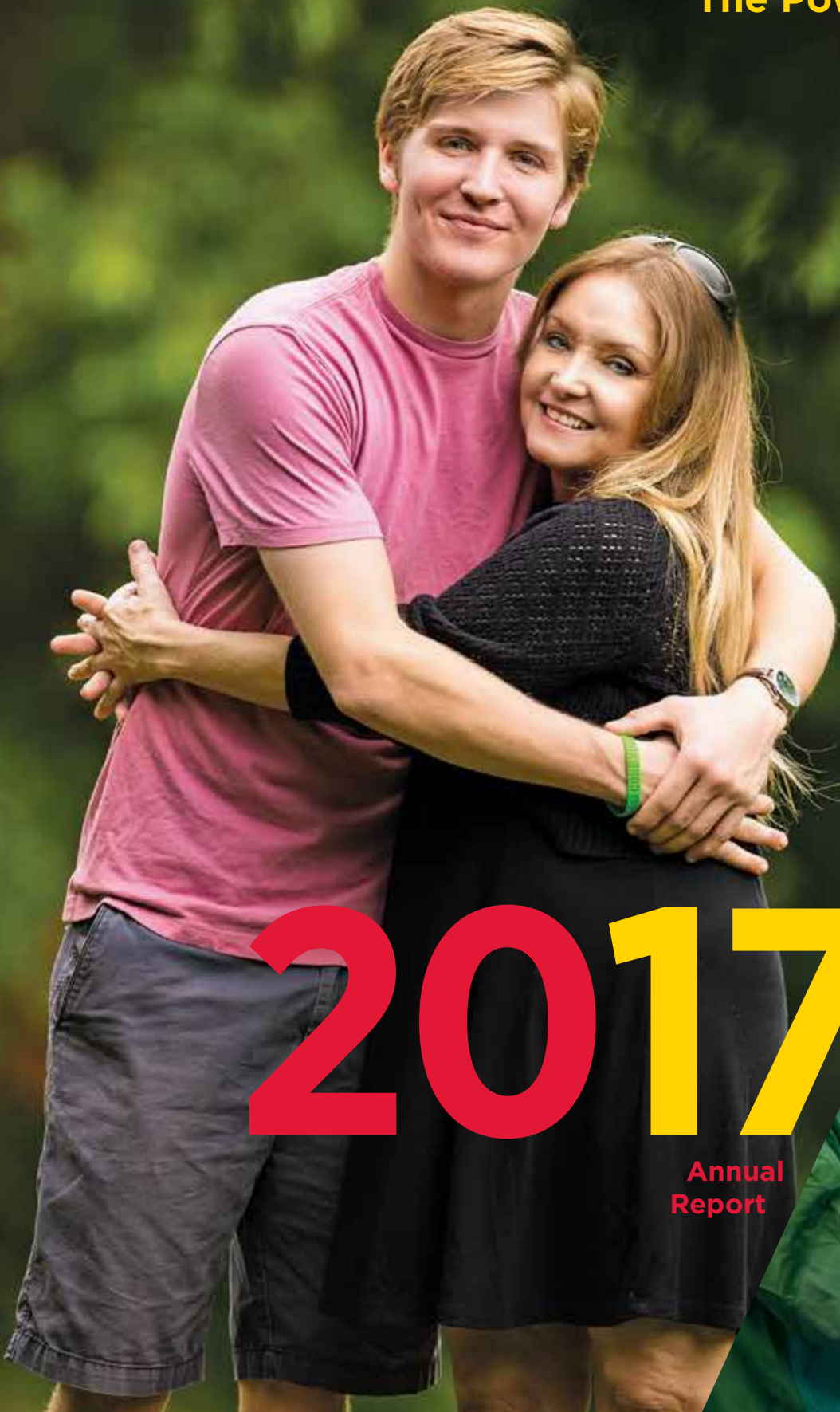




UNIVERSITY *of* MARYLAND

# MEDICINE

**The Power *of* Partnership**



# 2017

**Annual  
Report**







## **The Power of Partnership**

allows our two organizations to provide compassionate, discovery-based care and conduct the research and training that improve the health of the individuals and communities we serve.



**Lisa Shanahan needed a liver transplant**, but her chances of getting one were slim. So her son, Colin Hambrook, 19, did some independent research and decided he would give her part of his own liver.

**The University of Maryland Medical Center is a nationwide leader in performing living donor liver transplants.**

# 2017



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The University of Maryland School of Medicine (UMSOM) and the University of Maryland Medical System (UMMS) share the vision that our partnership has the power to go beyond healing patients when they are sick. **The power of our partnership extends to discovering new ways to prevent disease, as well as helping people stay healthy and manage their conditions, spending as little time as possible in the hospital — or staying out of it altogether.**



# A SHARED Vision

**University of Maryland Medicine (describing our joint enterprise) has achieved top-tier status as a national leader in clinical and academic medicine and biomedical research.** Our success contributes greatly to the well-being of our patients and communities and the economic health of our region. **We have sustained this level of leadership and success by adopting a nimble approach that is both strategic and opportunistic in order to maximize our academic yield and adapt to economic and policy changes in health care.**

In 2017, we made several significant advances to build on this leadership position. **We formally affiliated with Dimensions Healthcare System in Prince George's County, creating the new University of Maryland Capital Region Health. UMMS is now the largest health system in Maryland and among the largest in the Mid-Atlantic region.**

**We made major scientific breakthroughs,** helped develop international guidelines for intensive care, and confronted a public health crisis of opioid addiction and overdose.

**We also received national recognition in organ transplantation, cardiac care, trauma and critical care.** These are just a few of the achievements we feature in this combined annual report.

Our two organizations each have specific missions, as well as a mission in common — to provide a full range of health care services to diverse patient populations across the region, to conduct innovative research, and to teach future health care practitioners. For the patients who rely on us, we are a

seamless team working at the bedside, in the laboratory and in the community.

**Together, our faculty and staff meet the health care needs of Maryland, the region and beyond, while developing a global model of an integrated health system and medical school.** We offer more office-based and ambulatory care than ever before, a physician network that covers most of our state, and programs around the world that train health care providers in underserved communities.

## A RESOURCE TO THE REGION

**UMSOM faculty physicians provide care or consult with local physicians at health centers throughout UMMS, providing care at more than 60 locations across the state.**

Our flagship academic medical center, the University of Maryland Medical Center (UMMC), is the hospital of choice throughout the Mid-Atlantic for its expertise in the delivery of time-sensitive critical care. All attending physicians at UMMC are employed faculty members of UMSOM.

Physicians across the region refer their patients to UMMC for specialized care. **This year, our own Maryland ExpressCare facilitated 9,570 referrals for urgent patient transfers from community hospitals. The University of Maryland Children's Hospital treated nearly 40,000 children, from newborns to young adults, through hospital and outpatient services.**

**Across the region, the University of Maryland Cancer Network provides state-wide access to cancer services and clinical trials.** Residents also have more access than ever to our **world-renowned transplant specialists, neurosurgeons, cardiologists, orthopaedic surgeons, pediatricians and other sub-specialists.**

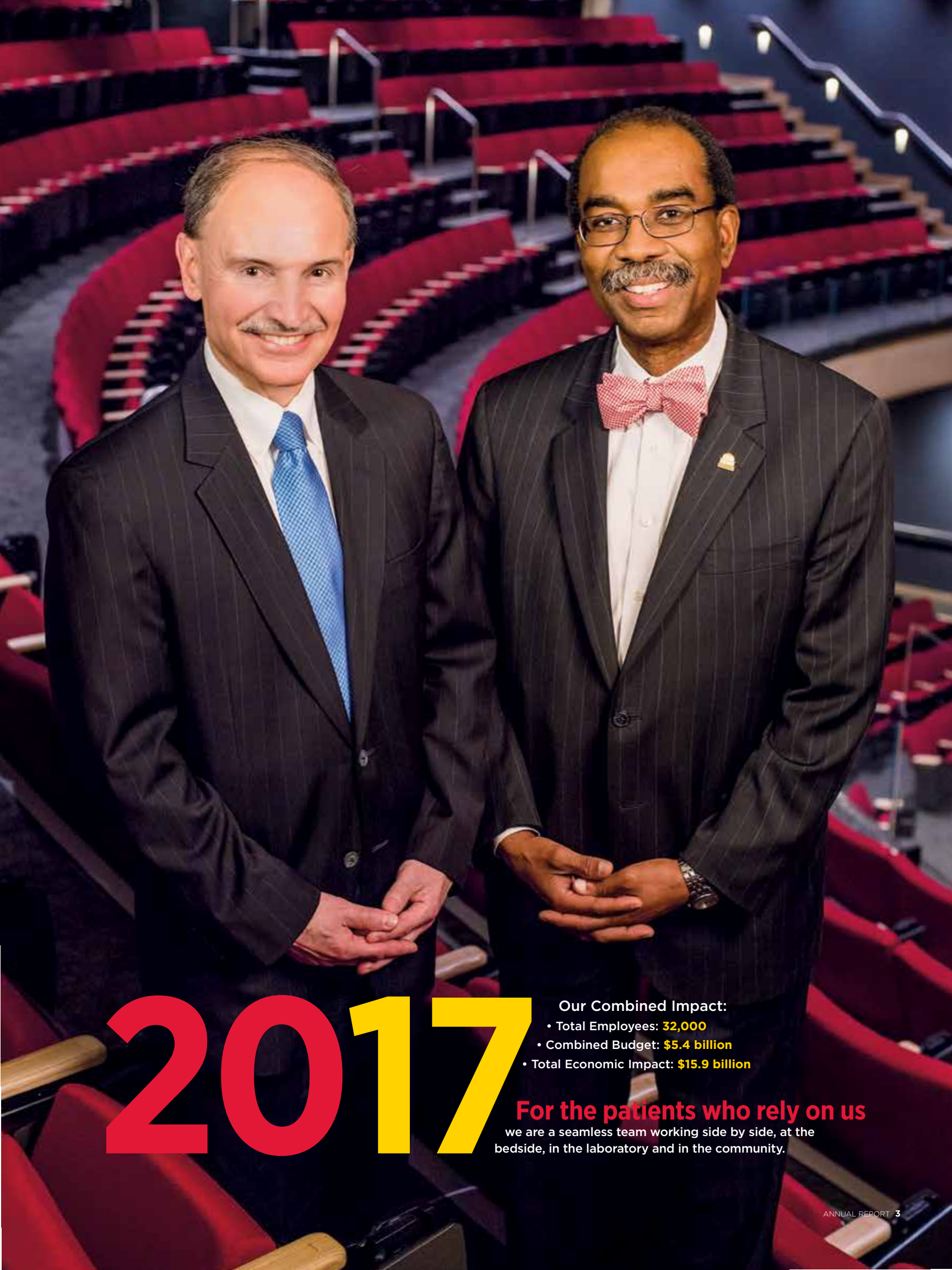
Still, with changes in Washington, DC, the possibility of severe cuts to National Institutes of Health research funding, and changes in health care policy, we must remain more vigilant than ever. **We have always been undaunted in our mission and relentless in our execution.** We are confident that with the tremendous dedication of our faculty, staff, students, residents, fellows, nurses, alumni, board members and donors, University of Maryland Medicine will continue to make history again this coming year.

*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





# 2017

**Our Combined Impact:**

- Total Employees: **32,000**
- Combined Budget: **\$5.4 billion**
- Total Economic Impact: **\$15.9 billion**

**For the patients who rely on us**

we are a seamless team working side by side, at the bedside, in the laboratory and in the community.



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"Our all-volunteer Board of Directors is committed to serving the health needs of the people of Maryland, and reflects an impressive depth and breadth of experience. Our Board is comprised of individuals who have achieved success in health care, public policy, government and business stewardship. With their guidance and inspiration, we have achieved a tremendous accomplishment this year by expanding the Medical System to care for nearly 1 million Marylanders who live in Prince George's County and the Washington, DC, metropolitan area. This expansion allows us to fulfill our primary mission: to be the university-based regional health care system that puts Maryland first."

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







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"This year's annual report is a particularly significant one for the University of Maryland School of Medicine (UMSOM) and our valued partnership with the University of Maryland Medical System. As the UMSOM commemorates its 210th Anniversary this year, it is a perfect time to reflect on all that we, and those that came before us, have accomplished together. From groundbreaking scientific discoveries to developing vaccines for the deadliest infectious diseases, to leading the world in trauma and emergency medicine, to performing organ transplantations that were never thought possible, we have literally saved millions and millions of lives here at home and around the world. During the past year, we continued to accelerate the pace of innovation and discovery-based medicine even greater, as we look forward to another year of history making!"

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

## A New Leadership Hall

With a complete top-to-bottom renovation, the UMSOM has dramatically transformed its 1970s-era Medical School Teaching Facility (MSTF) Auditorium into "Leadership Hall," a bright, inviting and elegant space that will serve as UMSOM's new signature venue for large events.

On May 15, 2017, Dean E. Albert Reece hosted a community-wide celebration to mark the reopening of the 8,000-square-foot facility, which now features a bright, contemporary design and seating for more than 700 people.







James McHenry Elementary/Middle School in West Baltimore is one of many schools and communities that **benefit from the University of Maryland Medicine partnership.**



A woman with dark hair and a young girl with braids are laughing and playing in a sprinkler. Water is spraying all around them. In the background, there is a colorful building with yellow and red panels and a white van. The scene is bright and sunny.

**The Power of Community**

**2017**







Dr. Barth



# Advances in Transplantation

Colin Hambrook's mother, Lisa Shanahan, had suffered from primary biliary cirrhosis for as long as the 19-year-old could remember.

*"I didn't really know what it was," Mr. Hambrook said. "But as I got older, I definitely understood it was more serious."*

She struggled for the last five years waiting for a liver from a deceased donor. He took to the Internet and learned that her chances were not very good, because of a shortage of organs and the priority status of sicker patients at the top of the waiting list. He decided they should go in another direction.

*"I figured I'd do something about it, and I did," he said.*

He researched programs that transplant part of a liver from a living donor — namely, him.



The liver possesses the remarkable ability to regenerate after partial surgical removal, and the transplanted section of liver in the recipient can grow to full size over time, as quickly as two months after donation.

Fortunately for this mother and son, **University of Maryland Medical Center (UMMC)** is a leader in living donor organ transplant. Mr. Hambrook went through extensive screening — he was a match — and met with a donor advocate to make sure he was healthy enough and fully informed of what it would involve for him.

Just days before Christmas 2016, Mr. Hambrook gave his mother the best gift — part of his healthy liver. The surgery was performed by **Rolf Barth, MD**, associate professor of surgery and head of the Division of Transplantation.

*"He's an athlete," said Ms. Shanahan, 50. "He's healthy. He works out every day. He doesn't drink, he doesn't smoke. It's a risky surgery, giving up half of your liver. But he said, 'I need you around.'... It makes me cry."*

Some patients are too sick for transplantation. UMMC is adept at keeping such patients alive with technologies that function as "bridges to transplant." Because of a

multidisciplinary approach, often in tandem with the **University of Maryland R Adams Cowley Shock Trauma Center**, critically ill patients have access to the **Molecular Adsorbent Recirculating System (MARS)**, extracorporeal membrane oxygenation (ECMO) and ventricular assist devices (VAD) that support compromised livers, lungs and hearts.

*"Our goal is to leave no one behind and to give everyone who has a chance to benefit from transplant an opportunity,"* said **Bartley Griffith, MD**, the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery.

Dr. Griffith's primary research, funded by the National Institutes of Health, is **designing and optimizing a completely artificial lung that patients can use at home**. This advanced tool in lung healing will enable patients to become candidates for transplantation and, in turn, experience better outcomes. **These artificial lungs could be going home with patients as soon as 2019.**

## ON THE RESEARCH FOREFRONT

University of Maryland School of Medicine (UMSOM) faculty are also researching ways to keep transplanted organs viable after surgery. **Joseph Scalea, MD**, assistant professor of surgery and director of pancreas and islet cell transplantation, leads a team researching transplantation tolerance. **Dr. Scalea directs a translational immunology laboratory focused on novel methods for inducing tolerance in organ recipients.**

## Pioneers in Transplantations

The UMMC Division of Transplantation has been among the pioneers in living donor renal transplants since the early 1990s under the leadership of **Stephen Bartlett, MD**, the Peter Angelos Distinguished Professor in Surgery and chair of the UMSOM Department of Surgery.

In recent years, the focus has expanded to living-donor liver transplants, led by **John LaMattina, MD**, assistant professor of surgery and director of living-donor liver transplantation.





University of Maryland Medical Center is:

**No.2** in the country for patient survival one year after living donor liver transplantation, and tied as the **No.3** program in the country for the number of liver transplants performed.

Dr. LaMattina prepares to transplant a liver into the recipient.



# The Science of Sports

From the football field to the operating room to the therapy gym, the University of Maryland School of Medicine (UMSOM) is increasingly at the forefront of advances in sports medicine.

## NEW PROGRAM IN SPORTS MEDICINE

UMSOM established a new Program in Sports Medicine in July, 2017. The program, which is based at UMSOM with a significant geographical presence in College Park, is led by **Andrew Pollak, MD**, the James Lawrence Kernan Professor and Chair of the Department of Orthopaedics at UMSOM and **David Stewart, MD**, chair of the Department of Family and Community Medicine at UMSOM.

*"The primary goal of the program is to ensure interdisciplinary collaboration in research, clinical care and education, among those involved in the science and care of sports-associated injury and illness,"* said Dr. Pollak.

Already one of the premier institutions in the world for traumatic brain injury research and clinical care, UMSOM is playing a key role in the University of Maryland's new **Center for Sports Medicine, Health and Human Performance (CSMHHP)**. The center, a monumental collaboration between the University of Maryland, Baltimore (UMB, which includes UMSOM) and the University of Maryland, College Park (UMCP), leverages the strengths of both UM campuses, and makes it a leading national hub for the science of sports.

*"What we're doing is extremely novel and is not a replica of anything else that is happening across the country,"* said Dr. Pollak.



*"We envision the center becoming a magnet facility for sports medicine care for the greater Washington, DC, metropolitan area."*

— Andrew Pollak, MD

The CSMHHP will be part of the newly renovated Cole Field House at UMCP, scheduled to be completed in 2019. The first floor of the new center will be clinical, with 12 exam rooms, a procedure room, a robust physical and occupational therapy facility and an imaging center. There will be a large footprint dedicated to sports performance and psychology and weight and nutrition counseling. Comprehensive services under one roof and interdisciplinary collaboration will allow patients to leave the center with a diagnosis and functional treatment plan. The second floor of the center will include 30,000 square feet and house the labs of some of the smartest minds in orthopaedics, neurology and biology, solely dedicated to research.



**Dr. Pollak gives neck strengthening tips to UMCP wrestler Youssif Hemida.**

The CSMHHP's research activities will rely on this partnership, combining the expertise of strong programs at UMCP — kinesiology, engineering, neuroscience, computer science and advanced imaging — with strengths of UMSOM. In the future, collaboration with other UMB schools is anticipated.

In fact, research activity for the center is already underway, thanks to its **MPowering the State designation, which has earned it a \$3 million investment** to be used to promote cross-university, multidisciplinary research in central nervous system injury and related neuroscience.

Other research projects include identifying novel biomarkers and therapeutic approaches for traumatic brain injury, brain-gut interactions, and the use of aerobic exercise, dietary manipulations and brain-training paradigms to facilitate post-traumatic recovery.





**Craig Bennett, MD**, teaches injury prevention to UMCP basketball player Kristen Confroy.

**Dr. Bennett** is assistant professor of orthopaedics at UMSOM, and head team orthopaedic surgeon for the University of Maryland Terrapins.

### Science Innovations

**Alan Faden, MD**, is the David S. Brown Professor in Trauma at UMSOM, and associate dean for trans-campus research advancement. He is also scientific co-director of the CSMHHP, along with Elizabeth Quinlan, PhD, professor of biology at UMCP.

*"We want to optimize the potential research synergies across the two campuses,"* Dr. Faden said.



**Dr. Faden**



# Family-Centered Intensive Care



When a patient is admitted to an intensive care unit (ICU), families may be too overwhelmed to comprehend every verbal detail about their loved one's condition. Unfortunately, many families are asked to do just that — translate medical jargon in real time to make life-altering decisions. **New guidelines from the Society of Critical Care Medicine (SCCM), co-authored by Giora Netzer, MD**, associate professor of medicine at UMSOM, outline 24 evidence-based, **family-centered care recommendations that may lessen the burden on families and improve patient outcomes.**

*"These guidelines will help increase the focus on the entire family as they go through the intensive care experience,"* said Dr. Netzer, an attending physician in the Medical Intensive Care Unit (MICU) at the **University of Maryland Medical Center (UMMC)**. The guidelines apply to neonatal, pediatric and adult ICUs, and a number of the recommendations are already in place at University of Maryland Medical System (UMMS) hospitals. **UMMC, the system's flagship academic medical center, has 11 specialized ICUs. As a regional resource for critical care medicine, UMMC has already developed family-centered practices in all of its ICUs.**

In the Medical Intensive Care Unit, physicians, nurses, social workers and other **care providers include patients' family members in rounds, illustrating and explaining the patient's progress and care plan.** The MICU team also developed strategies to support one another in **maintaining compassion and empathy while caring for some of the most complex patients in the hospital.** For all of its efforts to improve care, the MICU staff gained hospital-wide recognition when it won the annual CNO Team Award from **Lisa Rowen, DNSc, RN, CENP, FAAN**, senior vice president and chief nursing officer of UMMC, during Nurses Week 2016.

The Pediatric ICU (PICU) in the **University of Maryland Children's Hospital** at UMMC has invited families to attend daily rounds for the past six years, and focuses care on what

works best for individual families. Each PICU private room features a recliner chair for overnight visitors, and parents are welcome to stay 24/7 with their children, if they wish.

**In October 2016, the Neurological ICU at UMMC joined 62 ICU teams across the country participating in the SCCM's Patient-Centered Outcomes Research Institute (PCORI) Collaborative** to implement evidence-based practices in intensive care settings. This workgroup meets to discuss best practices and share outcomes of family-satisfaction surveys.

To date, the Neuro ICU has implemented four key interventions to tailor care and communication to patients' family members: a patient and family information handout, inviting family members to participate in multidisciplinary rounds, installation of family communications boards and offering family care rounds to orient families to the ICU. **Melissa Motta, MD**, assistant professor of neurology, has been instrumental in developing these practices with the help of a steering committee of clinical staff, with input from patients and family members who serve on advisory councils at UMMC.

The team collects satisfaction surveys to determine efficacy, with the goal of scaling up these practices to other ICUs in the hospital. Nursing staff from ICUs across the hospital performed gap analyses to determine specific areas of need and put strategies into practice.



*"Family engagement is a large part of what we do, and we are always looking for new and innovative ways to have family involved."*

— **Jason Custer, MD**, associate professor of pediatrics and medical director of the PICU.

**Mariam A. Sawan, MBBS**, a resident in internal medicine, rounds with **Dr. Netzer** and other residents and nurses in the MICU.







**Dr. Netzer** co-authored new guidelines for the Society of Critical Care Medicine, with evidence-based recommendations to lessen stress on patients' families.





# Confronting a Public Health Crisis

In Maryland — and across the United States — **multiple factors have led to an epidemic of opioid-related overdose deaths affecting all demographic groups:** from people whose addiction stems from well-intentioned prescribing of pain medication to longtime drug users injecting heroin, and everyone in between. There is also the heart-wrenching effect of newborns struggling with withdrawal because their mothers were addicted to opioids or taking prescribed opioid therapy for pain or addiction.

With so many factors at the root, University of Maryland Medical System clinicians employ multiple approaches across all medical centers to save lives — and manage pain safely and effectively.

At the **University of Maryland Medical Center (UMMC)**, **Ron E. Samet, MD**, assistant professor of anesthesiology and director of regional anesthesiology and acute pain medicine, was featured in an Associated Press article that ran in news outlets nationwide. **Dr. Samet and his colleagues at the University of Maryland R Adams Cowley Shock Trauma Center are able to quickly address the intense pain from traumatic injury by administering a regional nerve block.**

Regional nerve blocks are not new, but the more recent innovation of using ultrasound to guide placement of the injected anesthetic allows much faster and more accurate administration without the risk of damaging a nerve. Injecting anesthetic preparations directly in the area of injury can reduce or even eliminate the need to administer opioid medications. For patients who are susceptible to drug addiction, reducing or eliminating opioids can help prevent them from relapsing into drug abuse, while still managing their injury and post-surgery pain.

Also this year, *The Journal of the American Medical Association (JAMA)* featured **Dina El-Metwally, MB, BCh, PhD**, associate professor of pediatrics at UMSOM and medical director of the Drs. Rouben and Violet Jiji Neonatal Intensive Care Unit at the **University of Maryland Children's Hospital**. *JAMA's* first-ever "A Day in the Life" installment chronicles a typical day for a doctor who treats newborns withdrawing from opioids. Dr. El-Metwally and the NICU nurses and volunteer "cuddlers" manage these infants with careful monitoring and tireless loving care, while social workers and addiction specialists work with their mothers to help them stick to recovery.

An innovative program at UMMC's Emergency Department is designed to reach out to addicts who show evidence of being ready to enter treatment by connecting them to treatment and peer counselors. The program is led by **Michael E. Winters, MD**, associate professor of emergency medicine, and **Eric Weintraub, MD**, associate professor of psychiatry and division head for alcohol and drug abuse, and managed by **Andrea Smith, DNP, CRNP**.



**Dr. Samet administers a regional nerve block to reduce or eliminate the need for post-surgical opioid medications for people who are susceptible to addiction.**

At the **University of Maryland Rehabilitation & Orthopaedic Institute's Pain Management Center**, **Thelma B. Wright, MD, JD**, assistant professor of anesthesiology, focuses on **non-opioid approaches for managing chronic pain**. Dr. Wright is director of the University of Maryland School of Medicine (UMSOM) Division of Pain Medicine.

## IN THE COMMUNITY

Many University of Maryland Medical System hospitals are authorized as training facilities through the **Maryland Department of Health's Overdose Response Program (ORP)**. These medical centers provide qualified community members with overdose education and training to administer naloxone, a lifesaving medication that reverses the effects of opioids.

This education and training is provided at the UMMC Center for Addiction Medicine, **University of Maryland Baltimore Washington Medical Center**, and **University of Maryland Upper Chesapeake Health (UM UCH) Klein Ambulatory Care Center**. UM UCH works closely with the Harford County Sheriff's Office to document cases of overdose victims and implement strategies to stem the increasing numbers of fatal overdoses in that suburban-rural county.

## Investigating a Vaccine for Opioid Addiction

Looking to the future, a potential vaccine for opioid addiction is in investigative stages by addiction expert **Bankole Johnson, DSc, MD, MB, ChB, MPhil**, the Dr. Irving J. Taylor Endowed Professor and Chair of the Department of Psychiatry, and vaccine expert **Kathleen Neuzil, MD, MPH**, professor of medicine, director of the Center for Vaccine Development and deputy director of the Institute for Global Health at UMSOM.







Dr. El-Metwally chronicled a typical day caring for infants with neonatal abstinence syndrome for a *JAMA* feature this year.



# Tackling Diabetes as a Team

The team approach at the University of Maryland Center for Diabetes and Endocrinology includes adult and pediatric endocrinologists, nurses, dietitians and diabetes educators. They work in collaboration with specialists such as vascular surgeons, podiatrists, ophthalmologists, psychologists, psychiatrists and social workers. **The center is based at University of Maryland Medical Center Midtown Campus**, and serves the state and region as a major referral center for all types of diabetes and other endocrine diseases.

Recognized by the National Committee for Quality Assurance for its consistently high quality of care, the center partners with the University of Maryland School of Medicine (UMSOM). **Faculty physicians and scientists conduct groundbreaking adult and pediatric clinical trials, studying new treatment protocols, medication efficacy and personalized medicine.**

## IN THE COMMUNITY: CONNECTING CARE

The Community Health Education Center (CHEC) at UMMC Midtown Campus is dedicated to educating the West Baltimore community and connecting them with care. CHEC offers free health screenings — including A1C blood tests to diagnose type 1 and type 2 diabetes.

Individuals who are pre-diabetic or at risk for diabetes can participate in CHEC's **Diabetes Prevention Program**. The 16-week class teaches students how to make lifestyle changes to prevent diabetes. Self-management education leaves patients with essential skills to maintain their quality of life.

## VASCULAR SURGERY: NATIONALLY RECOGNIZED

Patients with diabetes tend to be at a higher risk for vascular complications. The **University of Maryland Medical Center University Campus**, working in partnership with the UMSOM, boasts one of the top vascular surgery programs in the country, led by **Rajabrata Sarkar, MD, PhD**, the Barbara Baur Dunlap Professor of Surgery and Physiology.

*"Collaborating with different experts gives patients more options and leads to better patient care."*

— **Kashif Munir, MD**, assistant professor of medicine, and medical director of the UM Center for Diabetes and Endocrinology.



**Dr. Toursavadkahi and Dr. Sarkar with a patient after her vascular surgery at UMMC.**

The Vascular Acute Care Surgery (VAX) Program at UMMC provides time-sensitive care in a vascular emergency. The vascular surgery team includes **Shahab Toursavadkahi, MD**, assistant professor of surgery. At UMMC Midtown Campus, **Michael P. Lilly, MD**, professor of surgery, is chief of surgery and director of the Vascular Center.

## LINKING DIABETES AND BIRTH DEFECTS

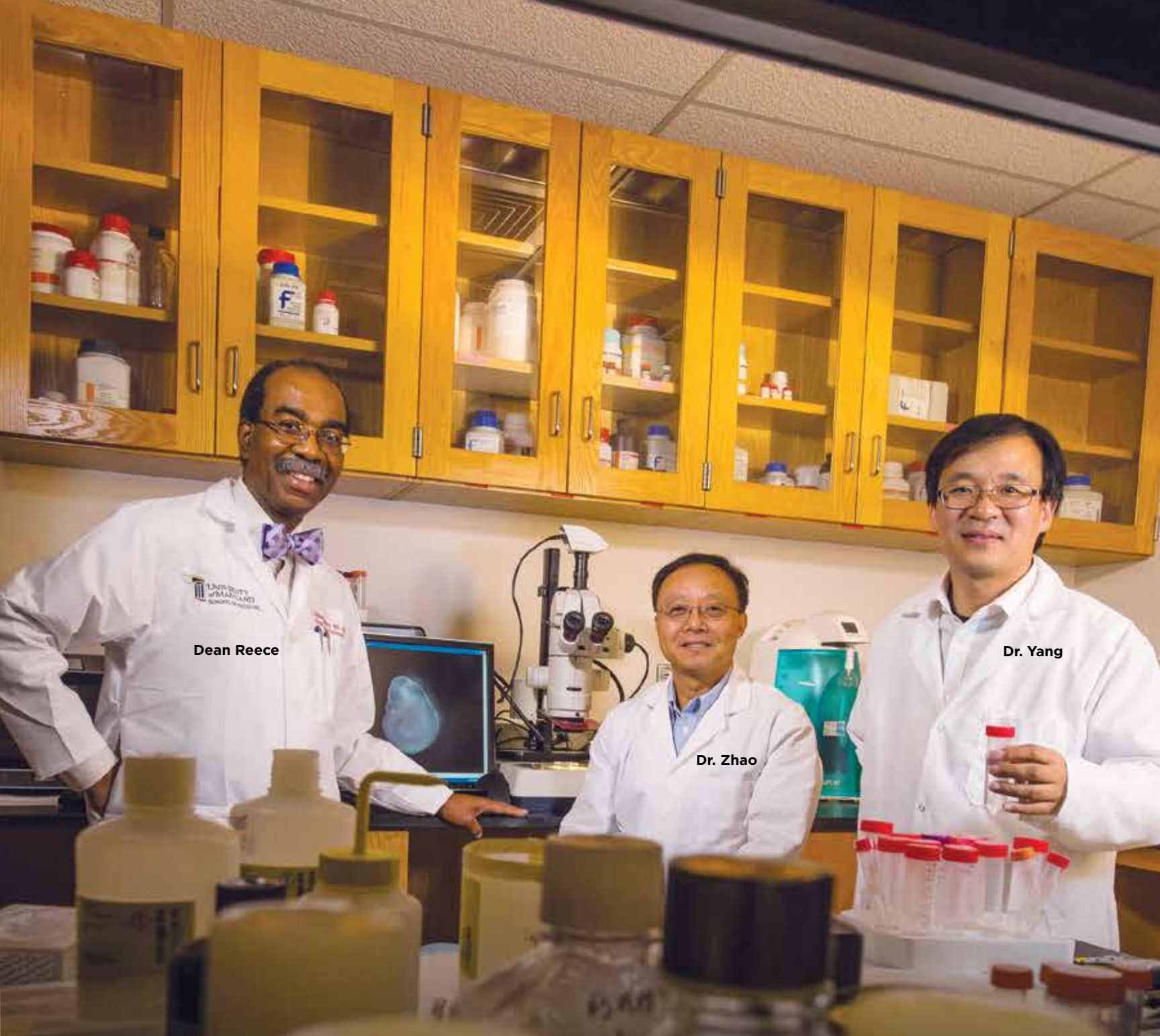
Faculty in UMSOM's Center for Birth Defects Research in the Department of Obstetrics, Gynecology and Reproductive Sciences are making important discoveries linking birth defects to diabetes and neurodegenerative diseases.

**They have demonstrated that high glucose from inadequately controlled diabetes results in a series of bio-molecular processes including injury to cell and cell organelle membrane. This activates processes resulting in enhanced cell death during development.**



**Dr. Munir with a patient.**





Dean Reece

Dr. Zhao

Dr. Yang

#### PUBLISHED STUDIES BY THE CENTER FOR BIRTH DEFECTS RESEARCH

In one study, researchers identified a gene that triggers a process leading to the formation of neural tube defects, a problem commonly found in infants of pregnant women with diabetes. **Peixin Yang, PhD**, professor of obstetrics, gynecology and reproductive sciences and director of the Center for Birth Defects Research, was the lead author on the study, published in the journal *Nature Communications*. Other researchers included UMSOM **Dean E. Albert Reece, MD, PhD, MBA**, co-director of the Center for Birth Defects Research. **Dean Reece** has studied diabetes and pregnancy for decades, and is one of the leading experts in diabetes-induced birth defects research.

Another UMSOM study, published in *Proceedings of the National Academy of Sciences*, found a link between some neurodegenerative diseases and a birth defect that occurs commonly in infants of women with diabetes. This is the first time this link has been identified. The finding could indicate a new way to understand, and perhaps treat, both the birth defects and the neurodegenerative diseases. The study's lead author was **Zhiyong Zhao, PhD**, associate professor of obstetrics, gynecology and reproductive sciences. Co-authors included Dean Reece and **Lixue Cao, PhD**, a postdoctoral fellow in the department of obstetrics, gynecology and reproductive sciences.



# A Magnet for Top Scientists

The University of Maryland School of Medicine (UMSOM) announced in February 2017 the successful recruitment of a broad slate of top scientists, as the first step in its bold new recruitment initiative, the Special Trans-Disciplinary Recruitment Award Program (STRAP).

The STRAP initiative, officially launched in late 2016, seeks to recruit teams of some of the most talented physicians and scientists in the world, to form several well-funded research teams by the year 2020. **The primary goal is to significantly catalyze UMSOM's focus on accelerating discoveries, cures and therapeutics for the most serious diseases that cause illness, disability and death.**

STRAP is part of Vision 2020, the shared strategic goals established by University of Maryland Medicine.

**The new teams of scientists will bring federal funding of nearly \$30 million (more than \$11 million annually) in total grants and contracts to UMSOM, which reached nearly \$450 million in total research funding in 2017.**

*"We are off to a tremendous start with the STRAP initiative, and are very excited to be able to attract these first teams of outstanding individuals who are nationally and internationally recognized," said Dean E. Albert Reece.*

**New faculty recruited during the 2016-2017 academic year include teams of investigators and physician-scientists who are leaders in the following fields:**

## LEADING SCIENTIST IN BRAIN DEVELOPMENT

**Tracy Bale, PhD**, professor of pharmacology, was recruited from the University of Pennsylvania School of Medicine. She is a nationally-recognized neuroscientist and expert on the **links between stress and risk for neurodevelopmental disorders, including autism and schizophrenia, in offspring.**

## EXPERTS IN LUNG INJURY

The team of **Konstantin Birukov, MD, PhD**, and **Anna Birukova, MD**, came to the UMSOM from the University of Chicago School of Medicine. **They are leading experts in pulmonary and critical care medicine, and are studying innovative ways to prevent acute lung injury.** Each has appointments in the UMSOM Department of Anesthesiology and the Department of Medicine. Dr. Birukov will also direct the UMSOM Lung Biology Research Program, with Dr. Birukova serving as associate director.



Dr. Iwamoto

## TOP TEAM IN IMAGING AND SPECTROSCOPY

The team of **Linda Chang, MD, MS, FAAN, FANA**, and **Thomas Ernst, PhD**, includes two highly acclaimed physician-scientists who join the Department of Diagnostic Radiology and Nuclear Medicine from the University of Hawaii. **The team studies how methamphetamines and other drugs affect the brain and cognition, the neurological effects of HIV/AIDS, and how aging affects the brain.**

## TOP SCIENTISTS IN MUSCLE AND TENDON FORMATION

The team of **Masahiro Iwamoto, DDS, PhD**, and **Motomi Enomoto-Iwamoto, DDS, PhD**, was recruited from the Children's Hospital of Philadelphia and the University of Pennsylvania to join the UMSOM's Department of Orthopaedics. They are leading orthopaedic scientists who **focus on the development of articular cartilage, the regulation of bone growth, and the repair of muscle, cartilage and other connective tissue.**

## LEADER IN BIOENGINEERING AND ARTIFICIAL ORGANS

**Zhongjun Jon Wu, PhD**, professor of surgery, is an internationally recognized authority on the development of artificial organs and ventricular assist devices, including blood pumps, artificial lungs and respiratory assist devices. Previously with the University of Louisville School of Medicine, his **areas of research are in blood flow, cell mechanics and hemodynamics, biological responses to artificial organs and stem cell therapies for heart and lung disease.**

## ACADEMIC LEADER IN PHYSICAL THERAPY

**Li-Qun Zhang, PhD**, comes to the UMSOM from Northwestern University, and will hold appointments in the Department of Physical Therapy & Rehabilitation Science and the Department of Orthopaedics. **He is widely published and speaks internationally on his research related to biomechanics and biomedical engineering.**





Dr. Birukov (center) and Dr. Birukova with Junghyun Kim, MD, PhD, visiting post-doctoral fellow in medicine



Dr. Enomoto-Iwamoto

The UMSOM is recognized as a magnet institution for individuals interested in pursuing possible  
**cures and treatments for the most critical and complex diseases that we face around the world.**



# Breakthroughs in Neurological Care



More than 3 million Americans are afflicted with the neurological disorder called epilepsy. Whether their cases are simple or complex, they are finding that the **University of Maryland Epilepsy Center provides them access to an internationally recognized expert in this field: Peter Crino, MD, PhD**, just completed his first year as professor and chair of the Department of Neurology at the University of Maryland School of Medicine (UMSOM) and chief of neurology at **University of Maryland Medical Center**.

Dr. Crino is an internationally recognized epileptologist and physician-scientist specializing in developmental brain disorders and dedicated to paving new roads toward cures for neurological diseases. In addition to his clinical expertise, he has led a research laboratory with continuous funding for the **last 20 years from the National Institutes of Health, through which he has four grants totaling \$4.1 million**.

Until cures are found, studying the genetics behind these disorders — which could range from an intellectual disability to autism — can allow families to identify the specific genetic malformation causing the disorder. They can then connect with other families affected by the same gene malformation.

*"I find that it provides a very comfortable network of other individuals with whom patients can share their stories. It's a really niche practice but one that I think has met the needs of a lot of families."*

— Peter Crino, MD, PhD

## CLINICAL TRIAL FOR MOVEMENT DISORDERS

The neuroscience departments — Department of Neurology and Department of Neurosurgery — partner with the Department of Diagnostic Radiology & Nuclear Medicine to **conduct clinical trials for MRI-guided focused ultrasound (FUS) treatment of essential tremor and Parkinson's disease**. FUS uses detailed imaging of the brain and heat-generating sonic waves to pinpoint and kill brain cells associated with the conditions, reducing shaking considerably to allow patients to live a more normal life.

The team of **Howard Eisenberg, MD**, the Raymond K. Thompson, MD, Endowed Chair in Neurosurgery; **Elias Melham, MD**, the Dean John M. Dennis Chair in Radiology; and **Paul Fishman, MD, PhD**, professor of neurology, has led a pilot FUS study on the causes of Parkinson's disease and will be the

principal investigator of a much larger study to begin in late 2017. The investigation will involve **100 patients at 15 centers** in the United States and abroad.

According to the Focused Ultrasound Foundation, *"The University of Maryland's pioneering Neuroscience Center in Baltimore is poised to become a leading hub for focused ultrasound research."*

## MINIMALLY INVASIVE NEUROSURGERY AT UNIVERSITY OF MARYLAND SHORE REGIONAL HEALTH

It is rare for hospitals in rural counties to have a neurosurgeon, but as part of the greater University of Maryland Medical System (UMMS), **University of Maryland Shore Regional Health** recruited **Khalid Kurtom, MD, FAAN, FACS**, who is also a clinical assistant professor of neurosurgery at the UMSOM. His expertise includes minimally invasive surgery for brain, spine and peripheral nerve injuries.

Dr. Kurtom received UM Shore Regional Health's 2016 Arthur V. Cecil Jr., MD, **Award for Excellence in Health Care Improvement**, for improving spine patient outcomes and through his work with the University of Maryland Spine Network.

Dr. Kurtom is a member of **University of Maryland Community Medical Group**.







Matt Hill travels to Baltimore from his home in Wayne, Pa., to continue seeing Dr. Crino, who has been Matt's neurologist since his previous faculty positions at Temple University and University of Pennsylvania medical centers.

### Reaching Patients Across the Globe

In addition to treating patients on the Eastern Shore, Dr. Kurtom traveled with his clinical team to Jordan in April 2017 to treat Syrian refugees.

While there, he performed 30 cases in six days, with most of his patients being women and children.



Dr. Kurtom



# The New Cancer Fighters

Since 1998, long before immunotherapy became a buzzword in the cancer world, researchers at the **University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center (UMGCCC)** have been **treating patients with engineered immune cells.**

Led by **Eduardo Davila, PhD**, associate professor of microbiology and immunology, and **Aaron P. Rapoport, MD**, the Gary Jobson Professor in Medical Oncology, **more than 50 clinical and basic-science investigators at UMGCCC study the ways cancer cells evade detection by the immune system, to develop treatments and preventive strategies.**

Early successes in immunotherapy showed prolonged progression-free survival for a clinically significant number of patients, inspiring the cancer center to establish the Tumor Immunology and Immunotherapy Program. **More than 30 clinical trials open at UMGCCC employ immunotherapy approaches. Researchers are looking at several ways to enhance the immune system's ability to fight cancer,** including the use of checkpoint-inhibitor drugs, monoclonal antibodies, cancer vaccines, gene-modified immune cells and strategies that combine immunotherapy agents with radiation therapy.

What started as treatment innovations for blood-based and lung cancers are now showing promise at UMGCCC for just about every cancer site. Once considered only after a patient's other options had been exhausted, **immunotherapy is increasingly being used at UMGCCC and elsewhere as a first-line therapy.**

## UMSOM FACULTY DEVELOP INNOVATIVE GAMMAPOD

**It is now possible to deliver a more precise high dose of radiation therapy to breast cancer tumors, with less damage to nearby healthy organs, thanks to the GammaPod, invented and developed by two University of Maryland School of Medicine (UMSOM) faculty members: Cedric X. Yu, MS, DSc, FAAPM, the Carl M. Mansfield, MD, Professor in Radiation Oncology, and William F. Regine, MD, FACR, FACRO, the Isadore & Fannie Schneider Foxman Endowed Chair and professor of radiation oncology. The device is the only one like it in the world, specifically designed to treat early-stage breast cancer with stereotactic body radiation therapy (SBRT) in a way that minimizes the amount of radiation reaching the heart and lungs.**



*"The GammaPod will potentially enable a paradigm change in how we treat early-stage tumors. The device may one day negate the need for surgery for some patients."*

- William Regine, MD, FACR, FACRO



Dr. Nichols

**In 2016, the first patients were treated with the GammaPod as part of a clinical feasibility and safety trial at UMGCCC.** Once the trial is complete, an application will be submitted to the FDA. If approved, more GammaPod clinical trials will be offered at UMMC and a consortium of four other centers in the United States and Canada.

**Elizabeth Nichols, MD**, assistant professor of radiation oncology, is among faculty who treat patients enrolled in the GammaPod trial at UMGCCC.

## HARNESSING A PATIENT'S OWN T CELLS TO ATTACK CANCER

UMGCCC is building a state-of-the-art laboratory in the UMSOM Bressler Research Building to produce cell-based immunotherapies and cancer vaccines. **Expected to open in summer 2018, the GMP — for "Good Manufacturing Practice" — lab will allow scientists to modify a patient's own T cells to recognize and attack cancer.** This lab will also house related research from other disciplines, such as cardiology and neurotrauma.





**Dr. Rapoport and Dr. Davila lead  
UMGCCC's Tumor Immunology  
and Immunotherapy Program.**

### **Synergistic Effect of Radiation Therapy and Immunotherapy**

The combination treatment method of immunotherapy and radiation therapy can create a synergy greater than the sum of its parts. **Dan Zandberg, MD**, assistant professor of medicine and a medical oncologist who specializes in thoracic and head-and-neck cancers, is one of more than a dozen principal investigators leading immunotherapy trials at UMGCCC.



**Dr. Zandberg**



# Bridging the Gap with Telehealth

In March 2017, little Jayion Thomas, 22 months old, prompted his doctor to take a giant step forward. **Jayion was the first pediatric patient to be treated using telemedicine technology at University of Maryland Shore Medical Center at Easton (UM SMC Easton).**

Jayion lives in Greensboro, Md., in Caroline County, well over an hour across the Chesapeake Bay Bridge from the nearest specialty children's hospital. His mother brought him in to the Emergency Department at UM SMC Easton because he had a fever and was having seizure activity, both of which he had experienced before.

**Norbert Straub, MD**, an emergency medicine physician at the **University of Maryland Shore Regional Health (UM SRH)**, was able to virtually bring in an expert within seconds from nearly 70 miles away in Baltimore. **Through a live connection using sophisticated audio-visual technology, Getachew Teshome, MD, MPH**, assistant professor of pediatrics at UMSOM and medical director of the Pediatric Emergency Department at **University of Maryland Medical Center (UMMC)** in Baltimore, **was able to observe Jayion closely and consult with Dr. Straub to establish the most effective treatment plan, which included addressing his immediate health issues as well as referring him to neurology, asthma and allergy specialists for further testing and care.**

As a regional health system serving communities across Maryland and in surrounding states, University of Maryland Medical System (UMMS) has been expanding its use of telehealth to improve access to information, education and care for people living in the most rural areas of Maryland.

**Marc T. Zubrow, MD**, associate professor of medicine at UMSOM, is the medical director of **University of Maryland eCare** and vice president for telemedicine at UMMS.

UM SRH, which has emergency facilities in Easton, Chestertown, Cambridge and Queenstown, uses telemedicine carts that are wheeled into the patient's room. **A physician from another site is then connected to the cart and able to conduct a virtual visit with a patient through a two-way video connection.**

*"Bridging the gap between the eastern and western shores without having to transfer a patient is a wonderful service," Dr. Zubrow said. "We will continue to enhance and expand the telemedicine capabilities for patients such as Jayion, which allow patients to receive the expert care they need without having to leave their local communities and support systems."*

University of Maryland eCare uses telehealth technologies to provide care, educate patients and train health care providers. **From a central operations hub on the UMMC campus, intensivist physicians and critical care nurses oversee patient care in off-site ICUs during the night and weekend hours for 11 hospitals across the state, providing virtual critical care expertise at the bedside.** Special cameras in patient rooms, along with continual electronic transmission of patients' vital signs, laboratory and pharmaceutical data, can pick up even slight changes in a patient's physical condition.

*"Being able to consult with colleagues, regardless of physical location, and deliver the best plan for our patients is a huge advantage with telemedicine," said Walter Atha, MD, FACEP, regional director of emergency medicine at UM SRH. "This is the direction in which health care is heading, and this service will be vital to rural communities such as the ones here on the Eastern Shore of Maryland."*



Dr. Teshome





Eric D. Klotz, DO, (left) an emergency medicine physician at UM SMC Easton, and Christine Brennan, BSN, RN, examine a young patient while Dr. Teshome (above), uses telemedicine technology from the Pediatric Emergency Department at UMMC to participate in real time and lend his expertise in a complex case.





# The Greater Good: Healthier Communities

Health care providers know that addressing the root causes of illness and injury can keep people healthy and out of the hospital. **The University of Maryland Medical System (UMMS) and University of Maryland School of Medicine (UMSOM) are dedicated to improving the health and wellness of people and communities across the state, especially those most in need.**

**University of Maryland Medical Center (UMMC) and University of Maryland Faculty Physicians Inc. are transforming the existing community of primary care and specialty practices into a fully integrated “medical neighborhood.”**

**The goal is to dramatically improve the health and well-being of the West Baltimore population, beginning with the most complex and vulnerable patients, through a high-quality, integrated delivery system that improves outcomes, reduces cost and enhances the patient experience.**

*“We have developed an innovative new model that we believe will provide both prevention for and treatment to our neighbors in the local community, who might come to the emergency room for chronic pain, serious behavioral health conditions and other complex ailments that require ongoing care and management,”* said **Anthony Lehman, MD, MSPH**, professor of psychiatry and senior associate dean for clinical affairs at UMSOM, who works closely with **Charles Callahan, DO**, vice president for population health at UMMC.

*“We are now working toward being able to track frequent ER patients, provide clinical coordination, enable outreach to other community providers and manage coordinated social services resources where needed,”* Dr. Lehman said. *“It is truly an integrated approach to treating the neediest patients in our community.”*



*“I love interacting with kids. It’s the best part of my job.”*

– **Kimberly L. Brooking, MSN, MBA, RN**, clinical practice manager, UM Pediatrics at UMMC Midtown Campus

Community workforce development is an integral part of UMMS, whose medical centers and physician practices employ more than **25,000 people across the state. The flagship organization, UMMC, employs more than 10,000 people at its two campuses in Baltimore.**

The UMMC campuses have strengthened a partnership with five public schools in West Baltimore, from elementary through high school.



**Maxine Rush (right)**, a career development specialist at UMMC, helped **Pandora Gwynn**, the grandmother of two students, polish her résumé in preparation for applying to UMMC for a job.

The school leaders and parents have embraced the partnership and welcomed the résumé and career coaching for parents and grandparents, health information and screenings and donations of new clothing and school supplies for the students.

## **OTHER COMMUNITY HEALTH INITIATIVES INCLUDE:**

- **A newly established Coordinated Care Center (C3)**, led by **David Stewart, MD**, associate professor and chair of Family and Community Medicine, to **help chronically ill patients who may not have access to comprehensive care after hospital discharge.**
- **Expansion of pediatric primary care** to underserved sites and building partnerships with local schools to provide school-based health care or neighborhood-based care for patients with acute illness.
- **Focus on adult treatment of high-prevalence chronic diseases**, including infectious disease (especially HIV/hepatitis C), metabolic disorders (obesity and diabetes), pulmonary disorders, cardiovascular disorders and gastrointestinal disorders.
- **Integration of behavioral health programs**, including addiction treatment.





### New Leadership for Community Impact

David Marcozzi, MD, MHS-CL, FACEP, associate professor of emergency medicine, now leads UMSOM's Program in Health Disparities and Population Health.

Along with senior clinical nurses Meghan Schott, BSN, RN, (left) and Melissa Cross, BSN, RN, CEN, (right) the program has expanded training for medical students, post-graduates, community medical providers and Baltimore residents.



Dr. Marcozzi





**Beza Eshete, BSN, RN,** (left), **Danielle Legerton, RN; Aaron Smith, MBA, RRT-ACCS,** (middle) and **Anthony Hanniford, CRT,** are among the staff at UM Capital Region Health.

# Extending our Reach

The nearly 1 million Marylanders who call Prince George's County home are also the newest members of the University of Maryland Medical System (UMMS) community.

**Adjacent to Washington, DC, the county represents about 15 percent of Maryland's total population. The lack of a premier health care system meant that more than 60 percent of the county's residents who needed health care and hospital services chose to receive that care outside their home county.**

Since 2010, UMMS has been working with state and Prince George's County officials and Dimensions Healthcare System on a vision to bring a new era of health care to Prince George's County. With the Maryland Health Care Commission's October 2016 approval of a Certificate of Need for a new regional medical center in Largo to be operated by UMMS, the formal process began to make Dimensions a formal affiliate of UMMS, with the accompanying benefit of faculty physicians from University of Maryland School of Medicine (UMSOM).

**On Sept. 1, 2017, the affiliation led to the creation of University of Maryland Capital Region Health, thereby firmly planting the UMMS service footprint in the Washington, DC, metropolitan area. All Dimensions facilities were renamed and welcomed into the UMMS family. Groundbreaking for the new regional medical center, to be called University of Maryland Capital Region Medical Center, is scheduled for late 2017, with an opening in 2021 to replace the aging University of Maryland Prince George's Hospital Center in Cheverly.**

Meanwhile, UMMS is extending its clinical and business expertise to all UM Capital Region Health locations, and is dedicating significant resources to the transformation and modernization of services at the **University of Maryland Laurel Regional Hospital, with a 24/7 emergency department, critical care resuscitation, short-stay beds, behavioral health services and outpatient services, while incorporating plans for career opportunities and development for current and future employees.**

Across all UM Capital Region Health locations, including the **University of Maryland Bowie Health Center, a 24/7 freestanding emergency center, residents will have improved access to the best primary, community, specialty and preventive care, with a population health approach, fully integrated with university-based teaching, research and innovation.**

**UMSOM faculty and UMMS already were making a difference to patients in Prince George's County through several notable clinical programs that developed even as they were working toward full affiliation.** One shining example is through the leadership of cardiac surgeon **James M. Brown, MD**, associate professor of surgery at UMSOM. At University of Maryland Prince George's Hospital Center, Dr. Brown established a highly regarded cardiac surgery program. Prior to the program's inception in 2014, Prince George's County residents who needed cardiac surgery had to leave their home county for care. Now, **more than 260 cardiac surgeries have taken place at UM Prince George's Hospital Center, earning it a coveted three-star rating from the Society of Thoracic Surgeons for three consecutive years, a feat achieved by less than 10 percent of cardiac surgery programs in the country.** The program's patient outcomes are stellar, with lower-than-average length-of-stay and high patient-satisfaction scores.

**Additional clinical programs in trauma, emergency medicine, anesthesiology, orthopaedics, critical care, vascular surgery and neonatology** are also bringing significant expertise to benefit the people of Prince George's County, Southern Maryland and the Capital Region.







**Malinda Gillespie, BSN, RN**

**Dr. Brown**

**Guerda Dominique, PA-C**

## UNIVERSITY OF MARYLAND CAPITAL REGION HEALTH

- University of Maryland Prince George's Hospital Center  
*(formerly Prince George's Hospital Center)*
- University of Maryland Laurel Regional Hospital  
*(formerly Laurel Regional Hospital)*
- University of Maryland Bowie Health Center  
*(formerly Bowie Health Campus)*

**Rendering of the future University of Maryland Capital Region Medical Center, scheduled for late 2017 groundbreaking.**





## University of Maryland School of Medicine

# A Banner Year

The University of Maryland School of Medicine (UMSOM) marked its 210th anniversary in 2017, commemorating this milestone throughout the year. In addition to being the first public medical school when it was established in 1807, the UMSOM was one of the seven “foundational medical schools” that laid the lasting foundation for medical education in the United States.

*In keeping with this celebratory backdrop, UMSOM had a banner year in virtually every category:*

- Highest totals in research funding with a **12 percent increase over last year**. We have now made a full recovery from the sequestration downturn in 2013 and are on a new record-setting pace.
- Significantly higher than last fiscal year in every **measure of grants and contracts**, including an amazing 18 percent increase in grant submissions. The faculty is more productive than ever, and it is paying off.
- Launched our largest-ever recruitment initiative, with a goal of bringing in more top scientists and physician-scientists. Already, the initiative has yielded impressive results with 10 new highly-funded NIH investigators (overall funding of \$30 million) — including national and international leaders in orthopaedics, neuroscience, diagnostic imaging, lung injury and bioengineering.
- **Clinical revenues increased** for the 10th year in a row.
- Generated more than \$52 million in total fundraising in Fiscal 2017. This year’s total was particularly significant in that more than half of the amount raised (\$28.5 million) came from private philanthropy, with \$23.8 million coming from sponsored research.
- Worked closely throughout the year with the Liaison Committee on Medical Education (LCME), the U.S. Department of Education accrediting body for MD degree programs, on the first phase of completing the accreditation process.
- Our new research building, which will be **the largest facility in the entire University System of Maryland**, rose impressively toward the sky and is moving closer to completion.







The UMSOM is one of the seven foundational medical schools in the United States:

- 1765 University of Pennsylvania
- 1767 Columbia University
- 1782 Harvard University
- 1797 Dartmouth College
- 1807 University of Maryland**
- 1810 Yale University
- 1811 Brown University

**School of Medicine, now in its third century.**



Please read in the following pages about some of our most noteworthy highlights during the 2016-2017 academic year.



School of Medicine

# 2017 highlights

## NEW RESEARCH BUILDING



### Big Science Happening Here

*The new 428,970-square-foot, 10-story, \$305 million Health Sciences Facility III will allow us to:*

- Accommodate the accelerated pace and scope of innovation and discovery at every level.
- House our most well-funded investigators working to answer “big science” research questions using a multidisciplinary approach.



## Research

### A GLOBAL LEADER IN VACCINE DEVELOPMENT



**Monica A. McArthur, MD, PhD**, assistant professor of pediatrics, and **Kathleen Neuzil, MD, MPH**, director of the Center for Vaccine Development (CVD), professor of medicine, and deputy director of the Institute for Global Health, are participating with colleagues as one of three study sites in a human safety trial of a new Zika vaccine.



The study is evaluating the experimental vaccine's safety and ability to generate an immune system response.



After years of work, a vaccine to prevent cholera, invented and developed by researchers at CVD, was approved by the FDA. The vaccine, the only one approved in the US for protection against cholera, was invented by **Myron M. Levine, MD, DTPH**, the Simon and Bessie Grollman Distinguished Professor and associate dean for global health, vaccinology and infectious diseases, and



**James B. Kaper, PhD**, professor and chairman of the Department of Microbiology and Immunology, and the senior associate dean for academic affairs.



In other vaccine-related work, **Matthew Frieman, PhD**, associate professor of microbiology and immunology, modified a rabies virus, so that it has a protein from the virus that causes Middle East Respiratory Syndrome (MERS); this altered virus works as a 2-for-1 vaccine that protects mice against both MERS and rabies. Currently no vaccine exists for MERS, a new and highly fatal virus.

### STUDY REVEALS RACIAL BIAS IN LEADING GENOMICS DATABASES



**Timothy O'Connor, PhD**, assistant professor of medicine in the Institute for Genomic Sciences, led a research team that confirmed for the first time that two widely used genomic databases are biased toward genetic data based on European ancestry over that of African ancestry.



The researchers created the largest, high-quality non-European genome data set in the world. Genetic samples of 642 subjects from Africa and the African diaspora were sequenced. Compared with current clinical genomic databases, researchers found a clearer preference in those databases for European genetic variants over non-European variants. By expanding these databases to include a broader range of ancestries, doctors will be able to get more accurate genetic diagnoses.

### GENE MAY PLAY A CENTRAL ROLE IN HEART DISEASE



**Aikaterini Kontrogianni-Konstantopoulos, PhD**, professor of biochemistry and molecular biology, identified what may be a key player in the genetic aspect of heart disease: a mutated gene that leads to irregular heartbeat. The study is the first to illuminate details of how this particular gene works in heart disease.

The gene produces proteins known as obscurins, which seem to be crucial to many physiologic processes, including heart function. The researchers focused on a mutation that has been linked to an enlarged heart, in which the organ becomes thickened and scarred, and has trouble pumping blood.

### RESEARCHERS IDENTIFY NEW PATHWAY FOR BRAIN INFLAMMATION

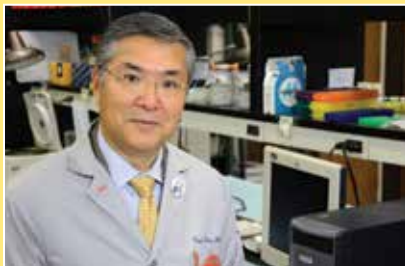


UMSOM researchers have identified a new mechanism by which inflammation can spread throughout the brain after injury. **Stephen Thom, MD, PhD**, professor of emergency medicine; **Alan Faden, MD**, the David S. Brown Professor in Trauma in the Department of Anesthesiology and director of the Shock, Trauma and Anesthesiology Research (STAR) Center and associate dean for trans-campus research development; **Bogdan Stoica, MD**, associate professor of anesthesiology; and **David Loane, PhD**, associate professor of anesthesiology, focused on microparticles — pieces of cells that are released from certain brain immune cells following injury. Researchers have

long known of microparticles but have only recently begun to focus on them as messengers of inflammation.



### RESEARCHERS IDENTIFY KEY PROTEINS THAT MAY MAKE ZIKA SO DEADLY



**Richard Zhao, PhD**, professor of pathology, was lead researcher on a study that for the first time identified seven key proteins in the Zika virus that may be the culprits behind the damage the virus causes. The study was the first comprehensive description of the Zika virus genome.

Until it burst onto the scene last year, Zika was an obscure virus. As a result, scientists know little about how it works. Dr. Zhao and his colleagues separated each of the virus's 14 proteins. They then exposed yeast cells to each of the 14 proteins; seven of the 14 harmed or damaged the yeast cells, inhibiting growth, or damaging or killing them. The next step is to understand more about how these seven proteins work in humans.

### NOVEL COMBINATION DRUG TREATMENT SHOWS POTENTIAL FOR TREATING LEUKEMIA AND OTHER CANCERS



**Feyruz Rassool, PhD**, associate professor of radiation oncology and a researcher at the University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer

Center, discovered a new mechanism in a combination drug therapy that shows potential for treating acute myeloid leukemia (AML) and many other cancers.

The study looked at a combination of two drugs, both of which reduce some cancer cells' ability to survive and propagate. Preclinical data suggest that combining low doses of these drugs enhances the power of both. Evidence suggests that it may be especially powerful in types of AML that otherwise have a poor prognosis.



### A NOVEL CHEMICAL SWITCH THAT MAY HELP DECREASE CRUCIAL SYMPTOMS OF SCHIZOPHRENIA



**Robert Schwarcz, PhD**, professor of psychiatry, who in 1988 was the first to identify the presence of kynurenic acid in the brain, found that in mice, adjusting levels of

kynurenic acid can have significant effects on schizophrenia-like behavior. People with schizophrenia have high levels of kynurenic acid in their brains. Scientists have theorized that these higher levels might be connected with a range of symptoms, especially cognitive problems.

### SCIENTISTS DISCOVER NEW POTENTIAL GENETIC LINKS TO COMMON BRAIN DISORDER



**Saima Riazuddin, PhD, MPH, MBA**, professor of otorhinolaryngology-head and neck surgery, led an international group of researchers who identified for the first

time a set of 30 inherited recessive genes that play a key role in intellectual disability (ID), a neurodevelopmental disorder characterized by an IQ below 70.

Currently, about 1-3 percent of the world's population have some form of ID; unknown genetic factors, such as gene mutations, are responsible for about half of cases. The study identified 30 genes that have a strong potential for causing ID — and possibly other brain disorders as well. This data can be applied to DNA screenings in determining the risk that a couple could produce a child with ID.

### HOW TICKS PROTECT THEMSELVES FROM LYME DISEASE BACTERIA AND OTHER MICROBES



**Joao Pedra, PhD**, associate professor of microbiology and immunology, decoded for the first time how the ingenious tick immune system fights off a myriad of microbes.

For hundreds of millions of years, ticks have survived on Earth by sucking blood from their victims, often leaving behind terrible diseases. In humans, these diseases include Lyme disease, Rocky Mountain spotted fever, and tularemia. However, no one had ever looked at why ticks themselves were not infected. By manipulating the tick immune system, scientists may now try to make ticks less vulnerable to infection by these microbes. If ticks do not acquire these bacteria in the wild, they will not be able to transmit the microbes to humans.

### RESEARCHERS BREAK NEW GROUND IN FIGHT AGAINST MULTIPLE SCLEROSIS



**Christopher Jewell, PhD**, assistant professor at the University of Maryland Fischell Department of Bioengineering, and **Jonathan Bromberg, MD, PhD**, professor of surgery at UMSOM, developed a new way to "turn off" the harmful immune attack that occurs during autoimmune diseases such as multiple sclerosis (MS), while keeping healthy functions of the immune

system intact.

In MS, the immune system incorrectly recognizes the cells that insulate and protect nerve fibers in the brain, leading to immune attack on these cells. Current therapies for MS work by decreasing the activity of the immune system, but they often leave patients vulnerable to infection. This targeted approach could solve that issue.



## Clinical Care

### NEW SYSTEM PREDICTS SURVIVAL FOR PATIENTS SHOT IN THE HEAD



Thomas M. Scalea, MD, FACS, MCCM, the Honorable Francis X. Kelly Distinguished Professor in Trauma Surgery, director of the Program in Trauma and physician-in-chief of the R Adams Cowley Shock Trauma Center (STC), and Deborah M. Stein, MD, MPH, FACS, FCCM, the R Adams Cowley, MD, Professor in Shock and Trauma, chief of trauma and director of neurotrauma critical care at STC, were part of a team that **developed a system to predict which victims of gunshot wounds to the head would live and which would die. One key variable appears to be the level of consciousness upon arrival.**



The researchers used a measure known as the Glasgow Coma Scale (GCS), which tracks patient awareness after injury. The higher the score, the more aware the person is. **The study found that patients with a lower GCS score were significantly less likely to survive. They also found a higher risk of death for patients who were not moving after injury, patients with low or absent pupillary reactivity and patients with a high Injury Severity Score (a measure of overall bodily trauma).** The study also found that having only a single penetrating brain injury, rather than multiple penetrating brain injuries, was associated with 87 percent higher chance of survival.

### COORDINATED UNIVERSITY-BASED REHABILITATION CARE

Celebrating its 120th anniversary this year, University of Maryland Rehabilitation & Orthopaedic Institute is a key part of the University of Maryland Rehabilitation Network, a coordinated system of inpatient and outpatient rehabilitation providers working together to help people recover from illness or injury. UM Rehab & Ortho offers a full range of physical rehabilitation services, bringing together expert teams of committed care providers from facilities all across the state, ranging from community hospitals to large academic medical centers (including all UMMS hospitals).

### MAKING RADIATION THERAPY SAFER AND MORE EFFECTIVE

The Division of Translational Radiation Sciences (DTRS), which resides within the Department of Radiation Oncology, **focuses on translating novel therapeutic interventions and treatment modalities into clinical radiation therapy to improve tumor response and reduce treatment-related side effects in patients undergoing radiation therapy.** The division grew 164 percent in the first two quarters of Fiscal 2017 and is experiencing unprecedented growth, with more than \$25 million in federal and industry-sponsored research dollars.

### CANCER TREATMENT CLOSER TO HOME



In October 2016, with the National Cancer Institute's elite designation of UMGCC as a Comprehensive Cancer Center for its clinical and scientific excellence, the concept of the **UM Cancer Network** was formalized, with John A. Olson, Jr, MD, PhD, the Campbell & Jeanette Plugge Professor in Surgery, chosen to serve as its founding director. **The new network connected three UM community cancer centers** — UM Baltimore Washington Medical Center's Tate Cancer Center, UM St. Joseph Medical Center's Cancer Institute, and UM Upper Chesapeake Health's Patricia D. and M. Scot Kaufman Cancer Center — with UMGCC's nationally-recognized academic cancer center, as well as the Maryland Proton Treatment Center, which offers a highly advanced and precise form of radiation treatment.

## Education

### ANOTHER MEMORABLE MATCH DAY FOR UMSOM GRADUATING STUDENTS

- 157 University of Maryland School of Medicine students matched at 68 different hospitals in 24 states.
- 39 will stay in the state of Maryland for their residency training.

### ENCOURAGING MEDICAL STUDENT ENTREPRENEURS

To encourage entrepreneurial leadership among its medical students, the University of Maryland School of Medicine hosted **The Lightbulb Moment Competition** to give aspiring student entrepreneurs a chance to share product ideas, with winners receiving cash prizes and expert help.

The four finalists competed before a panel of judges, including doctors, researchers and investors, using a format similar to the popular television program "Shark Tank."

### DOCTORAL STUDENTS WIN CANCER CHALLENGE COMPETITION



Doctoral students **Camilo Vanegas** and **Elizabeth Weingartner** were winners in a competition called the Nanotechnology Startup Challenge in Cancer. The competition is an accelerator program that gives participants access to technology that was invented within the National Institutes of Health.

The students, who are charged with developing a plan to commercialize one or more of the technologies, are in the process of taking a device that detects chronic myeloid leukemia (CML) to market via their startup, Nanobernetics.





## Honors & Awards



**Søren Bentzen, PhD, DMSc**, professor of epidemiology and public health, was awarded a Gold Medal from the American Society for Radiation Oncology (ASTRO) in September. **ASTRO awards the annual Gold Medal, its highest honor, to individuals who have made outstanding lifetime contributions to the field of radiation oncology, including achievements in clinical patient care, research, teaching and service to the profession.**



**Donna Calu, PhD**, assistant professor of anatomy and neurobiology, was selected by the Maryland Science Center as the **2016 Outstanding Young Scientist, Academic Track.**

The Outstanding Young Scientist award program was established in 1959 to recognize and celebrate extraordinary contributions of young Maryland scientists. The award was presented at the Science Center in November 2016.



**Greg Carey, PhD**, assistant professor of microbiology and immunology, received a Mentorship Award from the National Cancer Institute Center to Reduce Cancer Health Disparities on June

27. The award is given to a research scientist who has made an outstanding contribution to

the field of lymphoma research, who has shown dedication to mentoring trainees and diversifying the biomedical research workforce, and who has demonstrated a longstanding commitment to eliminating cancer health disparities.



**Stephen Davis, MBBS, FRCP, MACP**, the Theodore E. Woodward Endowed Professor and Chair in the Department of Medicine, **received the Mary Betty Stevens Award**

**for Outstanding Clinical Research** from the Maryland Chapter of the American College of Physicians (ACP) in March. He was also awarded Mastership in the ACP.



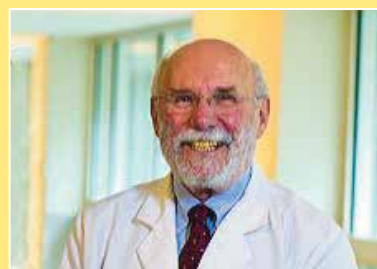
**Mangla Gulati, MBBS**, assistant professor of medicine, has been **elected governor of the Maryland Chapter of the American College of Physicians**, starting in 2018. She has

also recently been named chair for the Hospital Quality and Patient Safety Committee for the Society of Hospital Medicine.



**Wendy Lane, MD, MPH**, clinical associate professor of epidemiology and public health, was **the recipient of the Dean's Faculty Award for Diversity and Inclusion**

on February 25, 2017.



**Myron Levine, MD, DTPH**, the Simon and Bessie Grollman Distinguished Professor and associate dean for global health, vaccinology and infectious diseases, **was awarded the Maxwell Finland Award for Scientific Achievement by the National Foundation for Infectious Diseases in May.** The award honors his extensive accomplishments in public health.

Throughout his career, he has identified solutions to major sources of disease in the developing world, including cholera, typhoid and Shigella dysentery.



**Mary Kay Lobo, PhD**, associate professor of anatomy and neurobiology, **was honored at the White House in 2016 by President Barack Obama as a recipient of the Presidential Early**

**Career Awards for Scientists and Engineers, the highest honor bestowed by the U.S. government on science and engineering professionals in the early stages of their independent research careers.**



**Ada Offurum, MD**, assistant professor of medicine, **was named Hospitalist of the Year for 2017** by the Maryland Chapter of the American College of Physicians.



**Sandra Quezada, MD, MS**, assistant professor of medicine, as well as assistant dean for admissions and assistant dean for academic and multicultural affairs, **was awarded the inaugural**

**Dean's Alumni Award for Diversity and Inclusion** on February 25. She is a UMSOM graduate.



**William Regine, MD, FACR, FACRO**, the Isadore & Fannie Schneider Foxman Endowed Chair and Professor in Radiation Oncology and executive director of the Maryland Proton Treatment

**Center was awarded the 2016 Entrepreneur of the Year from the University of Maryland, Baltimore** in October 2016.



**Mary-Claire Roghmann, MD, MS**, professor of epidemiology and public health, and associate dean for physician-scientist training and transdisciplinary research advancement, **was awarded**

**the Alvan R. Feinstein Memorial Award from the American College of Physicians** on March 30. The award is given to an American physician who has made a major contribution to the science of patient care in clinical epidemiology or clinimetrics, involving the direct study of patients' clinical conditions.





**Joseph Scalea, MD**, assistant professor of surgery and director of pancreas and islet cell transplantation **received the American Surgical Association Foundation**

**Fellowship in November 2016.**

This prestigious award supports gifted young surgeons who choose careers in investigation and academic surgery. The award is given annually to one to three surgeons, and is only open to American surgeons who have been in practice for less than five years.



**Samba Sow, MD, MSc**, director general of the Center for Vaccine Development in Mali (CVD-Mali) and adjunct professor of medicine at UMSOM, **was decorated as**

**a Knight of the Legion of Honor by the French government on Bastille Day (July 14) for his work fighting Ebola in Mali. This is the highest honor bestowed by the French government.**

Dr. Sow was also named the Minister of Health for Mali in May 2017.



**Thomas Scalea, MD**, celebrated his **20th Anniversary** in January 2017, as physician-in-chief at the R Adams Cowley Shock Trauma Center, which treats more than 8,000 critically ill and severely injured people per year. Remarkably, 97 percent of these patients survive.



**Paul Welling, MD**, professor of physiology, **was named the 2017 Carl W. Gottschalk Distinguished Lecturer of the American Physiological Society** in April. The award recognizes a distinguished scientist who has made major contributions to understanding physiological processes through innovative research.



**Ronald Wade**, director of UMSOM's Anatomical Services Division and director of the Maryland State Anatomy Board of the Department of Health, **received the 2017 R. Benton Adkins Jr. Distinguished Service Award from the American Association of Clinical Anatomists.**

## Investitures



An investiture ceremony was held to name **Robert Redfield Jr., MD**, and **George Lewis, PhD**, as the Robert C. Gallo, MD, Endowed Professors in Translational Medicine.

Both are longtime colleagues of **Robert Gallo, MD**, the Homer and Martha Gudelsky Distinguished Professor in Medicine.

- **Dr. Gallo** is recognized internationally for his discovery of the first known human retroviruses (HTLV-1 and HTLV-2), discovery of interleukin-2 (IL-2), co-discovery of HIV as the cause of AIDS and his development of the HIV blood test.
- **Dr. Gallo** co-founded the Institute for Human Virology with Dr. Redfield and the recently retired **William Blattner, MD**.



**Elias Melhem, MD**, was installed as the Dean John M. Dennis Chair in Radiology.



## Leadership Changes



**Steven Czinn, MD**, the Drs. Rouben and Violet Jiji Endowed Professor of Pediatrics and Chair of the Department of Pediatrics, **was appointed director of the University of Maryland Children's Hospital in March 2017.**



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

(STAR) Center, **was appointed to the new position of associate dean for trans-campus research advancement in December 2016.**

In this role, Dr. Faden will identify, encourage and direct opportunities for UMSOM faculty to collaborate widely across the University System of Maryland with colleagues and investigators, especially at University of Maryland, Baltimore County and University of Maryland, College Park.



**Thomas Hornyak, MD, PhD**, associate professor of dermatology, **was named the new chair of the Department of Dermatology in February 2017.** Also announced at the same time was the appointment of **Zaineb Makhzoumi, MD, MPH**,



assistant professor of dermatology, as **chief of clinical services in the department.**



**Miriam Laufer, MD, MPH**, associate professor of pediatrics, **was named director of the Division of Malaria Research in the Institute for Global Health in March 2017.**



**David Marcozzi, MD, MHS-CL, FACEP**, associate professor of emergency medicine, **was named co-director of the Program in Health Disparities and Population Health in June.** The program is based in the Department of Epidemiology and Public Health.



**Sandra Quezada, MD, MS**, assistant professor of medicine, as well as assistant dean for admissions, **was also named assistant dean for academic and multicultural affairs in April 2017.**



**Jill RachBeisel, MD**, associate professor of psychiatry, has been **named vice chair for clinical affairs** for the Department of Psychiatry.

## Grants of Distinction

**UMSOM's Institute of Human Virology (IHV)**

- Awarded **\$138 million** in multiple five-year grants by the US Centers for Disease Control and Prevention to combat HIV/AIDS in Kenya, Tanzania, Zambia and Nigeria.
- Awarded **\$14.4 million** from the National Institutes of Health's National Institute of Allergy and Infectious Diseases (NIAID), for **HIV vaccine research.**

**UMSOM's Center for Vaccine Development (CVD)** received a **\$36.9 million** grant from the Bill & Melinda Gates Foundation to help speed the introduction of, and access to, new and more effective typhoid vaccines.

The project, **Typhoid Vaccine Acceleration Consortium (TyVAC)**, will focus on conjugate vaccines, which can trigger a stronger immune response than current vaccines in certain vulnerable populations, such as infants and children.

**UMSOM's Institute for Global Health (IGH)** has been awarded an **International Center of Excellence for Malaria Research (ICEMR) grant** by the National Institutes of Health's NIAID, one of seven ICEMRs awarded worldwide.

The grant, **\$9 million** over seven years, will be used to research and develop new tools to help eliminate drug-resistant malaria in Myanmar and neighboring countries in Southeast Asia.

Principal investigators for the project are **Christopher Plowe, MD, MPH, FASTMH**, the Frank M. Calia, MD, Professor of Medicine and founding director of IGH, and **Myaing Myaing Nyunt, MD, MPH, PhD**, assistant professor of medicine and director of IGH Myanmar in the Division of Malaria Research.





## Endowed Professorships

**Stephen Bartlett, MD**  
Peter Angelos Distinguished  
Professor in Surgery

**Cynthia Bearer, MD, PhD**  
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

**Steven Czinn, MD**  
Drs. Rouben and Violet Jiji Professor  
in Pediatrics

**Stephen Davis, MBBS**  
Dr. Theodore E. Woodward Chair in Medicine

**Richard Eckert, PhD**  
John F.B. Weaver Endowed Professor

**Howard Eisenberg, MD**  
Raymond K. Thompson, MD, Chair  
in Neurosurgery

**Alan Faden, MD**  
David S. Brown Professor in Trauma

**Gary Fiskum, PhD**  
Matjasko Professor for Research in  
Anesthesiology

**Claire Fraser, PhD**  
Dean's Endowed Professor for  
School of Medicine

**Joseph S. Friedberg, MD**  
Charles Reid Edwards, MD, Professor  
in Surgery

**Robert Gallo, MD**  
Homer and Martha Gudelsky Distinguished  
Professor in Medicine

**Bartley Griffith, MD**  
Thomas E. and Alice Marie Haes  
Distinguished Professor in  
Transplant Surgery

**Christopher Harman, MD**  
Sylvan Frieman, MD, Endowed  
Professor in Obstetrics, Gynecology &  
Reproductive Sciences

**Jeffrey Hasday, MD**  
Dr. Herbert Berger Professor of Medicine

**Sharon Henry, MD**  
Anne Scalea Professor in Trauma

**Aldo Iacono, MD**  
Hamish S. and Christine C. Osborne Distinguished  
Professor in Advanced Pulmonary Care

**Bankole Johnson, DSc, MD, MB, ChB,  
MPhil, FRCPsych, DFAPA, FAcFEI**  
The Dr. Irving J. Taylor Endowed Professor  
and Chair, Department of Psychiatry

**Myron Levine, MD, DTPH**  
Simon and Bessie Grollman  
Distinguished Professor

**George K. Lewis, PhD**  
Robert C. Gallo, MD, Endowed Professor  
in Translational Medicine

**Elias Melhem, MD**  
The Dean John M. Dennis Chair in Radiology

**Mary Njoku, MD**  
M. Jane Matjasko 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 Professor  
in Surgery

**Christopher Plowe, MD, MPH, FASTMH**  
Frank M. Calia, MD, Professor

**Andrew Pollak, MD**  
James Lawrence Kernan Endowed  
Professor and Chair in the  
Department of Orthopaedics

**Aaron Rapoport, MD**  
Gary Jobson Professor in Medical Oncology

**Jean-Pierre Raufman, MD**  
The Moses Paulson, MD, and Helen Golden  
Paulson Endowed Chair in the Division  
of Gastroenterology

**Robert R. Redfield, MD**  
Robert C. Gallo, MD, Endowed Professor  
in Translational Medicine

**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, FACRO**  
Isadore & Fannie Schneider Foxman  
Chair in the Department of  
Radiation Oncology

**Stephen Reich, MD**  
Frederick Henry Prince Distinguished  
Professor

**Peter Rock, MD, MBA**  
Dr. Martin Helrich Chair in 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 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 Professor in Parkinson's  
Disease and Movement Disorders

**Deborah M. Stein, MD, MPH**  
R Adams Cowley, MD, Professor in Trauma

**Barney Stern, MD**  
Stewart J. Greenebaum Professor  
in Stroke Neurology

**Mohan Suntha, MD, MBA**  
Marlene and Stewart Greenebaum  
Endowed Professor in the Department of  
Radiation Oncology

**Jian-Ying (Jay) Wang, MD, PhD**  
Joseph and Corinne Schwartz Professor  
of General Surgery

**Susan Wolfsthal, MD**  
The Celeste Lauve Woodward, MD, Endowed  
Professor in Humanism and Ethical  
Medical Practice

**Cedric Yu, DSc, FAAPM**  
The Carl M. Mansfield, MD, Professor  
in Radiation Oncology

## In Memoriam

**ANGELA HARTLEY BRODIE, PhD**

1934-2017

*Dr. Brodie, professor emeritus of pharmacology at the University of Maryland School of Medicine and internationally recognized UMGCCC researcher, died of complications from Parkinson's disease in June at her home in Fulton, Md. Dr. Brodie was renowned for her pioneering work in the development of aromatase inhibitors used to treat breast cancer. She was the recipient of numerous awards, including the prestigious Charles F. Kettering Prize, and published more than 200 peer-reviewed articles.*

*Last year, the Greenebaum family established in her honor:*

**The Drs. Angela and Harry Brodie Distinguished Professorship in Translational Cancer Research**





## University of Maryland Medical System

# A Year of Expansion

University of Maryland Medical System (UMMS) is a regional health system dedicated to delivering comprehensive health services, including physician networks and health plans. We are vital members of the communities we serve, employing more than 25,000 people at academic, community and specialty medical centers, physician offices and an extensive network of outpatient care centers and services.

This year, our expansion includes Prince George's County. After years of collaboration by UMMS and state, county and local officials, the Maryland Health Care Commission in October 2016 approved a Certificate of Need for a new regional medical center in Largo to be operated by UMMS. On September 1, 2017, Dimensions Healthcare System became a formal affiliate of UMMS and was renamed **University of Maryland Capital Region Health**. This affiliation brings a new era of high-quality, academically centered health care to Prince George's County.

Our strategic growth will offer greater value to patients and greater reach across the state to ensure access to care for all Marylanders.

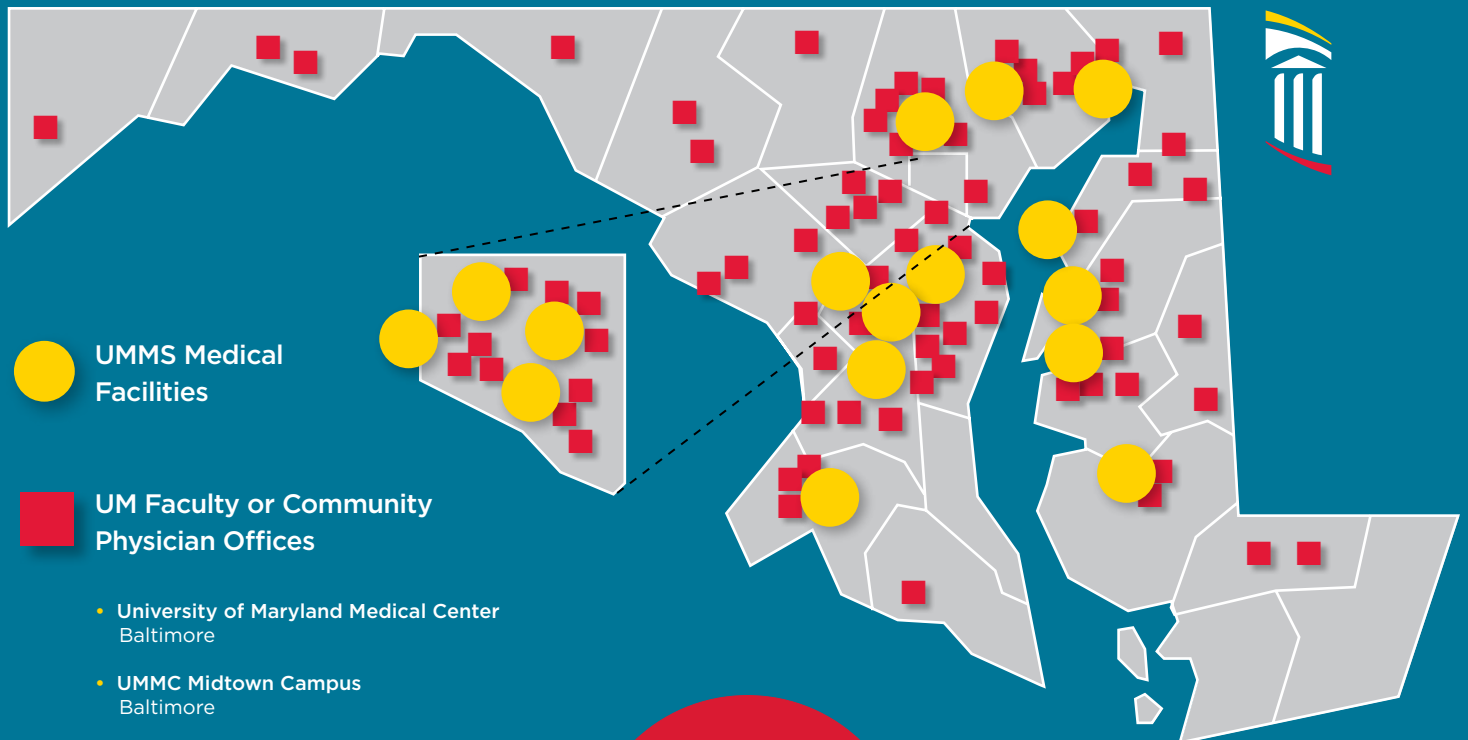
That's the inspiration behind the University of Maryland Medical System.

Greater  
health for  
all of  
Maryland



**Carissa Baker-Smith, MD, MS, MPH**, assistant professor of pediatrics at the UM School of Medicine, specializes in pediatric cardiology.





**UMMS Medical Facilities**

**UM Faculty or Community Physician Offices**

- **University of Maryland Medical Center**  
Baltimore
- **UMMC Midtown Campus**  
Baltimore
- **UM Baltimore Washington Medical Center**  
Glen Burnie
- **UM Charles Regional Medical Center**  
Southern Maryland
- **UM Capital Region Health**  
Cheverly | Laurel | Bowie
- **UM Rehabilitation & Orthopaedic Institute**  
Woodlawn
- **UM St. Joseph Medical Center**  
Towson
- **UM Shore Regional Health**  
Chestertown | Dorchester | Easton | Queenstown
- **UM Upper Chesapeake Health**  
Bel Air | Havre de Grace
- **Mt. Washington Pediatric Hospital**  
Baltimore | Cheverly

**Be a part  
of something  
greater**

**150  
locations**

**A university-  
based regional  
health system**

Please read in the following pages about some of the most noteworthy highlights at UMMS affiliates during Fiscal 2017.





Medical System

2017

highlights



*"As we integrate services across our two campuses, we can expand the highly specialized medical and surgical services that make us the heart of our university-based regional health system. Because of our partnership with the University of Maryland, Baltimore, we are able to recruit some of the best faculty physicians and nurse leaders in the country and better train the health care providers of the future."*

– Mohan Suntha, MD, MBA, UMMC President and CEO

#### A REGIONAL CENTER FOR CRITICAL CARE

Nearly one-third of all beds at UMMC are dedicated to critical care, with 11 specialized critical care units dedicated to subspecialties such as trauma resuscitation, neurotrauma, cardiac surgery, cardiac care and neurological critical care. In the last two years, UMMC has opened innovative units including the **Critical Care Resuscitation Unit**, the **Lung Rescue Unit** and the **Thoracic Intermediate Care Unit**.

## University of Maryland Medical Center

University of Maryland Medical Center (UMMC) is the **flagship academic medical center** at the heart of University of Maryland Medical System (UMMS). UMMC consists of the 757-bed University campus, located in downtown Baltimore, and the 170-bed UMMC Midtown Campus one mile north.

**UMMC UNIVERSITY CAMPUS** provides tertiary and quaternary care, with more intensive care beds than any hospital in Maryland. Internationally recognized programs include trauma, cancer, cardiovascular care, orthopaedics, neurological care, women's and children's health, and organ and tissue transplantation.

The medical staff comprises nearly **1,200 faculty physicians** from the University of Maryland School of Medicine (UMSOM) and more than **900 residents and fellows** in all medical specialties and subspecialties. UMMC is among the less than 10 percent of US hospitals with Magnet Designation for nursing excellence, as recognized by the American Nurses Credentialing Center.

**UMMC MIDTOWN CAMPUS** serves as a community hospital to residents of Baltimore, providing a full range of medical and surgical care and primary care and other outpatient services, with an active medical staff of **530 physicians**. UMMC Midtown Campus is the headquarters for the University of Maryland Center for Diabetes and Endocrinology.



#### EXCITING DEVELOPMENTS IN FISCAL 2017

The **University of Maryland Heart and Vascular Center**, with clinicians and researchers in pediatric and adult specialties, marked several achievements in Fiscal 2017.

The **Vascular Acute Care Surgery (VAX)** team increased its program to be prepared 24/7 for bleeding, ischemia and graft infection emergencies from throughout the region.

In July of 2016, researchers **investigating a novel device to repair the mitral heart valve** reported **100 percent procedural success** in a safety and performance study published in *Circulation*.



The image-guided device is based on technology developed by principal investigator **James S. Gammie, MD**, professor and chief of cardiac surgery at UMSOM and head of cardiac surgery at UMMC. **The device is deployed through a tiny opening in a beating heart, thus avoiding open-heart surgery.** It automates a key part of the valve repair process, simplifies the procedure and reduces operating room time.

The **University of Maryland Children's Hospital** demonstrated shorter lengths of stay and higher overall survival for congenital heart surgery in nationwide data from the Society of Thoracic Surgery.

In a **first-in-children randomized clinical study**, researchers at UMSOM and the UM Heart and Vascular Center began testing to see whether adult stem cells derived from bone marrow benefit children with hypoplastic left heart syndrome (HLHS). The research is led by **Sunjay Kaushal, MD, PhD**, associate professor of surgery.

**Physicians in neurosciences and imaging at UMMC** are among an international group of investigators studying a new noninvasive treatment for **essential tremor using MRI-guided focused ultrasound.**

The investigators published a study in the August 25, 2016, *New England Journal of Medicine* showing that this **treatment significantly improved tremors and quality of life in patients with essential tremor**, the most common movement disorder.

The US Food and Drug Administration approved the use of MRI-guided focused ultrasound based on this research.

**University of Maryland Urgent Care** opened in the fall of 2016 at 105 Penn Street for patients who have urgent medical needs but do not require emergency care.

The **R Adams Cowley Shock Trauma Center** at UMMC began a **clinical trial to study whether rapidly cooling the body temperature of patients whose hearts stop due to massive blood loss will give surgeons more time to find and repair injuries.** The trial is funded by the US Department of Defense.

The **University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center** is one of 47 NCI-designated comprehensive cancer centers and is **ranked among the top 50 cancer centers** by *U.S. News and World Report*.

The **Division of Thoracic Surgery** at UMMC has begun using **telemedicine technology** to virtually consult with patients at Atlantic General Hospital in Berlin, Md., to determine whether the patient is a candidate for surgery. The entire work-up and pre-operative consultation is done locally. If a surgical procedure is needed, it would be at UMMC.

## UMMC MIDTOWN CAMPUS

The **Community Health Education Center (CHEC)**, located at UMMC Midtown Campus, promotes and maintains community health through early detection, prevention and education.

In March, UMMC received regulatory approval to build a new 10-story ambulatory care center at UMMC Midtown Campus. The **Ambulatory Care Center** — a partnership between UMMC and UMSOM — **will provide vital outpatient and care coordination services to address the needs of patients with chronic diseases.**

## MORE THAN A HOSPITAL

UMMC's University and Midtown campuses **together provided a total of \$251 million in services that benefited the community** during the last fiscal year, taking services to where people live, work and go to school. These benefits include:

- Safe Kids Baltimore
- Center for Urban Families recruiting partnership for West Baltimore
- Health literacy campaign
- Workforce development and career coaching for city youths and adults

## BUILDING HEALTHIER COMMUNITIES THROUGH SCHOOL PARTNERSHIPS

Both UMMC campuses promote wellness inside as well as outside their walls, and this year **established partnerships at five city public schools in West Baltimore**, in collaboration with the University of Maryland, Baltimore. UMMC works closely with these partner schools by offering a range of support services for use by the students, their families and the community as a whole. **Support comes in the form of clothing and supply donations, back-to-school events, health care career days and internship opportunities at UMMC.**



### LOCATIONS:

UMMC UNIVERSITY CAMPUS  
22 SOUTH GREENE STREET  
BALTIMORE, MD 21201  
410-328-8667  
[www.umm.edu](http://www.umm.edu)

UMMC MIDTOWN CAMPUS  
827 LINDEN AVENUE  
BALTIMORE, MD 21201  
410-225-8000  
[www.umm.edu/midtown](http://www.umm.edu/midtown)



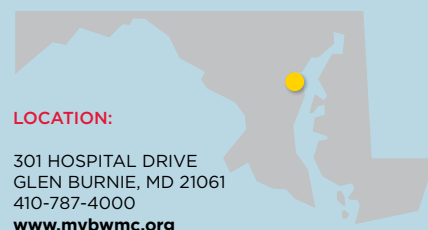
Baltimore Mayor Catherine Pugh, Dr. Suntha (right) and Samuel Burris, community development specialist, attended a back-to-school block party at James McHenry Elementary/Middle School.





## University of Maryland Baltimore Washington Medical Center

University of Maryland Baltimore Washington Medical Center's (UM BWMC) mission is to provide the highest quality health care services to communities throughout Anne Arundel County and the surrounding region. With 2,200 employees and 700 physicians, UM BWMC has continually grown to meet the needs of the community. Comprehensive, collaborative and integrative services have been the key to UM BWMC's success in improving the health of its communities.



### LOCATION:

301 HOSPITAL DRIVE  
GLEN BURNIE, MD 21061  
410-787-4000  
[www.mybwmc.org](http://www.mybwmc.org)

### MENTAL HEALTH INITIATIVE

Among the new initiatives this year, UM BWMC held a **mental health seminar in September 2016 dealing with depression, anxiety and addiction disorders**. More than 100 people attended the seminar, which was hosted by **Sandeep Sidana, MD**, chief of psychiatry at UM BWMC, and **Kurt Haspert, MS, CRNP, APN-BC**, addiction medicine nurse practitioner. The topic was of particular interest to community members because of the high rate of drug overdoses and alcohol abuse seen in Anne Arundel County during the last several years. Mental health education and awareness is also one of UM BWMC's top health priorities based on its Community Health Needs Assessment.

### MOTHERS IN TRAINING

In November, **UM BWMC's Stork's Nest program celebrated its 10th anniversary**. More than 1,600 pregnant women have participated in a series of **classes that emphasize the importance of prenatal care, what to expect during labor and delivery, breastfeeding, basic infant care and safe sleeping**. The program is supported by the Anne Arundel County Department of Health, the March of Dimes (Maryland chapter), the Zeta Phi Beta Sorority (Rho Eta Zeta chapter) and the Assistance League of the Chesapeake. Classes are offered in English and Spanish and are available for teenagers.

### PARTNERS IN THE COMMUNITY

**UM BWMC and The Y in Central Maryland** announced a two-year partnership in December involving The Y's Arnold and



Karen Olscamp, president and CEO of UM BWMC, with board members from The Y in Central Maryland.

Pasadena locations. Under the "Healthy Living Partnership," The Y and UM BWMC developed and provided a variety of screenings, lectures and events to help bring health and wellness programs to Anne Arundel County residents. **Screenings and programs included: blood pressure, skin cancer and vascular screenings; nutrition education; senior health education; and children's activities.** UM BWMC also hosted its annual heart-health event, Heartbeat for Health, at The Y in Arnold in February. **More than 500 people learned about the benefits of dance and exercise in the prevention of heart disease.** Anne Arundel County's rates of heart disease, stroke and cancer cases are higher than the national average, and officials at both UM BWMC and The Y believe this partnership will give community members access to more education and awareness to help decrease these numbers.

During Healthy Anne Arundel Month in April, UM BWMC and the American Heart Association partnered to celebrate National Walking Day, on the first Wednesday of April. The free event was held at Arundel Mills, home to **UM BWMC's Mills Milers walking program**. Attendees participated in group walks, had their blood pressure measured and sampled healthy snacks while being reminded about the benefits of walking.





## University of Maryland Charles Regional Medical Center

University of Maryland Charles Regional Medical Center (UM CRMC) in La Plata has been the main provider of health care in Charles County for decades. The 109-bed medical center, with an active medical staff of 140, has a rich history of providing high-quality care to the community since 1939. Today, it has expanded to meet the needs of the increasing population with a full range of health and wellness services. UM CRMC serves the community's needs with distinction, delivers award-winning care and is one of the largest employers in Charles County.

### CHRONIC DISEASE SELF-MANAGEMENT

To improve the lives of those living with one or more chronic illnesses, UM CRMC began offering **free chronic disease self-management classes** to the community in January 2016. The free six-week workshop, "**Living Well with Chronic Disease**," meets once a week for two-and-a-half hours and is facilitated by trained instructors.

With the tools to better manage their conditions, the participants can live full lives while managing their health issues.

### MOBILE INTEGRATED HEALTH CARE TEAM

A unique collaboration among **UM CRMC, the Charles County Department of Emergency Medical Services (EMS) and Charles County Department of Health (CCDOH)** will bring outreach services to people who most need access to the right level of health care provider at the right time. The collaboration is funded through a grant from the Maryland Community Health Resources Commission and UM CRMC to support the effort over the next three years.

The **Mobile Integrated Health Care Team** project aims to assist community members to utilize prevention and disease-management resources to stay healthier and out of the hospital.



### CENTER FOR DIABETES EDUCATION

The Center for Diabetes Education just celebrated its one-year anniversary. Certified diabetes educator Cindy Adams, RN, BSN, CDE, continues to **help people with diabetes learn the facts about this condition, along with practical**

**tips about healthy eating so that they can lower their blood sugar.** People who have participated in the Diabetes Program at UM CRMC have lost weight, lowered their blood sugar (as measured by an A1C test) and have more freedom to enjoy the foods they love.

### EXPANDING THE REGIONAL NETWORK OF CARE

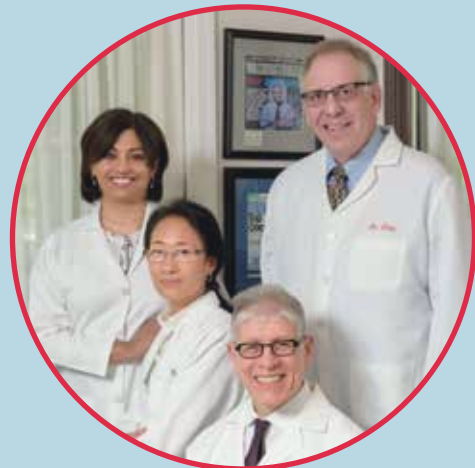
The recent fiscal year has brought many exciting new additions and developments within the UM Charles Regional community. UM CRMC introduced a Population Health Department and a Palliative Care Department.

The newly opened La Plata Commerce Center, located off Washington Avenue, is now home to UM Charles Regional Rehabilitation, UM Charles Regional Imaging and UM Community Medical Group — Primary Care.



#### LOCATION:

5 GARRETT AVENUE  
LA PLATA, MD 20646  
301-609-4000  
[www.charlesregional.org](http://www.charlesregional.org)



UM CRMC has also welcomed several more highly respected physicians to its network, including surgeons **Ahmed Kandeel, MD**, and **David Matteson, MD**, of UM Community Medical Group — Surgical Care, as well as **William J. Levy, MD**, **Michael Sharon, MD**, **Dolly Misra, MD**, and **Juan Joanna Yu, MD**, of the new UM Community Medical Group — Diabetes and Endocrinology.





## University of Maryland Rehabilitation & Orthopaedic Institute

University of Maryland Rehabilitation & Orthopaedic Institute is Maryland's largest and most comprehensive rehabilitation and orthopaedic specialty hospital. Founded more than 120 years ago, the 138-bed hospital provides highly specialized inpatient and outpatient care to people recovering from stroke and neurological diseases as well as traumatic injuries of the spinal cord and brain. UM Rehab & Ortho Institute is a leader in treating neurological conditions and musculoskeletal disease, employing robotic technologies to improve movement, and leading innovative clinical research, with a 190-member staff of faculty and attending physicians. As part of the University of Maryland Rehabilitation Network, the hospital is an integral component of the University of Maryland Medical System.

### BUILDING CONFIDENCE AND RESTORING LIVES

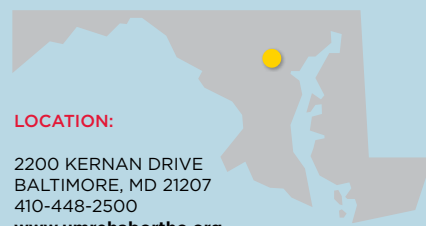
To complement its rehabilitation services, UM Rehab & Ortho Institute provides a number of programs that address unique needs of special populations in the community it serves. As an example, the **Adapted Sports Program** provides individuals with physical disabilities the opportunity to participate in adapted recreational and competitive sports, maximizing their independence, self-confidence, health and overall well-being. Opportunities are available for individuals to participate in **adapted golf, wheelchair basketball, quad rugby, and the free, annual Adapted Sports Festival.**

### SPECIAL CARE FOR SPECIAL POPULATIONS

Serving children and adults in the community who have limited access to oral health care, the **Dental Clinic** at UM Rehab & Ortho Institute cares for patients with special health care needs. This population includes those individuals who are mentally and/or physically disabled, as well as many children in the Maryland Medicaid Program. Additionally, the Dental Clinic partners with a number of area colleges to **provide preventive services for its patients.** As part of their education, dental and hygiene students gain valuable hands-on experience as they assist in delivering care for these patients.

### A RESOURCE TO NEEDED COMMUNITY SERVICES

With the goal of reducing hospital readmissions and improving patient outcomes, the University of Maryland Rehabilitation & Orthopaedic Institute launched its **Patient Navigator Program** in April 2015. Since that time, the program has grown from two navigators to four, providing **services for vulnerable patients on the Stroke, Traumatic Brain Injury, Spinal Cord Injury and Comprehensive Medical Rehabilitation units.** The navigators serve as a resource to patients at the critical time of returning home and transitioning back to the community. They help with **accessing services across the system and throughout the community, as well as assist patients with managing their own care.**



#### LOCATION:

2200 KERNAN DRIVE  
BALTIMORE, MD 21207  
410-448-2500  
[www.umrehabortho.org](http://www.umrehabortho.org)



In addition to the work the navigators do with patients transitioning to home, they also reach out to the community and provide health and wellness education. Throughout the year, the navigators conduct **Living Well with Chronic Disease classes.** These free, six-week workshops are available to anyone in the community, and offer important information to **help people with chronic conditions manage fatigue and pain, eat healthfully, regain control of their life and communicate better with doctors.**



The Adapted Sports Program at UM Rehab & Ortho Institute gives patients the self-confidence they need to participate in sports they love.





## University of Maryland St. Joseph Medical Center

University of Maryland St. Joseph Medical Center (UM SJMC) consists of a 232-bed, acute-care hospital as well as a range of outpatient services and physician practices on its Towson campus. UM SJMC has a rich history 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 to keep patients healthy.



### LOCATION:

7601 OSLER DRIVE  
TOWSON, MD 21204  
410-337-1000  
[www.stjosephtowson.com](http://www.stjosephtowson.com)



### PREVENTING FALLS IN THE ELDERLY

For older residents in the community, fall prevention is a top priority. In 2015, UM SJMC adopted the evidence-based fall prevention program **Stepping On** and offers it to the community. The seven-week workshop **incorporates strength and balance exercises** that each class practices as a group. It also addresses medication management, home safety, footwear, vision and mobility.

The program relies on the involvement of clinical professionals such as UM SJMC physical therapists and pharmacists, as well as the support of outside organizations. These experts present valuable information and meaningful demonstrations to class participants.

The goal is for **participants to increase overall strength, achieve better balance, gain more self-confidence, and have a greater sense of independence — as well as reduced risk of falling.**

The program was so popular that the waiting list grew to 90 names. UM SJMC helped to fund additional instructors for area senior centers and has plans to expand the program availability in the coming year. While the program's goal is to help reduce falls, it has also had an unanticipated impact on the participants' social needs.

The classes have become informal peer support networks, allowing participants to feel comfortable talking about other disease-management issues and psychosocial challenges.

UM SJMC further supports the fall-prevention efforts of the Baltimore County Department of Aging and The Y of Central Maryland by participating in annual fall-prevention awareness events.

### STRENGTHENING BONE DENSITY THROUGH YOGA

Bone-density screenings are another approach to promoting bone health and fall prevention throughout the community. In Fiscal 2017, **the community health team performed more than 300 bone-density screenings in local senior centers, senior living facilities and businesses.** About half of the individuals screened were referred for follow-up.

In an effort to promote better balance, strength and bone health, UM SJMC offers three beginner yoga classes a week at no cost to the community. In Fiscal 2017, **88 classes were offered with 592 participants.** With the continuation of these and other efforts in Fiscal 2018, UM SJMC is making significant strides in **reducing the number of falls and injuries among its senior population, helping them stay active and independent.**





## University of Maryland Shore Regional Health

University of Maryland Shore Regional Health is the principal provider of comprehensive health care services for more than 170,000 residents of Caroline, Dorchester, Kent, Queen Anne's and Talbot counties on Maryland's Eastern Shore. UM Shore Regional Health operates three hospitals — UM Shore Medical Centers at Chestertown, Dorchester and Easton — with a total of 214 inpatient beds; a freestanding emergency center, a skilled nursing and rehabilitation center, numerous outpatient care centers and home care services throughout the region. With more than 2,200 team members, UM Shore Regional Health ranks among the largest employers in its rural Eastern Shore region. It has an active medical staff of more than 300 physicians and advanced practice providers, many of whom are affiliated with UM Community Medical Group.

The mission of UM Shore Regional Health, *Creating Healthier Communities Together*, reflects the organization's goal of providing quality health care services that are comprehensive, accessible and convenient, and that address the health care needs of the region. In living its mission, the organization works with various community partners in each of the five counties served to provide area residents with health education opportunities, preventive screenings and support services.

### CANCER SCREENINGS FOR THE COMMUNITY

The Cancer Program at UM Shore Regional Health partners with county health departments, medical providers and area agencies to **offer skin cancer and prostate cancer screenings annually in multiple locations across the region**. Uninsured and underinsured community members are encouraged to participate in these free screenings and benefit from referrals for follow-up evaluation and treatment as needed.

### COMMUNITY EDUCATION AND SUPPORT

UM Shore Regional Health team members from various disciplines host and facilitate a number of **support groups that assist patients and their family members in dealing with addiction and mental health issues, cancer, diabetes and stroke** — all of which are prevalent on the Eastern Shore.

Educational opportunities are also available for expectant and new parents through classes in labor and delivery, breastfeeding, infant safety, sibling preparation and breastfeeding support groups.

Community education is provided through **UM Shore Regional Health's "Ask the Expert"** series, which features medical experts from diverse specialties, sharing information about common health issues, disease prevention and wellness. Presentations are offered throughout the year in partnership with local senior housing communities, senior centers, health departments and various organizations and community groups.

### LOCATIONS:

**UM SHORE MEDICAL CENTER AT EASTON**  
219 S. WASHINGTON STREET  
EASTON, MD 21601  
410-822-1000

**UM SHORE MEDICAL CENTER AT DORCHESTER**  
300 BYRN STREET  
CAMBRIDGE, MD 21613  
410-228-5511

**UM SHORE MEDICAL CENTER AT CHESTERTOWN**  
100 BROWN STREET  
CHESTERTOWN, MD 21620  
410-778-3300

**UM SHORE EMERGENCY CENTER AT QUEENSTOWN**  
115 SHOREWAY DRIVE  
QUEENSTOWN, MD 21658  
410-827-3900  
[www.umshoreregional.org](http://www.umshoreregional.org)



Registered dietitian and certified diabetes educator **Mary King, RD, LD, CDE**, offers community members educational events at grocery stores to promote healthy eating.



Dermatologists, oncology nurses and support team members offer annual skin cancer screenings in partnership with community agencies and physicians.





## University of Maryland Upper Chesapeake Health

University of Maryland Upper Chesapeake Health (UM UCH) is a community-based, non-profit health care organization in Harford County. UM UCH 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 743 and a total of 257 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, which delivers hospice care, and the Kaufman Cancer Center, an affiliate of the University of Maryland Greenebaum Comprehensive Cancer Center.



### A FAMILY-CENTERED COMMUNITY

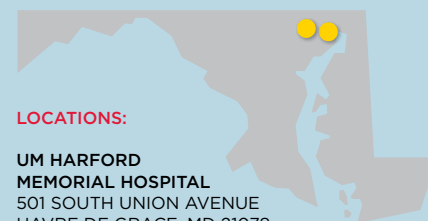
More than 82 percent of UM UCH's 3,200 employees live in Harford and Cecil counties. Our team members are neighbors, family and friends of the people they serve. UM UCH is dedicated to maintaining and improving the health of the people in its community and providing them with the highest quality of care.

Health care systems across the country face new challenges as they work to improve the way health care is delivered. UM UCH strives to provide a continuum of care across many disciplines. One of its biggest and most valuable resources, **HealthLink**, is a service of the **Community Outreach program**. For many years, HealthLink has provided health screenings, educational programs and support groups to individuals either free of charge or for a nominal fee. As a result of these resources, thousands of people in surrounding neighborhoods have the knowledge they need to make positive health and wellness choices.

### A HEALTHIER HARFORD COUNTY

**Healthy Harford**, founded in 1993 by UM UCH, the Harford County Health Department and Harford County Government, is the leadership platform for community wellness. **Its focus is encouraging healthy lifestyles, promoting community partnerships and supporting care coordination for individuals with chronic illnesses.**

Collaboratively, the Comprehensive Care Center at UM UCH connects the most vulnerable patients with primary care physicians, medical specialists and community resources including transportation, home health and insurance assistance.



### LOCATIONS:

**UM HARFORD  
MEMORIAL HOSPITAL**  
501 SOUTH UNION AVENUE  
HAVRE DE GRACE, MD 21078  
443-843-5000

**UM UPPER CHESAPEAKE  
MEDICAL CENTER**  
500 UPPER CHESAPEAKE DRIVE  
BEL AIR, MD 21014  
443-643-1000  
[www.umuch.org](http://www.umuch.org)

UM UCH, in conjunction with Union Hospital in Cecil County, was awarded a **Transformation Care Grant**. The resulting Wellness Action Teams of Cecil and Harford (WATCH) program supports a regional partnership of health care providers in Harford and Cecil counties reaching patients in their homes, developing care plans to assist with care coordination, and providing community service referrals. **These teams of transitional nurse navigators, community health workers, nurses and social workers have improved hundreds of lives.**

The HealthLink Mobile Medical Van provides health screenings and educational programs to the community, either free of charge or for a nominal fee.





## Mt. Washington Pediatric Hospital

Mt. Washington Pediatric Hospital (MWPH) is a comprehensive, post-acute care facility serving children with special medical and rehabilitative needs. The hospital provides rehabilitation and medical care for nearly 9,000 patients each year, from neonatal to young adult and is a regional leader in pediatric specialty care. MWPH is jointly owned by University of Maryland Medical System (UMMS) and Johns Hopkins Medicine.



### DO GOODERS: EMPOWERING THE COMMUNITY

Since 2010, MWPH's Community Advocacy Program has provided a proactive approach to injury prevention and safety by educating families, providers and communities on safety and best practices, while fostering coalitions, changing organizational practices, and influencing policy and legislation.

This year, the "Do Gooders" participated in a total of **77 community health fairs and events, sharing information about health and safety.** The team also provided 32 presentations and talks on topics such as preventable injuries, asthma, lead poisoning, obesity prevention and safe sleep. Through the year, MWPH provided 13 parenting classes to parents at risk for child maltreatment.

### NEW BULLY PREVENTION PROGRAM

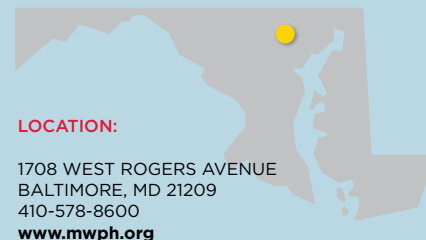
The hospital organized its first **Bully and Violence Prevention Program.** With recent statistics indicating that 1 in 4 students nationwide report being bullied, child safety experts stepped up to develop educational

awareness programs designed to better **help youths protect themselves.** MWPH's Community Advocacy Program immediately rose to the challenge and last year launched a customized pilot program using materials from the Safe Kids Coalition and the US Centers for Disease Control and Prevention. MWPH's program, however, took a unique approach — a musical production incorporating costumes, performances and a more laid-back and theatrical delivery that **helped young students process the impact of words they might say or hear without giving thought to consequences.**

MWPH's Bully and Violence Prevention Program follows on the heels of growing social media use where participants can often very quickly text damaging words and images without taking into consideration how they might be perceived. The program helps participants see from the vantage point of both the sender and the recipient — **all while having fun in an educational setting.**



With countless classes, events, programs and other resources rooted in the area, MWPH is truly deep in the heart of Baltimore.



### LOCATION:

1708 WEST ROGERS AVENUE  
BALTIMORE, MD 21209  
410-578-8600  
[www.mwph.org](http://www.mwph.org)



### DEEP IN THE HEART OF BALTIMORE

MWPH provided a wide range of resources this year aimed at parent and patient education, community awareness and public health. The hospital involved clinicians, social workers and many other team members in this effort, which **served more than 34,000 families.**

**MWPH is focused on measuring and achieving significant community impact.**

In April 2015, the MWPH Community Empowerment team met to review data and discuss priorities that MWPH would focus on for the next three years.

Analysis of all quantitative and qualitative data identified these top seven areas of need in Baltimore. These priorities were validated with the health experts from the Baltimore City Health Department, local schools of medicine, nursing, rehabilitation and social work, and MWPH employees who engage in community affairs.

### The MWPH priorities identified are:

- Education, Health Literacy and Outreach
- Access to Health Care
- Chronic Disease, Obesity and Diabetes
- Maternal and Child Health
- Lead Poisoning and Asthma
- Behavioral and Mental Health
- Injury Prevention





University of Maryland Community Medical Group (UM CMG) is a primary care, multi-specialty physician-led group and a trusted partner of University of Maryland Faculty Physicians Inc.

Formed in 2015, UM CMG provides convenient primary, specialty and hospital-based care to the residents of Maryland. With a focus on high-quality, patient-centered care, UM CMG providers partner with patients on a path to good health.

The medical group's 292 physicians and advanced practice providers include those who specialize in primary care, as well as pediatric, heart, cancer, diabetes, orthopaedic, women's and urologic care and other disciplines. They see patients at more than 80 locations in Anne Arundel County, Charles County, Baltimore City and on the Eastern Shore, with plans for a larger expansion in the future.

UM CMG physicians have privileges at UMMS hospitals within their communities. As part of University of Maryland Medical System (UMMS), UM CMG providers work closely with the specialists from University of Maryland Faculty Physicians Inc. and the University of Maryland Medical Center when more complex care is needed.

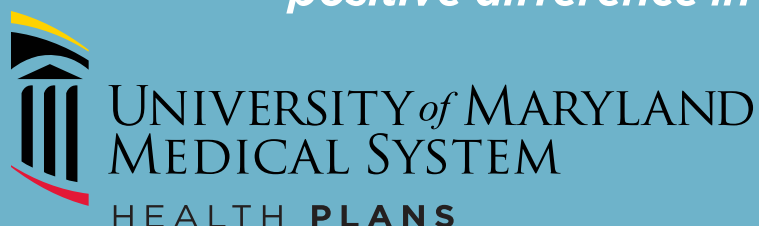
**UM CMG CONTINUES TO EXPAND, BOTH IN PRACTICE LOCATIONS AND NUMBER OF EMPLOYEES.**

- 384,059 Patients seen in Fiscal 2017
- 191 Physicians
- 101 Advanced Practice Providers
- 399 Staff
- 82 Locations



**Robert Chrencik, MBA, CPA**  
UMMS President and  
Chief Executive Officer

***“UM CMG provides convenient, high-quality care to the residents in our different regions. By providing care where Marylanders live and work, and working closely with colleagues at University of Maryland Medical Center and the UM School of Medicine, we are able to make a positive difference in Maryland’s health.”***



In 2015, the University of Maryland Medical System (UMMS) acquired Riverside Health Inc. As part of the acquisition, the University of Maryland Medical System Health Plans (UMMSHP) became the new subsidiary of UMMS that offers Medicaid and Medicare health insurance plans.

The Maryland Department of Health (MDH) provides Medical Assistance, also called Medicaid coverage, to individuals determined to be categorically eligible or medically needy. In Maryland, the program is known as HealthChoice.

University of Maryland Health Partners (UMHP) contracts with MDH as a Medicaid Managed Care Organization to serve the HealthChoice program's enrollees. Currently, UMHP has more than 41,000 members.

University of Maryland Health Advantage (UMHA) is an HMO and HMO-SNP plan that contracts with the US Centers for Medicare and Medicaid Services and MDH to provide health care coverage for more than 6,000 seniors who are Medicare beneficiaries.

For both health plans, UMMSHP promotes strong doctor-patient relationships connecting its members to a large local network of physicians and providers — all in an effort to combine health coverage with added benefits and services, and better care overall.





## UNIVERSITY of MARYLAND SCHOOL OF MEDICINE

### FISCAL 2017 FACTS

<b>FACULTY</b>	<b>2,986</b>
Full-time	1,370
Part-time	285
Adjunct	1,331
<b>STAFF</b>	<b>3,188</b>
UM Faculty Physicians Inc.	1,025
UM School of Medicine	2,163
<b>STUDENTS</b>	<b>1,275</b>
Medical	610
MD/PhD	50
Graduate (MS, PhD)	301
Public Health	51
Physical Therapy (DPT, PhD)	192
Genetic Counseling	16
Medical and Research Technology	49
Clinical Research Certificate	6
<b>POST-DOCTORAL FELLOWS</b>	<b>521</b>
Clinical	233
Research	288
<b>RESIDENTS</b>	<b>687</b>
(Trained by UMSOM Faculty)	

### FISCAL 2017 NUMBERS

#### OUR INCOME

Tuition and Fees	\$ 30,507,631
State Appropriations	47,141,472
Total Grants and Contracts	447,139,861
Gifts, Endowments and Other Expenses	13,238,305
Medical Services Plan	333,000,000
Reimbursements from Affiliated Hospitals	<u>177,703,837</u>
<b>Total</b>	<b>\$ 1,048,731,106</b>

#### OUR EXPENSES

Instruction/Training	\$ 94,385,800
Research	457,246,762
Clinical Service	450,954,375
General and Administrative	<u>46,144,169</u>
<b>Total</b>	<b>\$ 1,048,731,106</b>





## FISCAL 2017 FACTS

### LICENSED BEDS

2,252

### EMPLOYEES

25,620

### HOSPITAL ADMISSIONS

109,414

### OUTPATIENT VISITS

1,447,357

### EMERGENCY VISITS

374,853

### OUTPATIENT SURGICAL CASES

65,301

## FISCAL 2017 NUMBERS

### OUR INCOME

From services to inpatients	\$ 2,182,507,000
From services to outpatients	<u>2,195,965,000</u>
<b>These services produced total gross revenue of</b>	<b>\$ 4,378,472,000</b>
Less amounts we had to deduct for contractual allowances to third-party payors	(657,417,000)
Less the cost of charity care for persons without the ability to pay for their care and for uncollectible accounts	<u>(236,033,000)</u>
Therefore, our net revenue from patient care services was	\$3,485,022,000
In addition, our other revenue from operating, including state support, was	<u>407,885,000</u>
<b>Thus, our total revenue from operations was</b>	<b>\$ 3,892,907,000</b>

### OUR EXPENSES

For salaries, wages and fringe benefits to our employees	\$ 1,815,782,000
For medical supplies, pharmaceuticals and purchased services	1,725,593,000
For depreciation on our buildings and equipment	219,749,000
For interest costs on our outstanding bonds	<u>73,505,000</u>
<b>All of these operating expenses totaled</b>	<b>\$3,834,629,000</b>

### OUR NET RESULTS

Income from operations	\$ 58,278,000
Plus non-operating revenue net of expenses, which excludes changes in market value of financial investments and other activities	<u>77,000,000</u>
<b>Net income</b>	<b>\$135,278,000</b>

\* Fiscal Year 2017 figures are unaudited.



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\* Denotes endowed professorship; see page 39



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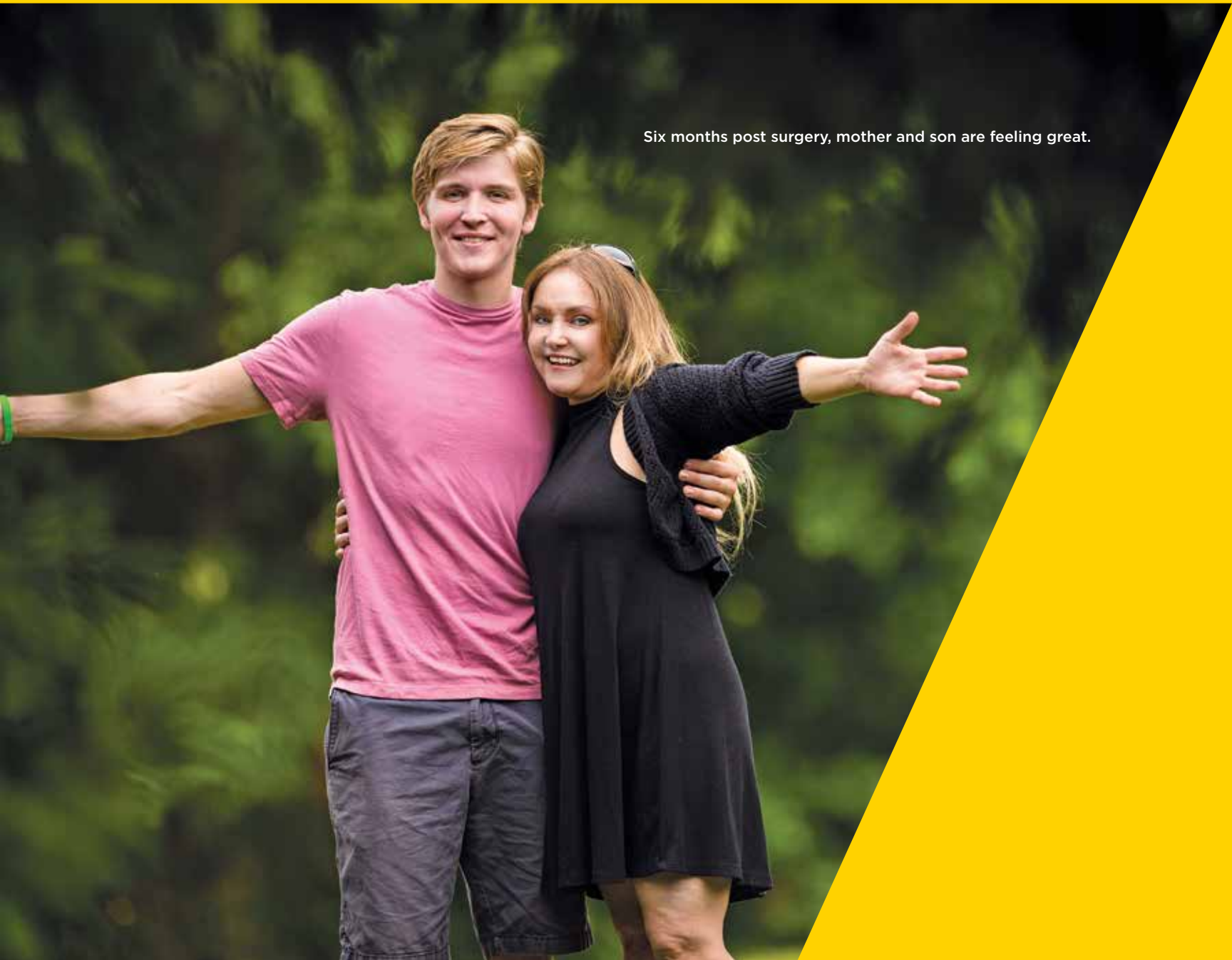
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