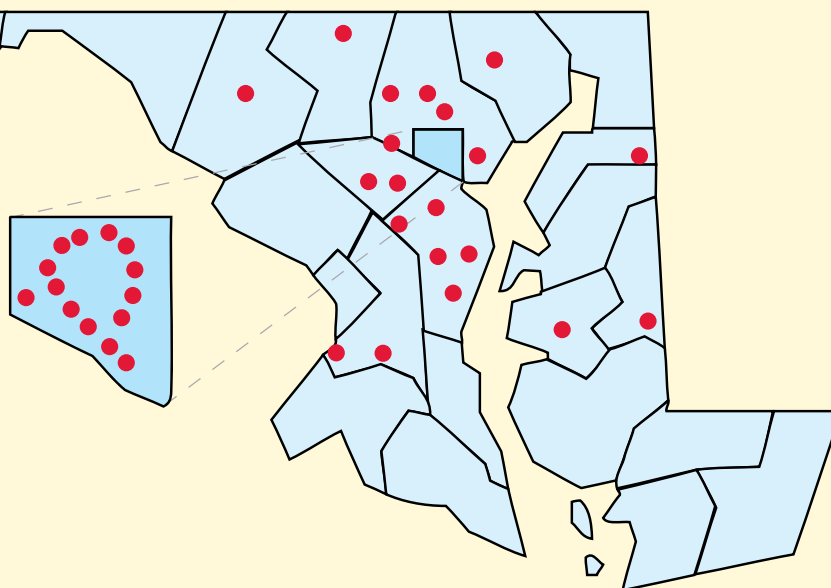
International Expertise

As the Ebola crisis made headlines, UM School of Medicine infectious disease researchers were frequently sought as expert commentators. Alan S. Cross, MD, clinical professor of medicine in the Division of Geographic Medicine and associate director for adjuvant biology research at the Center for Vaccine Development, was interviewed by outlets such as *U.S. News & World Report* and PBS. Hundreds of news websites linked to his interview on *Yahoo News*. James Campbell, MD, MS, professor of pediatrics, worked in Uganda for the Centers for Disease Control and Prevention, and appeared on CNN, Canadian Public Television and *TIME* magazine.



Faculty Physician Practice Clinical Sites

UM faculty physician practice locations continue to expand, with a growing number of sites across Maryland.



Robert Gallo, MD



Robert Redfield, MD



William Blattner, MD



Richard Colgan, MD



Claudia Baquet, MD, MPH

education

MPH Reaccreditation Through 2021

The Master of Public Health (MPH) program in the Department of Epidemiology and Public Health celebrated its 10th anniversary by earning reaccreditation from the Council on Education for Public Health, the non-profit group that accredits schools of public health around the country.

New AHEC Director

Richard Colgan, MD, professor of family and community medicine and an expert on the practice and teaching of medicine, was appointed director of the University of Maryland School of Medicine's Area Health Education Center (AHEC) Program after the retirement of Claudia

Baquet, MD, MPH, who directed the program for 20 years. AHEC places medical students with community physicians and other clinicians who are providing health care to underserved populations throughout the state, giving these students a sense of what it's like to work in these communities.

honors and awards

Claudia Baquet, MD, MPH, professor of medicine and associate dean for policy and planning, who retired in February after 20 years of service, was chosen as the 2015 recipient of the Dean's Faculty Award for Diversity and Inclusion.

Miriam Laufer, MD, associate professor of pediatrics, won a Grand Challenges Explorations Award, funded by the Bill & Melinda Gates Foundation, to pursue an innovative global health and development research project to base malaria treatment and prevention activities within schools in rural Malawi.

Myron Levine, MD, DTPH, professor of medicine and associate dean for global health, vaccinology and infectious diseases, was awarded the American College of Physicians (ACP) Award for Science for "Outstanding Work in Science as Related to Medicine" on April 30. Established in 1958, the award honors recipients for exceptional contributions to medicine.

Robert O'Toole, MD, was named the inaugural Hansjörg Wyss Medical Foundation Endowed Professor in Orthopaedic Trauma on March 9, 2015.

Barney Stern, MD, was named the inaugural Stewart J. Greenebaum Endowed Professor in Stroke Neurology on October 9, 2014.

Owen White, PhD, professor of epidemiology and public health, associate director of informatics at the Institute for Genome Sciences (IGS), and co-director of the Center for Health-related Informatics and Bioimaging (CHIB), received the 2015 Benjamin Franklin Award for Open Access in the Life Sciences from the Bioinformatics Organization. This is a humanitarian bioethics award

presented annually to an individual who has promoted free and open access to the materials and methods used in the life sciences.

Donald E. Wilson, MD, MACP, AGAF,



dean emeritus of the University of Maryland School of Medicine, received the 2015 W. Lester Henry Award for Diversity and Access to Care from The American College of Physicians (ACP)

on April 30. The award is given to an ACP member with outstanding accomplishments in advancing diversity in clinical medicine or research and/or access to care in relation to diverse populations.



Aldo T. Iacono, MD, (far left) is the first Hamish S. and Christine C. Osborne Professor in Advanced Pulmonary Care. Hamish and Christine Osborne (on the right) are also among the founding supporters of the Program in Lung Healing. At center is School of Medicine Dean E. Albert Reece, MD, PhD, MBA, at Dr. Iacono's investiture.



Miriam Laufer, MD



Myron Levine, MD, DTPH



Robert O'Toole, MD



Barney Stern, MD



Owen White, PhD

grants of distinction

CDC Awards Grant to IHV

The Institute of Human Virology (IHV) was awarded a five-year, \$24.5 million grant from the US Centers for Disease Control and Prevention (CDC), through the US President's Emergency Plan for AIDS Relief (PEPFAR), to partner with the government of Botswana and impact the HIV/AIDS epidemic in Botswana, and to demonstrate that comprehensive HIV/AIDS treatment programs can stop the epidemic. They also received a \$50 million, five-year grant from

PEPFAR to support the program "Stop Mother and Child HIV Transmission" in Zambia.

NIAID Grant

Myron Levine, MD, DTPH, professor of medicine and associate dean for global health, vaccinology and infectious diseases, is the primary investigator on a five-year, \$25 million grant from the National Institute of Allergy and Infectious Diseases (NIAID) to fund a Center of Excellence for Translational

Research (CETR) within the Center for Vaccine Development (CVD) to focus on "Immunoprophylactic Strategies to Control Emerging Enteric Infections."

Malaria Grant

Myaing M. Nyunt, MD, MPH, PhD, assistant professor of medicine, received a two-year, \$4.6 million grant from the Bill & Melinda Gates Foundation for "Evidence and Action for Malaria Elimination in Myanmar."

transitions

Retiring

William "Brit" Kirwan, PhD, who retired in 2015 after 13 years as University System of Maryland chancellor, joined the School of Medicine's Board of Visitors in July.

Gregory Robinson, DMin, MDiv, MA, stepped down from his position as associate dean for academic administration and resource management on July 1, retiring after 41 years of service.

Promotions

Louisa Peartree, MBA, associate dean for finance and business affairs, was promoted to senior associate dean, finance & resource management; David Ingle, MBA, director of academic administration, was promoted to assistant dean, academic administration and human resources; and architect Robert Cook, MBA, was named executive director of facilities and operations.

Terry Rogers, PhD, professor of biochemistry and molecular biology and executive director of the Office of Research Affairs, was promoted to assistant dean for research affairs. Dr. Rogers will continue to oversee all matters related to research administration, with expanded responsibilities for research development activities, including large, complex grant submissions, and will work collaboratively with faculty research teams.

Appointments

Mark W. Rogers, PT, PhD, was appointed chair of the Department of Physical Therapy and Rehabilitation Science in February. Dr. Rogers had served as the department's interim chair since August 2013, when Mary Rodgers, PT, PhD, FAPTA, FASB, stepped down following a successful 15-year tenure as chair.

IN MEMORIAM



Elijah Saunders, MD, FACC, FACP, FAHA, FASH, professor of medicine and head of the section of hypertension in the Division of Cardiovascular Medicine, passed away in

April. Dr. Saunders was an internationally renowned expert on hypertension in African-Americans. He was consistently recognized for his pioneering efforts to raise patient awareness of high blood pressure and of the connection between diabetes, heart attack and stroke, particularly in the African-American community. He devoted his career to exploring new treatment options and educating at-risk members of the population about the importance of cardiovascular health.



Myaing M. Nyunt, MD,
MPH, PhD



William "Brit" Kirwan,
PhD



Gregory Robinson,
DMin, MDiv, MA



Louisa Peartree, MBA



David Ingle, MBA

ENDOWED PROFESSORSHIPS

Stephen Bartlett, MD

Peter Angelos Distinguished
Professor in Surgery

Cynthia Bearer, MD

Mary Gray Cobey Endowed Professor
in Neonatology

Maureen Black, PhD

John A. Scholl, MD, and Mary Louise Scholl, MD,
Endowed Professor in Pediatrics

Kevin Cullen, MD

Marlene and Stewart Greenebaum
Distinguished Professor in Oncology

Stephen Davis, MBBS

Dr. Theodore E. Woodward Endowed Chair
in the Department of Medicine

Richard Eckert, PhD

John F.B. Weaver Endowed Professor

Howard Eisenberg, MD

Raymond K. Thompson, MD,
Endowed Chair in Neurosurgery

Alan Faden, MD

David S. Brown Endowed Professor
in Trauma

Gary Fiskum, PhD

Matjasko Endowed Professor
for Research in Anesthesiology

Robert Gallo, MD

Homer & Martha Gudelsky Distinguished
Professor in Medicine

Anthony Gaspari, MD

Albert Shapiro, MD, Endowed Professor
in Dermatology

Bartley Griffith, MD

Thomas E. and Alice Marie Hales
Distinguished Professor in
Transplant Surgery

Christopher Harman, MD

The Sylvan Frieman, MD, Endowed Professor
in Obstetrics, Gynecology &
Reproductive Sciences

Jeffrey Hasday, MD

Dr. Herbert Berger Endowed Professor
in Medicine

Sharon Henry, MD

Anne Scalea Endowed Professor
in Trauma

Aldo Iacono, MD

Hamish S. and Christine C. Osborne
Professor in Advanced Pulmonary Care

Bankole Johnson, DSc, MD, MB, ChB, MPhil, FRCPsych, DFAPA, FACFEI

Dr. Irving J. Taylor Endowed Professor and
Chair, Department of Psychiatry

Myron Levine, MD, DTPH

Simon and Bessie Grollman
Distinguished Professor

Elias Melhem, MD

Dean John M. Dennis Endowed Chair
in Radiology

Mary Njoku, MD

Matjasko Endowed Professor
for Education in Anesthesiology

Robert O'Toole, MD

Hansjörg Wyss Medical Foundation Endowed
Professor in Orthopaedic Trauma

John Olson, Jr., MD, PhD

Campbell and Jeanette Plugge Endowed
Professor in Surgery

Andrew Pollak, MD

James Lawrence Kernan Endowed
Professor and Chair in the
Department of Orthopaedics

Sanjay Rajagopalan, MBS, FACC, FAHA

The Melvin Sharoky, MD, Endowed Professor
in Medicine

Aaron Rapoport, MD

Gary Jobson Endowed Professor in
Medical Oncology

Jean-Pierre Raufman, MD

Moses Paulson, MD, and Helen Golden
Paulson Endowed Chair in the Division
of Gastroenterology

E. Albert Reece, MD, PhD, MBA

John Z. and Akiko K. Bowers Distinguished
Professor and Dean at the University of
Maryland School of Medicine

William Regine, MD, FACR

Isadore & Fannie Schneider Foxman
Endowed Chair in the Department
of Radiation Oncology

Stephen Reich, MD

Frederick Henry Prince Distinguished
Professor

Peter Rock, MD, MBA

Dr. Martin A. Helrich Endowed Chair
for Anesthesiology

Mary Rodgers, PT, PhD, FAPTA, FASB

George R. Hepburn Dynasplint Endowed
Professor in Physical Therapy and
Rehabilitation Science

Rajabrata Sarkar, MD, PhD

Barbara Baur Dunlap Endowed Professor
in Surgery

Thomas Scalea, MD

The Honorable Francis X. Kelly Distinguished
Professor in Trauma Surgery

Michael Shipley, PhD

Donald E. Wilson, MD, MACP Distinguished
Professor

Alan Shuldiner, MD

John L. Whitehurst Endowed Professor

Lisa Shulman, MD

Eugenia Brin Endowed Professor in Parkinson's
Disease and Movement Disorders

Barney Stern, MD

Stewart J. Greenebaum Endowed Professor
in Stroke Neurology

Mohan Suntharalingam, MD

Marlene and Stewart Greenebaum Endowed
Professor in Radiation Oncology

Jian-Ying (Jay) Wang, MD, PhD

The Joseph and Corinne Schwartz Endowed
Professor in Surgery

Susan Wolfsthal, MD

Celeste Lauve Woodward, MD, Endowed
Professor in Humanism and
Ethical Medical Practice

Cedric Yu, DSc, FAAPM

Carl M. Mansfield, MD, Endowed Professor
in Radiation Oncology



Robert Cook, MBA



Terry Rogers, PhD



Mark W. Rogers, PT, PhD



Mary Rodgers, PT, PhD,
FAPTA, FASB

UNIVERSITY of MARYLAND MEDICAL SYSTEM

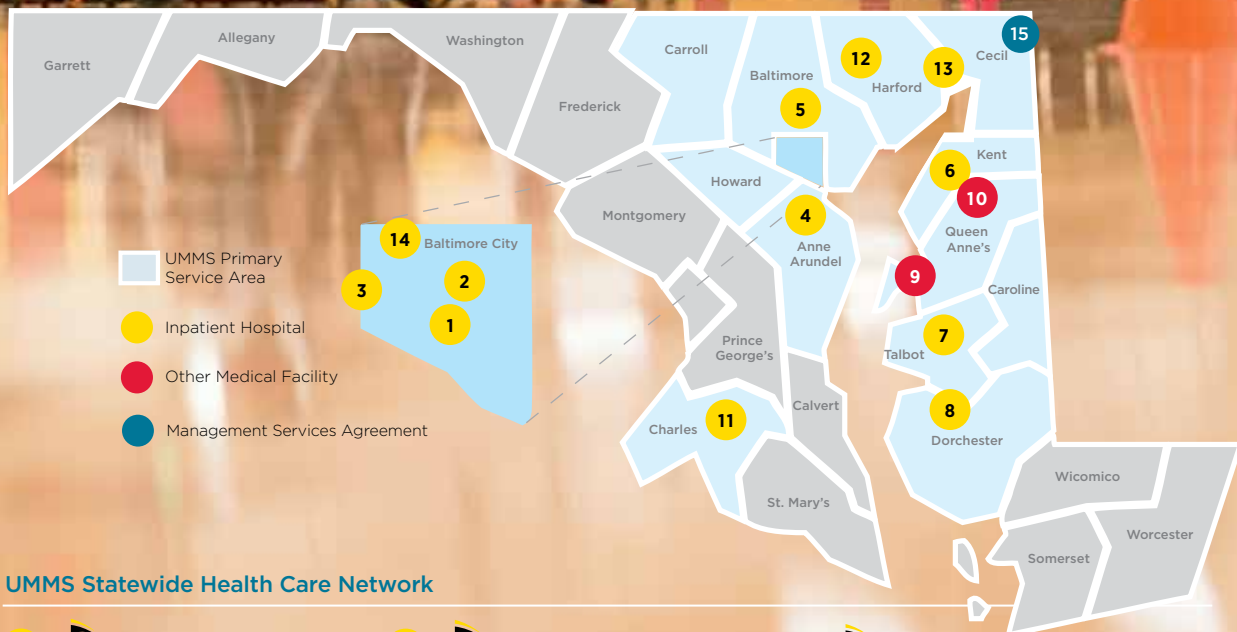
2015 HIGHLIGHTS



The University of Maryland Medical System is a comprehensive network of academic, community and specialty hospitals, affiliated physicians and skilled care teams that provide world-class care.

Building on the strength of shared resources, collaboration among its health professionals and partnerships with state and federal agencies, the Medical System continues to be a premier provider of health care in Maryland. Throughout our UM Rehabilitation Network, the **All for One** approach is demonstrated on a daily basis through therapeutic physical activity and team sports.

The following pages highlight each of the organizations within the Medical System, all working toward the mission of healing, teaching, discovering and caring.



UMMS Statewide Health Care Network

- | | | | | | |
|---|---|----|---|----|---|
| 1 | UNIVERSITY of MARYLAND MEDICAL CENTER | 6 | UNIVERSITY of MARYLAND SHORE MEDICAL CENTER AT CHESTERTOWN | 11 | UNIVERSITY of MARYLAND CHARLES REGIONAL MEDICAL CENTER |
| 2 | UNIVERSITY of MARYLAND MEDICAL CENTER MIDTOWN CAMPUS | 7 | UNIVERSITY of MARYLAND SHORE MEDICAL CENTER AT EASTON | 12 | UNIVERSITY of MARYLAND UPPER CHESAPEAKE MEDICAL CENTER
MEMBER OF UPPER CHESAPEAKE HEALTH |
| 3 | UNIVERSITY of MARYLAND REHABILITATION & ORTHOPAEDIC INSTITUTE | 8 | UNIVERSITY of MARYLAND SHORE MEDICAL CENTER AT DORCHESTER | 13 | UNIVERSITY of MARYLAND HARFORD MEMORIAL HOSPITAL
MEMBER OF UPPER CHESAPEAKE HEALTH |
| 4 | UNIVERSITY of MARYLAND BALTIMORE WASHINGTON MEDICAL CENTER | 9 | UNIVERSITY of MARYLAND SHORE EMERGENCY CENTER AT QUEENSTOWN | 14 | MT. WASHINGTON PEDIATRIC HOSPITAL
(Joint Venture with Johns Hopkins Medicine) |
| 5 | UNIVERSITY of MARYLAND ST. JOSEPH MEDICAL CENTER | 10 | UNIVERSITY of MARYLAND SHORE NURSING & REHABILITATION CENTER AT CHESTERTOWN | 15 | UNION HOSPITAL OF CECIL COUNTY |

University of Maryland Medical Center

the University of Maryland Medical Center (UMMC) is the flagship of the University of Maryland Medical System (UMMS) and the heart of the System's downtown Baltimore campus. The 772-bed hospital provides tertiary and quaternary care, with more intensive care beds than any hospital in the state and internationally recognized programs in trauma, cancer care, cardiac care, neurocare, women's and children's health, and organ and tissue transplantation. The Medical Center also provides comprehensive care for the West Baltimore community, in coordination with its second location, UMMC Midtown Campus.

In addition to a house staff of 929 resident physicians, UMMC has 1,163 attending physicians who are faculty members at the UM School of Medicine.

In March, UMMC announced a newly elected board of directors to establish strategic direction and monitor performance related to quality and safety, patient satisfaction and regulatory compliance. The diverse group of leaders brings proven business acumen and commitment to the community.

UM Children's Hospital Improvements

The 2014-2015 fiscal year was a big one for the University of Maryland Children's

Hospital (UMCH), which saw vast improvements to both its Neonatal Intensive Care Unit (NICU) and Teen Rooms. In June, UMCH, in conjunction with the University of Maryland School of Medicine's Department of Pediatrics, unveiled the 37,000 square-foot Drs. Rouben and Violet Jiji Neonatal Intensive Care Unit. The new unit is triple the size of the previous NICU, and will meet the rapidly rising need for specialty care and innovative research to benefit the smallest and most fragile patients in a family-centered care environment.

Telemedicine Initiatives

New programs give surrounding communities immediate access to UM faculty physicians through telemedicine.

Carroll Hospital Center in Westminster now has round-the-clock remote access to UMMC through a new tele-stroke program, allowing UM physicians to conduct a remote examination on patients.

The UM Children's Hospital, together with Howard County Schools, launched a unique telemedicine project to improve students' access to health care, reduce absences and improve educational outcomes.

University of Maryland eCare, a UMMS program staffed by expert critical care physicians and nurses from UMMC,

has now extended its remote patient-monitoring services to UMMC Midtown Campus and UM Charles Regional Medical Center.

National Recognitions

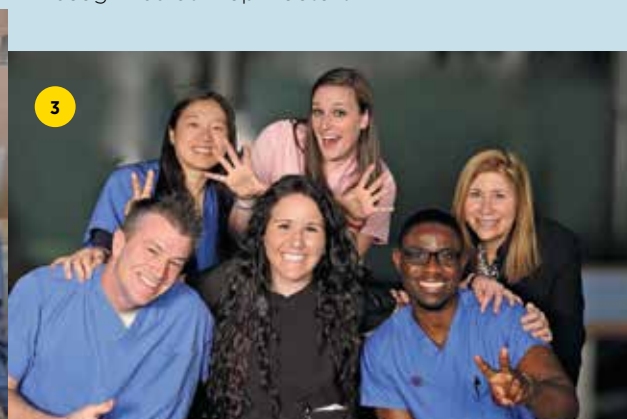
After receiving the elite designation of a "Comprehensive Stroke Center" by The Joint Commission on July 1, 2014, the UM Stroke Center was recognized with two American Heart Association/American Stroke Association *Get With The Guidelines — Stroke* honors: the Gold Plus Quality Achievement Award with Target: Stroke Honor Roll Elite.

The Multi-Trauma Intermediate Care Unit 6 earned the Beacon Award for Excellence from the American Association of Critical-Care Nurses in May.

UMMC was among the top 10 US hospitals for sustainability at the Practice Greenhealth CleanMed Conference. In addition to encouraging a "green" workplace, UMMC co-sponsors the University Farmers Market with the University of Maryland, Baltimore.

Physicians and Nurses Honored

UMMC was well-represented on *Baltimore* magazine's lists this year, with the publication singling out six nurses in its first ever "Excellence in Nursing" issue, while 73 physicians were recognized as "Top Doctors."



1 In the new NICU, Mary Taylor, MS, RN; Joan Treacy, MS, RNC-NIC; Treza James, MS, NNP-BC; Christine Byerly, BSN, RNC-NIC; and Christine Mena, RN

2 Pediatric critical care nurses Ivy Klein, MS, RN, CPN, and Taka Hayakawa, RN, CCRN

3 UMMC's six nurses honored by *Baltimore* magazine are Todd Milliron, RN; Renee Kwok, BSN, RN, OCN; Megan Jendrosseck, BSN, RN; Erin Lock, MSN, ACNP-BC; Chiemerie Uche, BSN, RN, PCCN; and Chief Nursing Officer Lisa Rowen, DNSc, RN, CENP, FAAN

UMMS HIGHLIGHTS

University of Maryland Medical Center Midtown Campus

University of Maryland Medical Center Midtown Campus (UMMC Midtown Campus), located in Baltimore's cultural center near the historic Mount Vernon neighborhood, provides access to a full range of medical and surgical care. The 187-bed UMMC Midtown Campus is a second location of the University of Maryland Medical Center (UMMC).

Two Work as One

UMMC Midtown Campus became a second location of UMMC in June 2012 and has steadily increased integration in patient services between the two campuses. There are more than eight comprehensive, integrated programs offered at UMMC Midtown Campus. Currently, 65 percent of the 524 physicians at UMMC Midtown Campus are faculty physicians at the University of Maryland School of Medicine. UMMC Midtown Campus' new name and subsequent service integration with UMMC is being perceived as positive by Baltimore City consumers, according to polling data.

Perceptions about UMMC Midtown Campus improved in many areas, including:

- A significant increase in perception of overall hospital quality
- Significant improvements in consumers reporting their likelihood to use UMMC Midtown Campus
- Overall inpatient satisfaction among those who had used the hospital

Recognition and Awards

The Maryland Hospital Association recognized UMMC Midtown Campus for keeping catheter-associated urinary tract infection occurrences to a minimum.

UMMC Midtown Campus once again was named a Top Performer on Key Quality Measures. The report was released in late 2014, based on 2013 data. This is the second consecutive year that UMMC Midtown Campus has received the Top Performer distinction.

Recognized for quality excellence, UMMC Midtown Campus earned its first Midas+ Platinum Quality Award related to resource utilization efficiency and clinical efficacy. UMMC Midtown Campus scored in the 95th percentile nationwide for Midas users among 118 nominees.

Criteria included:

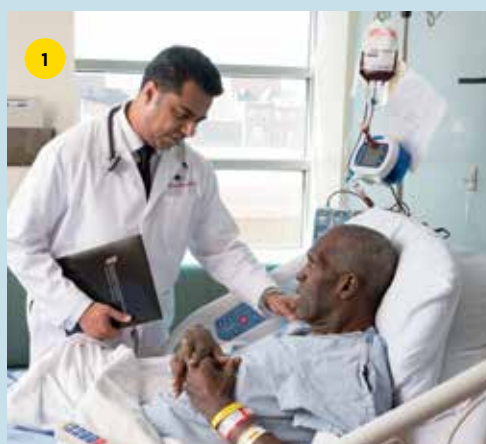
- percentage of acute-care patients readmitted within 30 days
- mortality
- average length of stay
- core measures such as
 - acute myocardial infarction
 - heart failure
 - pneumonia
 - surgical care improvement project

U.S. News & World Report named UMMC Midtown Campus one of the "Best Regional Hospitals" in Baltimore in 2014-2015. This designation recognizes standout medical centers in the nation's largest metropolitan areas. UMMC Midtown Campus was especially recognized for its high-performing specialty care in

Diabetes and Endocrinology, Geriatrics, Nephrology, Pulmonology and Urology.

ED Connect 24/7

Pioneers in population health, UMMC Midtown Campus launched a new program that reaches out to patients who are coming to the Emergency Department and connects them with a primary care provider to help them better manage their overall health and avoid future emergencies. Crisis evaluators and social workers are available 24/7 to meet with patients in the ED, help schedule follow-up appointments and educate patients on the appropriate use of health care.



1 Naresh Bassi, MD, assistant professor of medicine



2 ICU nurse Bryanna Sanderson, RN, and Nephrology division head Kenneth Yim, MD, and W. Eugene Egerton, MD, chief medical officer.

University of Maryland Rehabilitation & Orthopaedic Institute

the University of Maryland Rehabilitation & Orthopaedic Institute is Maryland's largest and most comprehensive rehabilitation and orthopaedic specialty hospital. Founded nearly 120 years ago, the 141-bed hospital today provides highly specialized care to people recovering from stroke and neurological diseases as well as spinal cord, brain or other traumatic injury. UM Rehab & Ortho Institute is a leader in neurological conditions, sports medicine, musculoskeletal disease, robotic technologies to improve movement, and research. As part of the **University of Maryland Rehabilitation Network**, the hospital is an integral component of the University of Maryland Medical System, and the 200-member medical staff includes faculty physicians at the University of Maryland School of Medicine.

Offering Specialized Technology

In the last year, UM Rehab & Ortho Institute has been recognized for advances in a number of program areas, including the use of state-of-the-art rehabilitation technology as a cornerstone of treatment for many patients, including those recovering from complex injuries or illnesses. In fact, the Institute is the only facility in Maryland

to offer the ReWalk system, which works like a high-tech body suit allowing some individuals with spinal cord injury to stand and walk for the first time in years. The robotic exoskeleton system provides motorized assistance to help patients stand up and move their legs. Therapists work with patients on basic skills, such as sitting and standing, before advancing to walking and more advanced techniques such as climbing up and down stairs. This year, researchers at UM Rehab & Ortho Institute concluded a 4-year, \$1.4 million study assessing the use of the ReWalk and aquatic exercise for individuals with incomplete spinal cord injury.

In addition to the ReWalk, the Institute utilizes other advanced technologies, such as the Vector Gait and Safety System, a robotic overhead trolley system that allows for overground gait training, and the Lokomat, a robotic treadmill system designed for patients recovering from spinal cord injuries, brain injury, amputation or stroke.

Getting Patients "Back to Living"

Complementary to the Institute's rehabilitation services is the Adapted Sports Program, which offers instruction and competitive play in adapted golf, wheelchair basketball and wheelchair

rugby for individuals with physical limitations. This year, the Institute was selected by the US Paralympics as a Paralympic Sport Club. This designation increases the hospital's ability to provide disabled athletes in Maryland and Pennsylvania with opportunities to learn about and compete in Paralympic sports.

As a result of this designation, the Institute hosted a free "Gateway to Gold" event to promote wheelchair rugby as a Paralympic sport. Gateway to Gold is a nationwide talent identification and development program that introduces youth, adults and veterans with Paralympic-eligible impairments to Paralympic sports and leads them to the athlete pipeline for the US Paralympics Team.

Other Adapted Sports Program highlights center around the Institute's wheelchair rugby team, the Maryland Mayhem. The team held its inaugural "Maryland Crabpot Tournament," hosting teams from New York, Philadelphia and Washington, DC. It plans to host the two-day event annually for rivals all along the East Coast.

Caring for the Caregivers

In addition to providing the best care and services for its patients, the Institute is focused on the well-being of those families and caregivers who are supporting a recovering loved one. This year, the Institute broke ground on, completed and opened the Hackerman-Patz House, a home-away-from-home for patients' families, offering affordable lodging along with the supportive community environment of others facing similar situations.



1 Physical therapist Larry Gallager, PT, with patient Patricia Johnson

UMMS HIGHLIGHTS

University of Maryland Baltimore Washington Medical Center

University of Maryland Baltimore Washington Medical Center (UM BWMC) offers innovative procedures and exceptional services for the Baltimore-Washington Corridor community. Since joining the University of Maryland Medical System (UMMS) in 2000, the 303-bed medical center has continually been recognized as a leader in high-quality patient care on an annual basis, with an active medical staff of more than 700.

In fall 2014, UM BWMC opened the new Digestive Health Center providing medical, surgical and diagnostic services for patients with gastrointestinal problems. The multidisciplinary program is led by surgical oncologist Cherif Boutros, MD, medical director of the Tate Cancer Center, chair of surgical oncology at UM BWMC and associate professor of surgery at the University of Maryland School of Medicine.

The team of specialists includes gastroenterologists, surgeons, nutritionists, genetic counselors, pain-management specialists and social workers.

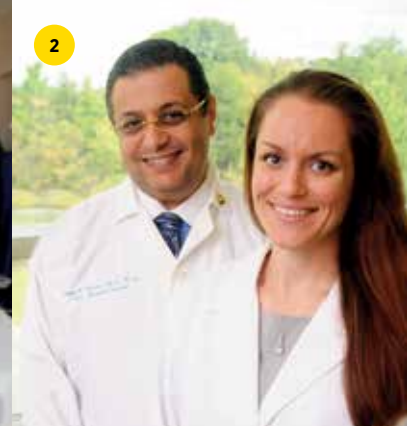
The center offers clinical trials and treatment for all disorders and diseases of the gastrointestinal tract, including:

- colorectal cancer
- stomach cancer
- liver tumors
- pancreatic cancer
- bile duct cancer
- ulcerative colitis
- Crohn's disease
- GERD
- irritable bowel syndrome
- Barrett's esophagus
- viral hepatitis
- esophageal cancer
- liver cirrhosis



As a Maryland Institute for Emergency Medical Services Systems-designated Cardiac Interventional Center, UM BWMC offers primary percutaneous coronary intervention 24 hours a day, 7 days a week, 365 days a year. UM BWMC recently received the ACTION Registry-GWTG Platinum Performance Achievement Award for sustained excellence in treating patients with acute myocardial infarction.

In March 2015, the Tate Cancer Center, an affiliate of the University of Maryland Marlene and Stewart Greenebaum Cancer Center, received a three-year accreditation by the American College of Surgeons Commission on Cancer as an Academic Comprehensive Cancer Program (ACAD). ACADs are cancer centers that provide post-graduate medical education, accession more than 500 newly diagnosed cancer patients each year, offer a full range of services and participate in clinical research. The Tate Cancer Center is one of only four ACAD programs in Maryland. Only 13 percent of all cancer programs in the nation have achieved this status. In May 2015, the Tate Cancer Center was approved as a new member by the Alliance for Clinical Trials in Oncology, a national clinical trials network sponsored by the National Cancer Institute.



UM BWMC was recognized in April 2015 by Healthgrades with the 2015 Patient Safety Excellence Award for being a top performer in patient safety, according to claims data from the Centers for Medicare and Medicaid Services from 2011 to 2013. The top 10 percent of these hospitals earned 2015 Patient Safety Excellence Awards, UM BWMC being one of them. In addition, the American Heart Association (AHA) and American Stroke Association (ASA) recognized UM BWMC with the *Get With The Guidelines Silver Plus Performance Award* for having reached an aggressive goal of treating stroke patients with 85 percent or higher compliance with core standard levels of care, as outlined by the AHA/ASA, for 12 consecutive months.

UM BWMC continues its focus on providing preventive health services and enhancing the community's well-being. Free blood pressure checks and free vascular screenings help community members stay on top of their cardiovascular health. The medical center provides exercise classes, smoking cessation, childbirth education, CPR classes, educational lectures and more, in addition to offering several support groups.

1 Ratnakar Mukherjee, MD, interventional cardiologist and clinical instructor of medicine at the UM School of Medicine, confers with a patient.

2 Marie Claire Ziesat, MD, laparoscopic gastrointestinal surgeon, and Cherif Boutros, MD, associate professor of surgery

University of Maryland St. Joseph Medical Center

University of Maryland St. Joseph Medical Center (UM SJMC), located in Towson, is a 247-bed, acute care hospital with an active medical staff of 528 physicians. UM SJMC has a rich heritage of providing loving service and compassionate care since its founding in 1864. Ever present in its Catholic mission is the desire and will to care for the members of its community, offering a wide variety of outreach and wellness programs such as free flu shot clinics and diabetes and nutrition education designed to keep patients healthy.

Clinical programs and centers of excellence include the Heart, Cancer and Orthopaedic institutes, Women and Children's Services and affiliations with primary care physicians throughout Baltimore County.

The Heart Institute provides a complete continuum of care, including cardiac surgery, all-digital cardiac catheterization, accredited echocardiography lab, electrophysiology lab, nuclear medicine, hospital-wide monitoring capabilities and a cardiovascular fitness program. Patients in need of cardiac surgery benefit from the combined program at UM SJMC and the University of Maryland Medical Center. This joint Division of Cardiac

Surgery is bringing the most advanced surgery options and lifesaving research to more patients than ever.

Featuring a true multidisciplinary approach, the UM St. Joseph Cancer Institute includes radiation oncology, the Breast Center, urologic oncology, thoracic oncology, colorectal oncology and orthopaedic oncology. A formal affiliate of the University of Maryland Marlene and Stewart Greenebaum Cancer Center, the Cancer Institute was awarded a three-year Gold Level accreditation with commendation as a comprehensive community cancer center by the American College of Surgeons Commission on Cancer, the highest recognition the commission awards. The Orthopaedic Institute has been named one of the nation's top orthopaedic facilities by *U.S. News & World Report*, and designated a Blue Distinction Center in the categories for hip, knee and spine surgery by CareFirst BlueCross BlueShield. The institute offers sports medicine, joint replacement, spine surgery, complex disc replacement, upper-extremity surgery and foot and ankle surgery. The 50-bed Orthopaedic Unit includes a rehabilitation facility.

The Family Childbirth Center includes labor, delivery and recovery suites; postpartum mother/baby suites and a

Level III+ Neonatal Intensive Care Unit. The Perinatal Center offers high-risk obstetrical services; ultrasound in an AIUM-accredited practice; genetic counseling; prenatal diagnosis and testing for fetal well-being.

Women's and Children's Services at UM SJMC was recognized by the March of Dimes this year for its dedication to reducing the number of elective inductions and cesarean deliveries performed before 39 completed weeks of pregnancy.

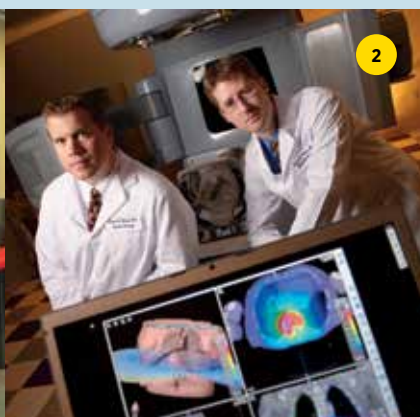
The American Heart Association recognized UM SJMC with the Mission Lifeline: Gold Award. Through a partnership with the Baltimore County Emergency Medical System, UM SJMC is able to provide prompt and quality care for patients who suffer severe heart attacks.

UM SJMC also includes the University of Maryland St. Joseph Medical Group, more than 120 physicians and mid-level practitioners who offer primary and specialty care.

UM SJMC recently partnered with ChoiceOne Urgent Care Centers to open and operate two urgent care centers in Baltimore County. The joint venture offers area residents improved access to convenient, affordable health care in a well-coordinated network of providers.



1 Mohan Suntha, MD, MBA, Michele McKee, Dawn Stiner, Richard Schraeder, MD, Maureen O'Brien and Sister Evelyn Grudza, OSF



2 Stephen Ronson, MD, and Jason Citron, MD



3 Cancer Institute physicians and staff in a multidisciplinary conference

UMMS HIGHLIGHTS

University of Maryland Shore Regional Health

University of Maryland Shore Regional Health is the leading provider of comprehensive health care services for the residents of Caroline, Dorchester, Kent, Queen Anne's and Talbot counties on Maryland's Eastern Shore. Team members, consisting of more than 2,600 employees, a medical staff of 390, board members and volunteers, work with various community partners to fulfill the organization's mission of **Creating Healthier Communities Together**.

With a total of 209 beds at three hospitals, UM Shore Regional has multiple expansion and development projects ongoing throughout the region to improve access to high quality, innovative health care services and programs.

The new Emergency Department at UM Shore Medical Center at Chestertown, a \$4.3 million project, opened its doors to patients in September, 2014. The department contains 18 emergency beds — increased from 10 — including nine private patient rooms, four observation rooms, a two-bed trauma suite and a private behavioral health patient room.

The new facilities and technologies at UM Shore Medical Center at Chestertown, coupled with the consistent expertise and commitment of the ED staff, provide community members with accessible, leading-edge emergency care.

The project also incorporates a designated emergency entrance and a new parking area for patients and visitors. The renovation includes a new entrance to the Medical Center, additional elevators and a new lobby.

In December, UM Shore Regional Health opened the Surgery Center at

Queenstown at the UM Shore Medical Pavilion. The \$7 million center provides convenient outpatient surgery options for the communities served by UM Shore Regional Health. The new 11,000-square-foot facility operates one surgery suite and three procedure rooms for orthopaedic, gastroenterology, urology, pain management and general surgery.

A \$6.5 million renovation project began in February 2015 at UM Shore Regional Health's Diagnostic and Imaging Center in Easton. The 14-month project will be completed in three phases and is expected to be complete by April 2016. The project will incorporate the expansion of Shore Regional Health's Comprehensive Breast Center.

UM Shore Regional Health's newest addition — UM Shore Medical Pavilion at Easton — opened its doors in May 2015 and, in its first phase, provides more than 24,000 square feet of renovated space for medical specialties including: ear, nose, throat, sinus and hearing; neurology and sleep medicine; neurosurgery; urology; continence and pelvic health; women's care and family medicine.

Additional physicians will move to the Pavilion after the second phase of the project is completed, totaling another 50,000 square feet, in the next year. Those medical specialties will include pediatrics, cardiology, surgical care, wound care and pulmonary care.

Another pavilion — UM Shore Medical Pavilion at Dorchester — also opened in 2015 on the campus of UM Shore Medical Center at Dorchester, in Cambridge. This space is home to the pediatrics practice and provides specialists in neurology, sleep medicine and cardiology.

The Shore Medical Pavilions feature state-of-the-art electronic medical record capabilities.



1 Deborah Davis, MD, medical director of emergency medicine at UM Shore Medical Center at Chestertown

2 UMMS and government leaders joined hospital officials and physicians at the ribbon-cutting of UM Shore Medical Pavilion at Easton

3 The opening of UM Shore Regional Health's Surgery Center at Queenstown was celebrated in December 2014.

University of Maryland Charles Regional Medical Center

University of Maryland Charles Regional Medical Center (UM CRMC) has provided excellence in health care for Charles County and the surrounding southern Maryland area since 1939. The 110-bed hospital has an active medical staff of 167. Originally built in response to a devastating tornado, the hospital has a long tradition of serving the community and providing award-winning care for generations of families.

Birthing Center Renovated

The first part of the two-phased \$1.2 million project was completed in early May 2015. It includes a renovated post-partum unit with centralized nursing care and all private patient rooms.



Power Upgrade

The Medical Center received a \$2 million Federal Emergency Management Agency grant to replace three emergency generators and automatic transfer switches, which will ensure the hospital can continue providing critical services during extended power outages. These new high-efficiency emergency generators will serve the entire hospital via a computerized system that can shift electrical loads as needed.

New Outpatient Services

UM Charles Regional Rehabilitation Center opened in March 2015, offering sports and orthopaedic rehabilitation services in an outpatient setting. The

5,000-square-foot facility is part of the UM Rehabilitation Network. Open for only two months, the center has already celebrated the 1,000th patient visit.

New Outpatient Centers Underway

To continue to meet the needs of the growing community, UM CRMC has begun construction of a new Urgent Care Center that will open in fall 2015. This new center, located near the hospital, will provide capacity for redirecting appropriate patient volume from the Emergency Department.

The planning process is complete for the Outpatient Imaging Center. Construction began the summer of 2015 with completion expected in 2016.

Community Health

UM CRMC completed a comprehensive Community Health Needs Assessment in March 2015. The assessment identified the top health needs of the residents of Charles County, and will serve as a benchmark for community health improvement initiatives over the next three years.

Recognition and Awards

- Top Performer on Key Quality Measures award from The Joint Commission for the third consecutive year, for exemplary performance in using evidence-

based clinical processes that are shown to improve outcomes for heart failure, pneumonia and surgical care.

- The Delmarva Foundation Excellence Award for Quality Improvement, for the second consecutive year.
- The American Heart Association/American Stroke Association *Get With The Guidelines: Stroke Gold-Plus Quality Achievement Award* and *Target: Stroke Honor Roll* for implementing quality improvement measures to reduce death and disability for stroke patients.
- Workplace Excellence and the Health & Wellness Seal of Approval awards from the Alliance for Workplace Excellence for outstanding commitment to overall workplace quality and to employee health and wellness, received for the 11th consecutive year.
- Two honors for the Center for Wound Healing at UM CRMC: First, the Center was recognized as a Center of Distinction for the third consecutive year by meeting high quality standards for Healogics, Inc. This recognition is awarded to only 172 of 506 centers nationally. By achieving this milestone, the center was awarded the prestigious Robert A. Warriner III, MD, Center of Excellence Award.



1 Lana Smith, RN, in the Birthing Center with Kelley Watson and her baby, Austin

2 Exercise physiologist Brian Loux, EP, MS, checks the blood pressure of UM CRMC board member and County Health Officer Dianna E. Abney, MD, at the Charles County Fair.

3 Rehabilitation Center staff, clockwise from left: Jenia Howe; Christopher Peterson, MPT, MBA; Lourdes Potestades, PT; Joyce Roy; and Elisa Fitcheard

UMMS HIGHLIGHTS

University of Maryland Upper Chesapeake Health

For the past century, University of Maryland Upper Chesapeake Health (UM UCH) has offered the residents of northeastern Maryland an unparalleled combination of award-winning clinical expertise, leading-edge technology and an exceptional patient experience. The organization's vision is to become the preferred, integrated health care system creating the healthiest community in Maryland. In late 2013, UM UCH completed its merger into the University of Maryland Medical System to continue a commitment to provide its growing community with expanded clinical services, programs, facilities and physician recruitment.

UM Upper Chesapeake Health includes two acute care hospitals — UM Upper Chesapeake Medical Center (UM UCMC) in Bel Air and UM Harford Memorial Hospital (UM HMH) in Havre de Grace — with a combined medical staff of 551 and 264 licensed beds. UM UCH operates the Upper Chesapeake Health Foundation, the Klein Ambulatory Care Center and two medical office buildings on its Bel Air campus. It also owns and operates the Senator Bob Hooper House, an assisted-living community specializing in hospice care in Forest Hill.

The University of Maryland Faculty Physicians Inc. practice has offices in Pavilion II at UM UCMC. A wide variety of pediatric and adult specialists see patients in this office for services including endocrinology, cardiology and urology. The Pavilion also includes UM pediatric specialists in pulmonology, gastroenterology and otorhinolaryngology.

The new Patricia D. and M. Scot Kaufman Cancer Center is in its second year of operation. Its affiliation

with the University of Maryland Marlene and Stewart Greenebaum Cancer Center means local access to clinical trials, the highest quality radiation oncology program, genetic counseling and a joint Tumor Board, which meets to discuss individual cases.

In the areas of prevention and screening, UM UCH has been selected as a Lung Cancer Alliance Center of Excellence through its development of a robust lung screening program and access to a thoracic surgeon, pulmonologists, oncologists and radiologists — all in one convenient location. In the interest of better health for their team and community, UM UCH leaders also took a final step this year in achieving a tobacco-free campus. Effective July 1, 2015, applicants for employment at UM UCH had to pass a pre-employment nicotine screening. Those found to use tobacco products will not be hired.

Awards and Recognition

Both UM UCH hospitals have received various accolades and recognition for four years in a row from the American Heart Association/American Stroke Association's *Get With The Guidelines-Stroke Gold Plus Quality Award*. In 2015, the organization was newly awarded the National Cancer Institute's CEO Cancer Gold Standard recognizing its extraordinary commitment to the health of its team members and families.

Also in 2015, the Breast Center at the Kaufman Cancer Center was awarded The Breast Center Imaging Center of Excellence (through the American College of Radiology), which guarantees all radiologists who participate in the program are board-certified and have particular expertise in breast imaging.



1 UM Harford Memorial Hospital gets a signage facelift.

2 UM UCH Palliative Care team

3 Cancer survivor Elizabeth Keller and husband Bill at the 9th Annual Survivor Day Celebration

4 Kaufman Cancer Center infusion team

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Mt. Washington Pediatric Hospital

Mt. Washington Pediatric Hospital (MWPH) specializes in family-centered treatment of children with serious, chronic and/or complex medical needs. The hospital is a jointly owned affiliate of the University of Maryland Medical System and Johns Hopkins Medicine.

Treating more than 8,000 patients a year on an inpatient and outpatient basis, the 102-bed post-acute hospital has locations in Baltimore and Prince George's County and a medical staff of 132. Founded in 1922 to provide a respite from the city where children could recover from illness and injury, MWPH continues to offer a unique and diverse portfolio of children's programs and services, including: rehabilitation, behavioral health, a sleep study center, treatment of feeding disorders and weight management. The hospital's Center for Neonatal Transitional Care (CNTC) is the only facility of its kind in the Mid-Atlantic region and provides services for premature infants and other babies born with serious health challenges.

Growing to Meet the Needs

In the last year, the non-profit hospital has continued to grow in response to population demand for pediatric services. Notably, Virginia Keane, MD,

clinical associate professor of pediatrics at the University of Maryland School of Medicine, joined MWPH and opened a primary care clinic for children with special needs and their siblings. This clinic has already treated hundreds of children, and the practice is growing. A one-stop shop for centralized care, the clinic provides primary care services including vaccines and coordinates specialist visits.

MWPH began offering Weigh Forward at an offsite location. This six-week graduate program follows the intensive Weigh Smart program that helps children learn about healthier diet, exercise and lifestyle choices. Weigh Forward is held at Baltimore Hebrew Congregation's site in Northwest Baltimore, easily accessible by public transportation.

Training and Education for Parents

Five-year old "Hal," a simulation patient, joined the hospital this year, allowing the Education Department to expand its staff and parent training options. Conducted in the simulation lab, parent training includes tracheostomy, ventilator and emergency-scenario planning. The aim is to teach families the skills they will need to care for their medically fragile child and instill confidence for the transition home.

Updated Imaging Suite

MWPH updated its radiology suite with a state-of-the-art digital fluoroscopy unit and a new portable digital radiography unit. The fluoroscopy unit will allow for reduced radiation dosages while conducting various fluoroscopic studies including upper GI studies and modified barium swallows. The portable digital radiography unit will improve patient care, allowing for real-time visualization of images at the bedside and reducing radiation dosages.

Nurses in the Spotlight

Two nurses from MWPH were spotlighted by *Baltimore* magazine as best in the region in its inaugural "Excellence in Nursing" awards event: Rebecca Dickinson was honored in the non-neonatal category and Michele Jacobs was honored in the neonatal category.

Care for All Children

At MWPH, children are able to heal, grow and learn the skills necessary to lead happier, more independent lives when they go home. MWPH sees patients from all over Maryland, of whom more than 50 percent receive Medicaid.



1 MWPH's second location at Prince George's Hospital Center

2 Adrienne Blizzard, child life therapist, and MWPH service dog Yuba work with a young patient.

3 Infant patient in the Center for Neonatal Transitional Care



The Power of Partnership

Where Maryland Comes First

SCHOOL OF MEDICINE

FISCAL 2015 FACTS

FACULTY 2,912

(as of 9/1/15)

1,354 Full-time

260 Part-time

1,298 Adjunct

STAFF 3,301

1,164 (FPI)

2,137 (SOM)

STUDENTS 1,326

623 Medical (MD)

49 MD/PhD

339 Graduate (MS/PhD)

52 Public Health (MPH)

183 Physical Therapy (DPT/PhD)

15 Genetic Counseling (MGC)

45 Medical and Research Technology (BS/MS)

20 Clinical Research Certificate

POST-DOCTORAL FELLOWS 582

202 Clinical

380 Research

RESIDENTS 657

(Trained by SOM Faculty)

OUR INCOME

Tuition and Fees	\$ 28,531,850
State Appropriations	41,551,891
Total Grants and Contracts	402,427,679
Gifts, Endowments and Other Expenses	17,205,816
Medical Service Plan	293,200,000
Reimbursements from Affiliated Hospitals	166,293,654
Total	\$ 949,210,890

OUR EXPENSES

Instruction/Training	\$ 88,088,531
Research	410,231,169
Clinical Service	411,349,145
General and Administrative	39,542,045
Total	\$ 949,210,890

ANNUAL

MEDICAL SYSTEM

FISCAL 2015 FACTS

LICENSED BEDS

2,405

EMPLOYEES

23,545

HOSPITAL ADMISSIONS

115,049

OUTPATIENT VISITS

1,513,135

EMERGENCY VISITS

395,583

OUTPATIENT SURGICAL CASES

67,069

OUR INCOME

From services to inpatients	\$ 2,154,238,000
From services to outpatients	1,967,679,000
These services produced total gross revenue of	\$ 4,121,917,000
Less amounts we had to deduct for contractual allowances to third-party payors	(628,909,000)
Less the cost of charity care for persons without the ability to pay for their care and for uncollectible accounts	<u>(265,100,000)</u>
Therefore, our net revenue from patient care services was	3,227,908,000
In addition, our other revenue from operating, including state support, was	<u>144,257,000</u>
Thus, our total revenue from operations was	\$ 3,372,165,000

OUR EXPENSES

For salaries, wages and fringe benefits to our employees	\$ 1,648,338,000
For medical supplies, pharmaceuticals and purchased services	1,365,501,000
For depreciation on our buildings and equipment	182,231,000
For interest costs on our outstanding bonds	<u>83,793,000</u>
All of these operating expenses totaled	\$3,279,863,000

OUR NET RESULTS

Income from operations	\$ 92,302,000
Plus non-operating revenue net of expenses, which excludes changes in market value of financial investments and other activities	<u>5,373,000</u>
Net income	\$97,675,000

* Fiscal Year 2015 figures are unaudited.

REPORT

leadership

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JEFFREY A. RIVEST RETIRES AFTER LEADING UMMC FOR 11 YEARS

During all of FY 2015 and for a total of 11 years, Jeffrey A. Rivest, FACHE, led the University of Maryland Medical Center as president and chief executive officer before retiring at the end of August.

During his tenure, UMMC saw its national profile rise as one of the nation's leading academic medical centers. The Medical Center expanded to include UMMC Midtown Campus, opened several new and updated facilities and fostered a staff culture grounded in high-quality care, patient safety, compassion and service excellence to patients and families.



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By printing on recycled paper, the University of Maryland Medical System and School of Medicine saved the following resources:

TREES 13 fully grown	ENERGY 6 million BTU	GREENHOUSE GAS 1,086 pounds	WATER 5,890 gallons	SOLID WASTE 394 pounds
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A full-page photograph of two young men standing on a boat launch ramp. The man on the left is wearing a red polo shirt and black pants, with his hands clasped in front of him. The man on the right is wearing a red long-sleeved shirt with a graphic and blue jeans, with his hands in his pockets. They are standing on a gravel surface next to a large blue boat. In the background, there is a body of water, a dock with a Mercury outboard motor, and a blue sky with scattered clouds.

Isaiah Cannon (pages 18-19)
and his best friend
at Flying Point Park on the
Bush River in Edgewood.



MEDICAL SYSTEM *and* SCHOOL OF MEDICINE

The Power of Partnership