

# From *ground* **BREAKING** *to* **RECORD-BREAKING**

UNIVERSITY of MARYLAND SCHOOL OF MEDICINE

NEW

## HSRF

Opened **NEW**  
**430,000 sq. ft.**  
Health Sciences  
Research  
Facility III

## 2.5M

Expanded space  
for research  
and academic  
facilities by more  
than **20 percent**  
to nearly **2.5**  
million sq. ft.

## LCME

Received an  
**eight-year**  
**re-accreditation**  
by the Liaison  
Committee  
on Medical  
Education

## \$20M

Celebrated a  
pledged gift,  
reaching over  
**50 percent**  
of the School's  
\$550 million  
philanthropic  
goal

## \$537M

Attained the  
**highest level**  
of research  
**funding** in the  
School's history,  
with **45 percent**  
growth over the  
past five years

**2018 State of the School Address**



UNIVERSITY of MARYLAND  
SCHOOL OF MEDICINE



From *ground* **BREAKING**  
*to* **RECORD-BREAKING**

It was truly a breakthrough year for the University of Maryland School of Medicine (UMSOM) in every way. We broke new ground, set new records, and emerged in the top echelon of medical schools in the nation.

**FY18 HIGHLIGHTS:**

- The UMSOM reached unprecedented levels in research funding, nearly \$537 million.
- The UMSOM opened Health Sciences Research Facility III, the largest facility of its kind in the entire University System of Maryland, featuring the most advanced research laboratories and biomedical research technology available.
- At the UMSOM 's annual gala, the School celebrated a \$20 million philanthropic gift pledge — the largest in the School's history — from longtime benefactors Dr. and Mrs. Robert E. Fischell.
- The UMSOM fulfilled its most critical academic priority — completing a three-year, multi-faceted process to receive full accreditation by the Liaison Committee for Medical Education (LCME) for another eight-year term.
- Clinical care broke new records with nearly \$345 million clinical revenues — an increase of 24 percent over the past five years. As our flagship medical institution, the University of Maryland Medical Center continues to rise as a national leader in trauma, cancer care, neurocare, cardiac care, diabetes and endocrinology, women's and children's health, and has one of the largest solid organ transplant programs in the country.

None of these extraordinary achievements would have been possible without the commitment and dedication of our people, at every level of the organization. They are truly the key ingredient to our success. None of this would have been possible without the support from our key partners: Chancellor Caret and the University System of Maryland leadership, President Perman and the University of Maryland, Baltimore leadership, President Chrencik and the University of Maryland Medical System leadership, President Suntha and the University of Maryland Medical Center leadership, our esteemed UMSOM Board of Visitors; and our outstanding faculty and staff.

More than ever, we are unified around our key mission areas of education, research, clinical care and community impact. As you will see in this report, we have been relentless in the execution of our Vision 2020 strategy, and the results speak for themselves!

In the relentless pursuit of excellence,  
I am sincerely yours,

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

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“  
I am so proud of the  
accomplishments of  
the entire School  
— it has been an  
extraordinary year.  
”



Faculty and staff retention continues to be strong at the School of Medicine.

92.4%

7,229  
Total workforce

40.5%  
Women

11%  
Under-represented minorities

OUR STRUCTURE

Academic Departments	25
Organized Research Centers	9
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WORKFORCE

The University of Maryland School of Medicine’s total workforce is 7,229 people and includes nearly 3,000 full-time, part-time and adjunct faculty and approximately 3,100 staff members.

Of our 1,404 full-time faculty members, 40.5 percent are women and 11 percent are under-represented minorities. Our full-time faculty retention rate is 92.4 percent, reflecting our **continued commitment to providing a positive and productive work environment**. Our workforce is also comprised of 490 clinical and research fellows and 711 residents.

BUILDING DIVERSITY AND INCLUSION IN THE UMSOM COMMUNITY

Led by Interim Dean for Admissions and Assistant Dean for Academic and Multicultural Affairs, **Sandra Quezada, MD**, the UMSOM has a number of diversity and inclusion initiatives underway that are having an immediate impact on the entire community. **In student and faculty recruitment**, we now have diversity pipeline programs at every level of education from elementary and middle school to high school, college and doctorate levels. **In medical education**, cultural competence and unconscious bias training are now part of the Introduction to Clinical Medicine course.

A **Faculty Diversity Resource Panel and Resident/Fellow Diversity Workgroup** have been created to provide training and interaction for UMSOM students, trainees and faculty on diversity, inclusion and unconscious bias.



TOTAL FACULTY & STAFF	FY17	FY18
Full-time Faculty	1,370	1,404
Part-time Faculty	285	302
Adjunct Faculty	1,331	1,264
Post-Doctoral Fellows	521	490
• Research	288	267
• Clinical	233	223
Residents (trained by UMSOM faculty)	657	711
Staff (admin, research & clinical, includes FPI)	3,188	3,058
TOTAL		7,229

FACULTY DIVERSITY	FY17	FY18
Women	548	569
Under-represented Minorities	154	154



Qun Zhou, MD, PhD  
Associate Professor, Department of Biochemistry & Molecular Biology



Donald “Rick” Matteson, PhD  
Associate Professor, Department of Physiology and Executive Director of Student Research Education & Dual Degree Programs



◆ The research vision of the School of Medicine is to **increase the impact of research and discovery on human health**, not only in this region but around the world.

**\$537M**  
Grants & contracts

**20.1%**  
Increase

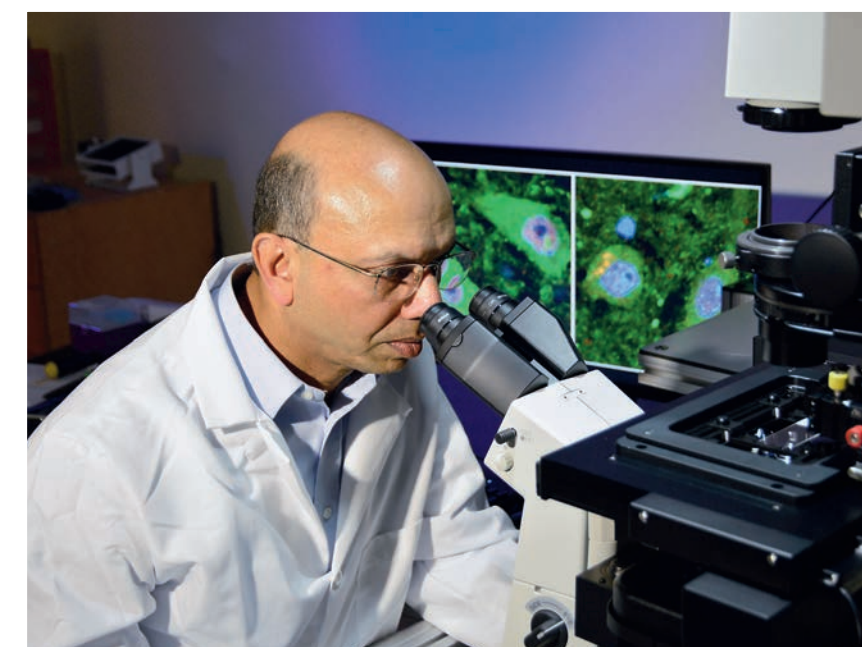
## RESEARCH

Through collaborations and joint projects among the diverse groups of researchers at the University of Maryland School of Medicine and across the University System of Maryland (USM), the UMSOM has been able to reach unprecedented levels in research funding.

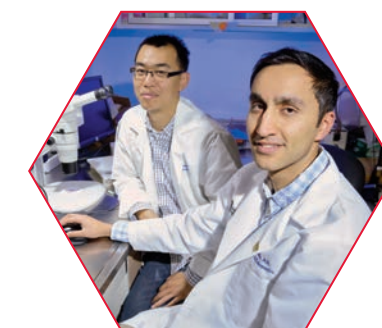
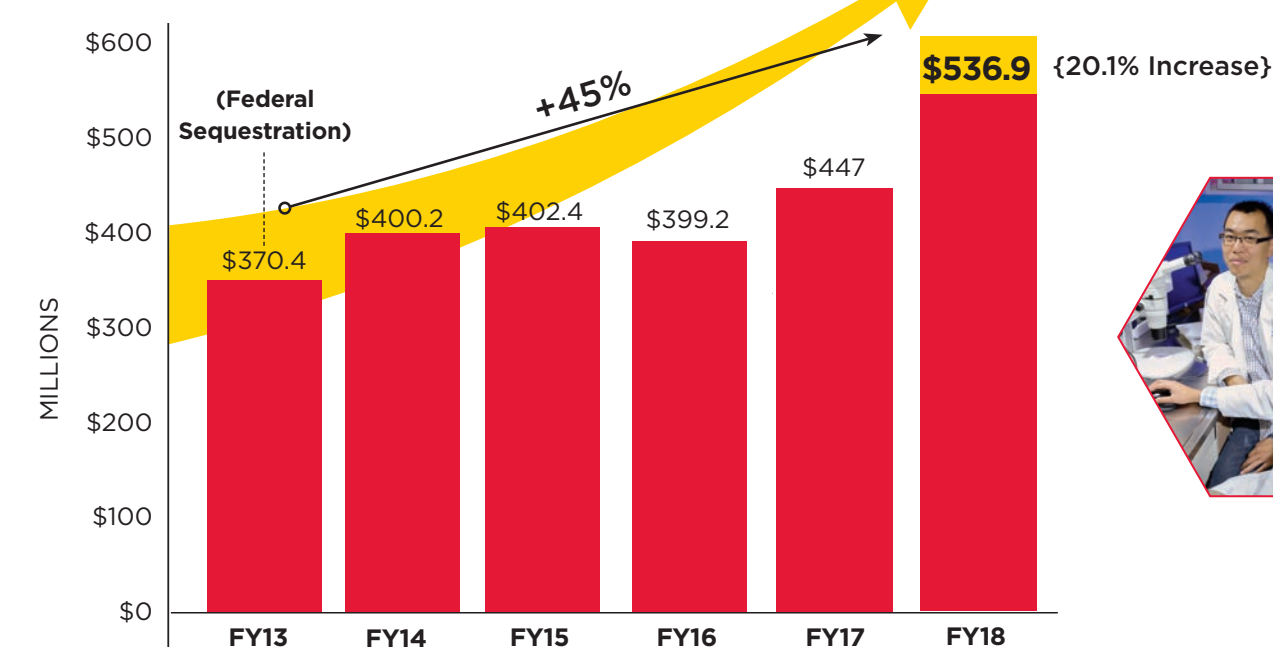
Our scientists and clinicians received \$536.9 million in grants and contracts in FY18, a 45 percent increase since the negative impact of federal sequestration.

### RECORD RESULTS

- NIH Total Grants Submitted +7%
- Number of NIH Awards Funded +15%
- All Grant Submissions +15%
- Other Federal Funding +43%



### GROWTH OF RESEARCH GRANTS & CONTRACTS

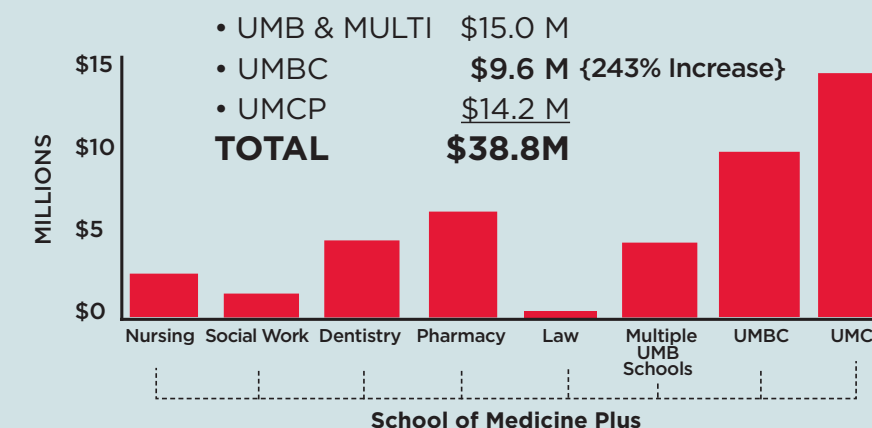


### UNIVERSITY SYSTEM OF MARYLAND RESEARCH COLLABORATION IS KEY

One of the key priorities for the UMSOM has been fostering joint projects among the diverse groups of researchers at the School and across the USM. Interdisciplinary research teams, especially those that blend clinical and basic science, are having significant advantages when applying for the large federal grants.

Collaborations between the UMSOM and University of Maryland Baltimore County increased significantly, from \$2.8 million in FY17 to \$9.6 million in FY18.

### UMSOM PLUS





RESEARCH

FESTIVAL OF SCIENCE

At our first annual **Festival of Science**, our Scientific Advisory Council recommended the UMSOM continue its strong focus on collaborative research, and ensure that programs and policies were in place to encourage interdisciplinary research.

Our fifth annual Festival of Science was held on December 14, 2017. The keynote speaker was **Luigi Ferrucci, MD, PhD**, Scientific Director, National Institute on Aging, National Institutes of Health. Faculty researchers presented to our esteemed Advisory Council on the topic of **“Mobility and Disability in Aging: Causes, Consequences and Strategies for Restoration.”**

RESEARCH RANKINGS

There are a number of ways we can measure our academic scholarship, but **total research funding is an objective, measurable benchmark**. If you look at the Association for American Medical Colleges (AAMC) profile data, we continue to rank in the **Top 10 (8th) among all public medical schools nationwide, the UMSOM ranks 26th. We achieved our highest research ranking ever in U.S. News & World Report (31st).**

RESEARCH PRODUCTIVITY

Looking at the productivity of our faculty, AAMC data show that **our faculty has one of the highest levels of productivity in the United States**. Across all schools, the mean funding per principal investigator average is \$300,000. **At the UMSOM, the mean funding per principal investigator is \$416,006**, placing us in the 85th percentile of productivity of all medical schools.

RESEARCH ENDEAVORS

NEW IMMUNOTHERAPIES FOR CANCER

In April, the UMSOM celebrated the opening of University of Maryland Medicine’s **Fannie Angelos Cellular Therapeutics Laboratory**, a state-of-the-art facility that will allow scientists to create the next generation of cancer cures. The laboratory was made possible by a **\$1 million gift from Peter G. Angelos**, as well as donations from other benefactors. **The laboratory will be used to study and develop ways to engineer cells for the treatment of cancer and a wide variety of other illnesses, including diabetes and heart disease.**



AAMC NATIONAL RANKINGS GRANTS & CONTRACTS  
Public Schools, All Regions

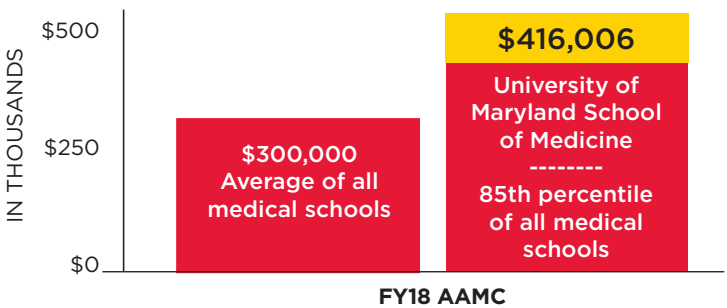
- 1 / UWASH \$1,164,376,795
- 2 / UCSF \$1,080,489,021
- 3 / UCLA-GEFFEN \$635,446,856
- 4 / UCSD \$576,547,879
- 5 / MICHIGAN \$516,054,294
- 6 / COLORADO \$444,643,959
- 7 / NORTH CAROLINA \$441,337,486
- 8 / MARYLAND \$368,713,640**
- 9 / OREGON \$338,956,062
- 10 / ALABAMA \$318,969,911

Source: FY 2017  
LCME Part I-A  
Annual Financial  
Questionnaire,  
Longitudinal  
Statistical  
Summary Report  
6/22/2018

Public and Private Schools, All Regions

- 1 / HARVARD \$2,913,382,931
- 2 / U WASHINGTON \$1,164,376,795
- 3 / UC SAN FRANCISCO \$1,080,489,021
- 4 / PENNSYLVANIA-PERELMAN \$936,187,618
- 5 / DUKE \$824,106,352
- 6 / JOHNS HOPKINS \$763,301,220
- 7 / COLUMBIA-VAGELOS \$759,457,253
- 8 / MOUNT SINAI-ICAHN \$713,801,756
- 9 / STANFORD \$696,703,915
- 10 / YALE \$668,247,176
- 11 / UCLA-GEFFEN \$635,446,856
- 12 / UC SAN DIEGO \$576,547,879
- 13 / PITTSBURGH \$552,733,637
- 14 / WASH U-ST. LOUIS \$534,715,989
- 15 / MICHIGAN \$516,054,294
- 16 / VANDERBILT \$510,644,228
- 17 / BAYLOR \$458,698,526
- 18 / COLORADO \$444,643,959
- 19 / NORTH CAROLINA \$441,337,486
- 20 / MAYO \$415,859,239
- 21 / CORNELL-WEILL \$410,434,956
- 22 / NEW YORK UNIVERSITY \$407,113,430
- 23 / EMORY \$407,085,651
- 24 / CASE WESTERN RESERVE \$404,120,211
- 25 / NORTHWESTERN-FEINBERG \$403,953,227
- 26 / MARYLAND \$368,713,640**
- 27 / OREGON \$338,956,062
- 28 / ALABAMA \$318,969,911

SPONSORED DIRECT EXPENDITURES PER  
PRINCIPAL INVESTIGATOR (External Grant Funding)



NEWLY ORGANIZED CENTER FOR VACCINE  
DEVELOPMENT AND GLOBAL HEALTH

The newly organized **Center for Vaccine Development and Global Health (CVD)** merges two previous



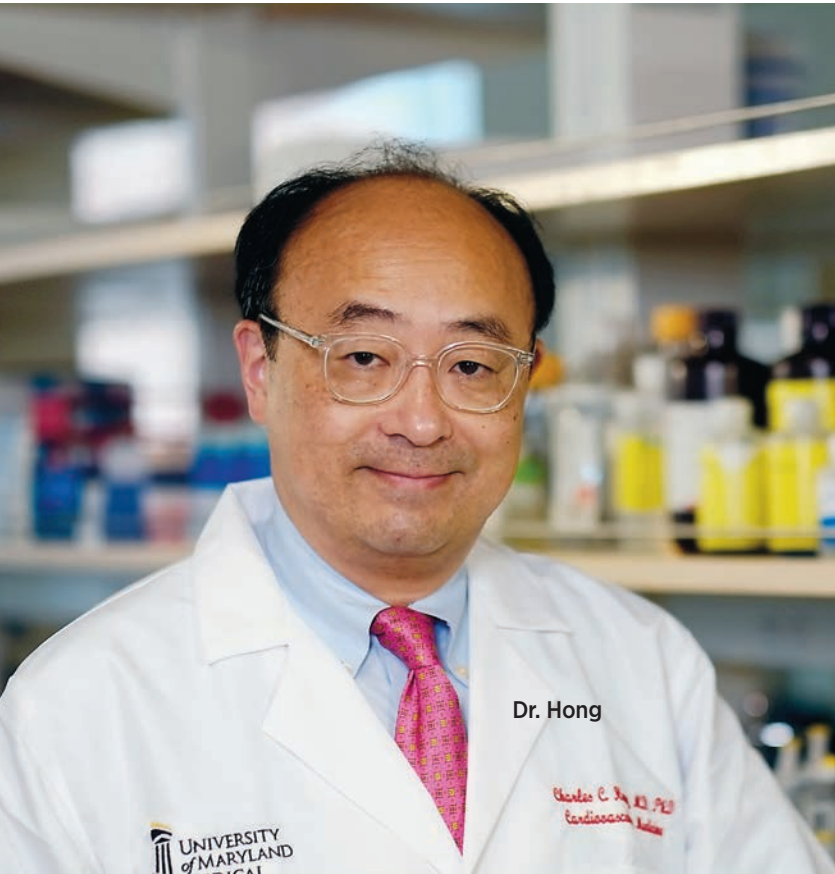
UMSOM entities: the Institute for Global Health and the Center for Vaccine Development. Under the leadership of **Kathleen Neuzil, MD, MPH, FIDSA**, the newly launched CVD will build upon its established expertise in global infectious and tropical disease research, coupled with critical vaccine research, and development, to expand path-breaking research programs in enteric diseases, influenza and respiratory diseases, malaria, and emerging pathogens.

RECRUITING TOP SCIENTISTS

The UMSOM continues to attract top scientists through its **new recruitment initiative, Special Trans-Disciplinary Recruitment Award Program (STRAP)**. The purpose of the STRAP Initiative has been to accelerate our research enterprise, to **answer important “big science” questions underlying human health and disease**, and to encourage multiple academic units to jointly recruit well-funded scientists and/or physician-scientists. The STRAP Initiative has been successful in expanding our research portfolio and funding base by attracting well-funded senior investigators, or teams of investigators, actively working in an area that complements our already robust research portfolio with an excellent track record of publishing, teaching, and mentoring students and/or trainees. **Since the initiative began, we have attracted more than \$60 million in additional funding brought in by 15 teams of scientists recruited under STRAP.**

NEWEST STRAP RECRUIT

**Charles C. Hong, MD, PhD, FAHA**, Professor, Department of Medicine and Director of Cardiology Research, joined the UMSOM in June 2018. Dr. Hong’s research focuses on the intersection of developmental biology, chemical biology, stem cell biology, and cardiovascular medicine. Dr. Hong uses innovative chemical biologic approaches to study embryonic development to better understand human cardiac



muscle cell biology and pathobiology at the cellular level. **He also was recently named the Melvin Sharoky Professor of Medicine, Director of Research and Associate Chief of the Cardiology Division.**

RESEARCH IMPACT

PROTON-BEAM THERAPY FOR TREATING  
LUNG CANCER

**Charles B. Simone, II, MD**, Associate Professor, Department of Radiation Oncology and Medical Director of the Maryland Proton Treatment Center, along with faculty from the University of Pennsylvania, conducted a study to evaluate clinical outcomes and adverse effects of proton therapy in treating lung cancer. **The researchers found that the combination therapy produced a lower incidence of adverse side effects than would be expected with standard photon therapy while maintaining similar clinical outcomes.**



**“We are very encouraged by these findings but hope that this study serves as a platform on which to build larger clinical investigations,”** said Dr. Simone.



RESEARCH

STUDY IDENTIFIES GENE THAT COULD PLAY KEY ROLE IN DEPRESSION

A new study by researchers at the UMSOM has pinpointed how one particular gene plays a central role in preventing stress.

In 2006, **Mary Kay Lobo, PhD**, Assistant Professor, Department of Anatomy and Neurobiology, and her colleagues found that the *Slc6a15* gene was more common among specific neurons in the brain. They recently demonstrated that these neurons were important in depression.

*“This study really shines a light on how levels of this gene in these neurons affect mood. It suggests that people with altered levels of this gene in certain brain regions may have a much higher risk for depression and other emotional disorders related to stress,”* said Dr. Lobo.



UMSOM VACCINE EXPERTS LEAD TRIAL ON AVIAN FLU VACCINE

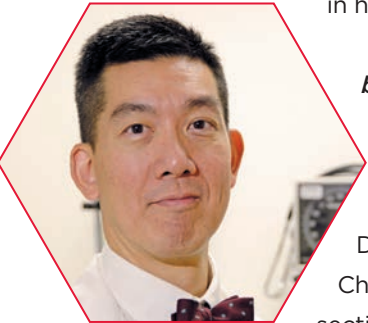
Vaccine experts at the UMSOM have begun multiple clinical trials of vaccines designed to protect against H7N9, an avian influenza virus that was first reported in humans in 2013 in China.

*“This research will help us better understand immune responses to the vaccine,”*

said **Wilbur Chen, MD**, Associate Professor, Department of Medicine and Chief of the Adult Clinical Studies section in UMSOM’s Center for

Vaccine Development and Global Health (CVD), who is leading one of the trials.

*“Pandemic preparedness is a priority. While the H7N9 virus is not circulating in the United States at this time, this important research will help us better understand how to protect individuals from the H7N9 influenza strain should it spread outside China,”* said Dr. Chen.



LARGEST GRANT AWARDED TO STUDY HIV

The UMSOM’s Institute of Human Virology (IHV) was awarded a **\$100 million grant** to measure the reach and impact of HIV programs in Nigeria — the largest population-based HIV survey ever conducted in a single country.

The grant award is the result of a cross-collaboration between IHV’s Division of Epidemiology and Prevention led by **Man E. Charurat, PhD, MHS**, Professor, Department of Medicine and Director of the Division of Epidemiology and Prevention, and IHV’s Center for International Health, Education and Biosecurity led by **Deus Bazira, DrPH, MBA, MPH**, Assistant Professor, Department of Medicine. The project is funded by the U.S. Centers for Disease Control and Prevention (CDC) through the President’s Emergency Plan for AIDS Relief (PEPFAR), in collaboration with the Government of Nigeria and the Global Fund to Fight AIDS, Tuberculosis and Malaria.

The Institute of Human Virology will lead the effort to measure the impact of HIV programs on the epidemic in Nigeria. The results of the survey will guide a strategy for Nigeria’s HIV prevention and treatment.



RESEARCH CAREER DEVELOPMENT AND SCIENTIFIC LEADERSHIP

The Office of Research Career Development (ORCD) helps increase research productivity by providing support to junior faculty and offering classes in research skills, grant writing, identifying funding sources, science writing and professional development.



The ORCD is led by Wendy Sanders, MA, Stacie Mendoza, BS, Marey Shriver, PhD, and Mary-Claire Roghmann, MD, MS

More than 1,200 faculty have registered as participants, and more than \$67 million in funding has been awarded to students in the grant writing courses. In addition, the office has launched a **Scientific Leadership Program with Special Emphasis on Diversity and Retention**. The six-month pilot program, which includes self-selected R-level grant recipients, features monthly sessions on academic leadership skills, financial management, communications skills, challenges facing women and minorities in choosing a leadership role, negotiation skills, conflict resolution and developing a support network.

BUSINESS VENTURES

**James Gammie, MD**, Professor, Department of Surgery and Division Head of Cardiac Surgery at the UMSOM, and Division Chief of Cardiac Surgery at the University of Maryland Medical Center, **invented a surgical device to reduce the invasiveness and side effects of mitral valve surgery**.

The harpoon-like device is already being marketed to surgeons and hospitals in Europe after a clinical trial there found it safe and effective. Plans are underway for a clinical trial in the U.S., now that the Baltimore-based company developing the device, **Harpoon Medical**, was acquired by **Edwards Lifesciences Corp**.



Dr. Gammie

ADDITIONAL COMMERCIAL HIGHLIGHTS:



**PAXVAX** a global biotechnology company, began sales of VaxChora, a **cholera vaccine invented by CVD researchers** under the leadership of UMSOM’s **Myron Levine, MD, DTPH** and **James Kaper, PhD**.



**LIVING PHARMA**, an immunotherapy start-up co-founded by UMSOM’s **Eduardo Davila, PhD**, and **Koji Tamada, MD, PhD**, was acquired by **Lentigen Technology, Inc**.



**BIOGEN** announced that it had enrolled its **first patient** in a global Phase 3 trial of Glibenclamide for treatment of brain swelling in stroke, a discovery originally made by UMSOM’s **J. Marc Simard, MD, PhD**, and his colleagues.



**ANALYTICAL INFORMATICS**, a health informatics company founded by **Christopher D. Meenan, BS**, in UMSOM’s Department of Radiology and Nuclear Medicine, was acquired by **Philips**.

TECHNOLOGY TRANSFER

	FY17	FY18
U.S. Patents Issued	24	21
Foreign Patents Issued	43	58
Scientific Disclosures (Pre-Patent)	116	111
Technology Inventions Licensed	41	45
Start-Up Companies Formed	6	7

UMSOM START-UPS

- ImmuCision Bio
- TrAmpoline Pharma
- Maryland Development Center
- iChek, LLC
- GlycoT Therapeutics
- Isoprene Pharma
- CGD Sensors



# TOP GRANT AWARDEES

This section features the outstanding work of our leading investigators, those who were able to secure very large and/or prestigious grants over the last year.

Featured here are investigators who received: the most lucrative NIH and non-NIH grants (>\$1 million); NIH "P" and "U" awardees; Center grant awardees; NIH Research Cooperative Agreement awardees; NIH R01 awardees; and recipients of three or more "NIH R" awards.

 Multiple grants awarded over \$1M



**\$10.4 M**

**Kevin Cullen, MD**

The Marlene and Stewart Greenebaum Distinguished Professor in Oncology, Department of Medicine, received a **\$10.4 million grant from the Maryland Department of Health** for "FY19 Cigarette Restitution Fund Statewide Academic Health Centers Research Grant."



**\$9.4 M**

**Christopher Welsh, MD**

Associate Professor, Department of Psychiatry, received a five-year, **\$9.4 million grant from the Department of Health and Mental Hygiene's Behavioral Health Administration** for "Maryland Center of Excellence on Problem Gambling."



**\$8.3 M**

**Manhattan Charurat, MD**

Professor of Medicine, Institute of Human Virology, received a **\$8.3 million grant from the National Agency for the Control of AIDS** for "NACA Procurement Contract."



**\$7.3 M**

**Shyamasundaran Kottlil, MBBS, PhD**

Professor of Medicine, Institute of Human Virology, received a five-year, **\$7.3 million grant from the National Institutes of Health (NIH)** for "District of Columbia Partnership for AIDS Progress (DC PFAP) Protocol Implementation Task Order."



**\$7 M**

**Vujaskovic, Zeljko, MD, PhD**

Professor, Department of Radiation Oncology, received a **\$7 million grant from U.S. Department of Health and Human Service's Biomedical Advanced Research and Development Authority (BARDA)** for "RTOR-RADNUC-1006: Evaluation of Coagulation Pathway-Targeting Drugs in the Rabbit Model of Acute Radiation Syndrome (ARS) for Potential New Indication."



**\$6.4 M**

**Karen Kotloff, MD**

Professor of Pediatrics, Center for Vaccine Development and Global Health (CVD) was awarded a four-year, **\$6.4 million VTEU grant** for "Vaccine and Treatment Evaluation Units (VTEU) Overall Administration, Clinical Operations Support and Concept and Protocol Development, Implementation."



**\$5.1 M**

**Robert Redfield, MD**

Professor of Medicine, Institute of Human Virology, received a **\$5.1 million from the Center of Disease and Control (CDC)** for "Partnership for Advanced Clinical Education (PACE) Botswana."



**\$4.4 M**

**Deus Mubangizi Bazira, DrPH, MPH, MBA**

Assistant Professor of Medicine, Institute of Human Virology, received a **\$4.4 million grant from the Centers for Disease Control and Prevention (CDC)** for "Reaching, Engaging and Acting for Health (REACH)."



**\$4.3 M**

**Surbhi Leekha, MD**

Department of Epidemiology and Public Health, received a three-year, **\$4.3 million grant from the Maryland Department of Health** for "EPH/GECO and Maryland Department of Health Service Agreement 2018-2021."



**\$4 M**

**Sylvia Ojoo, MBChB**

Assistant Professor of Medicine, Institute of Human Virology, received **\$4 million from the Centers for Disease Control and Prevention (CDC)** for "BORESHA MAABARA Lab Strengthening."



**\$3.8 M**

**\$2.9 M**

**Kathleen Neuzil, MD, MPH**

Professor of Medicine and Director, Center for Vaccine Development and Global Health (CVD) received a grant of **\$3.8 million from the National Institutes of Health (NIH)** for "Phase II Trial to Evaluate the Safety, Immunogenicity, and Efficacy of a Single Dose of Tdap on Infant Immune Responses in Pregnant Women in a Low-Mid."

Dr. Neuzil also received a four-year, **\$2.9 million grant from the Bill and Melinda Gates Foundation** for "Accelerating Availability and Access to Typhoid Conjugate Vaccines."



**\$2.9 M**

**Rao Gullapalli, PhD, MBA**

Professor, Diagnostic Radiology and Nuclear Medicine, and Neeraj Badjatia, Professor, Department of Neurology, were awarded a five-year, **\$2.9 million R01 grant from the National Institutes of Health (NIH)** for "Longitudinal Sub-thalamic Structure and Functional Alterations in Mild Traumatic Brain Injury."



**\$2.4 M**

**Kevin Cullen, MD**

The Marlene and Stewart Greenebaum Distinguished Professor in Oncology, Department of Medicine, received a total of **\$2.4 million from the Maryland Department of Health** for "UMMG Baltimore City CRF Public Health Grant."



**\$2.4 M**

**Thomas MacVittie, PhD**

Professor of Radiation Oncology, received a **\$2.4 million grant from SRI International** for "MCART Studies AXR23/24/25/26: Completion of the AXR Series 24: Phase IV."



## RESEARCH

## Top Grant Awardees

**\$2.2 M****Joao Pedra, PhD**

Associate Professor, Department of Microbiology and Immunology, was awarded a five-year R01 grant of **\$2.2 million from the National Institutes of Health (NIH)** for "Tick Saliva and Pathogen Transmission."

**\$2.1 M****Louis DeTolla, VMD, MS, PhD, DACLAM**

Professor, Department of Pathology, received a three-year, **\$2.1 million grant from the Uniformed Services University of the Health Sciences** for "FEDISA-HIV (End HIV/AIDS)."

**\$2.1 M****Deus Mubangizi Bazira, DrPH, MPH, MBA**

Assistant Professor of Medicine, Institute of Human Virology, received a **\$2.1 million grant from the Centers for Disease Control and Prevention (CDC)** for "Contract Research Organization - For the Housing, Care and Support of Nonhuman Primate Biomedical Research."

**\$1.8 M****Karen Kotloff, MD**

Professor of Pediatrics, received at **\$1.8 million grant from Emory University** for "CHAMPS Network Amendment No 3."

**\$1.7 M****Alan Cross, MD**

Professor of Medicine

**Sharon Tennant, PhD**

Associate Professor of Medicine

**Raphael Simon, PhD**

Assistant Professor of Medicine

The three scientists received at **\$1.7 million grant from the Nosocomial Vaccine Corporation** for "Development of a Multivalent Vaccine to Prevent Invasive Infections and Colonization with *Klebsiella Pneumoniae* and *Pseudomonas Aeruginosa*."

**\$1.6 M****Robert Buchanan, MD**

Professor, Department of Psychiatry, received a **\$1.6 million grant from the Maryland Department of Health** for "Maryland Early Intervention Program."

**\$1.3 M****Ernst Thomas, Dr. rer. Nat**

Professor, Department of Diagnostic Radiology and Nuclear Medicine, has been awarded a two-year R01 from the National Institutes of Health (NIH) for **\$1.3 million "RGR-Based Motion Tracking For Real-Time Adaptive MR Imaging and Spectroscopy."**

**\$1.2 M****Melissa McDiarmid, MD, MPH**

Professor, Department of Medicine received a **\$1.2 million from the U.S Department of Veterans Affairs** for "Depleted Uranium Program."

**\$1.1 M****Vicki Tepper, PhD**

Associate Professor, Department of Pediatrics, received a **\$1.1 million grant from the Maryland Department of Health** for "State Special-STAR TRACK-EISz."

**\$1 M****Dean Mann, MD**

Professor of Pathology, received a **\$1 million contract from the National Institutes of Health's (NIH) National Cancer Institutes** for "Resource for Collection and Evaluation of Human Tissue and Cells from Donors."

Congratulations to all the awardees.





## RESEARCH

*Health Sciences Research Facility III*

# Inside HSRF III

The soaring atrium in the new research facility exemplifies the University of Maryland School of Medicine's rise to the top echelon of biomedical research institutions nationwide.



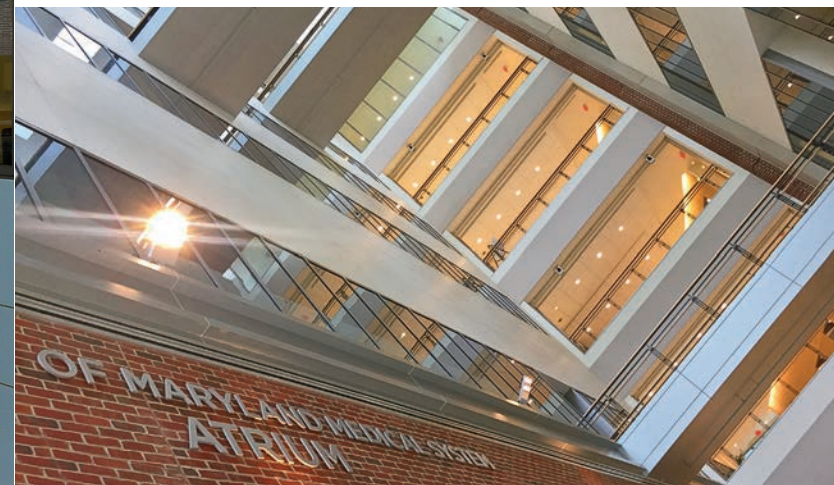
## RESEARCH

### Health Sciences Research Facility III

FLOOR UPON FLOOR OF EXCELLENCE IN BIOMEDICAL RESEARCH, INNOVATION, AND DISCOVERY



The newly named **University of Maryland Medical System Atrium**, where more than 750 people can gather. This collaborative hub will host leaders, scientists and clinicians across University of Maryland Medicine.



With 430,000 square feet, HSRF III is the largest academic building ever constructed in the University System of Maryland. It inspired this year's theme. The school broke ground on HSRF III in 2013 and this year marked record-breaking research grants and contracts.

Rising above Baltimore Street on the University of Maryland, Baltimore campus, the new faculty facility will provide room to grow for the School of Medicine's life-saving research programs, stimulate economic growth, and generate revenue for the city and state.

The new facility, the **15th research building on the UMSOM campus**, will enable us to accelerate biomedical discoveries and target the most serious diseases that cause morbidity, mortality, and disability. It will expand our footprint of academic and research space by 20 percent to nearly 2.5 million sq. ft., house more than 400 personnel, and generate an estimated \$107.4 million in annual research funding.

In all, HSRF III will support 1,128 jobs in the State of Maryland and create an estimated \$8 million in state and local government revenues.

## HSRF III OFFERS:

An open-plan laboratory facility with direct or indirect daylight in all labs, tissue culture rooms, and offices;

Mobile lab benches adjustable from 30 to 36 inches above floor, with quick ceiling disconnects for utilities;

Lab support rooms, including tissue culture and fume hood alcoves, adjacent to open wet bench labs;

"Dry lab" office block separated from the wet lab block by a six-story atrium, but easily accessed by bridges on each floor;

Multiple meeting and collaboration nooks on each floor;


Planned imaging core facility to house such high-end equipment as Prisma MRI 3 T, 11.7 Tesla 16 cm. bore small animal MRI, or 9.4 Tesla 20 cm. bore and Biograph mMR system;

A 25,000 sq. ft. vivarium with procedure rooms adjacent to animal holding space and aquatics research room.



The **James Frenkil, MD '37 and Carolyn Frenkil Seminar Room** where faculty, students, staff and community can gather and learn.




**The School of Medicine is finding innovative ways to positively impact the health of the state and beyond.**



**24%**  
 Increase of  
 clinical revenue  
 over five years

## CLINICAL CARE

Our strategic alliances enable us to achieve extraordinary success as we strive to provide high-quality, integrated healthcare not only in Baltimore, but across the state of Maryland. These clinical successes would not be possible if we did not have such an **outstanding partnership with the University of Maryland Medical System (UMMS)**, which shares our vision in finding innovative ways to positively impact the health of the citizens of our state and beyond.

### CONTINUED GROWTH IN CLINICAL REVENUE

Growth in clinical revenue plays a critical role in supporting our research and educational programs while maintaining our strong financial position. Once again, the UMSOM has kept steady growth with a 4 percent increase in clinical revenue, **generating \$344.9 million in total revenue in FY18, a 24 percent increase over the past five years.**

### NEW PROGRAM IN TRANSPLANTATION

As we continue to integrate surgical services between University of Maryland Medical Center's (UMMC) downtown and midtown campuses, **our faculty will play a pivotal role in helping us achieve optimal**

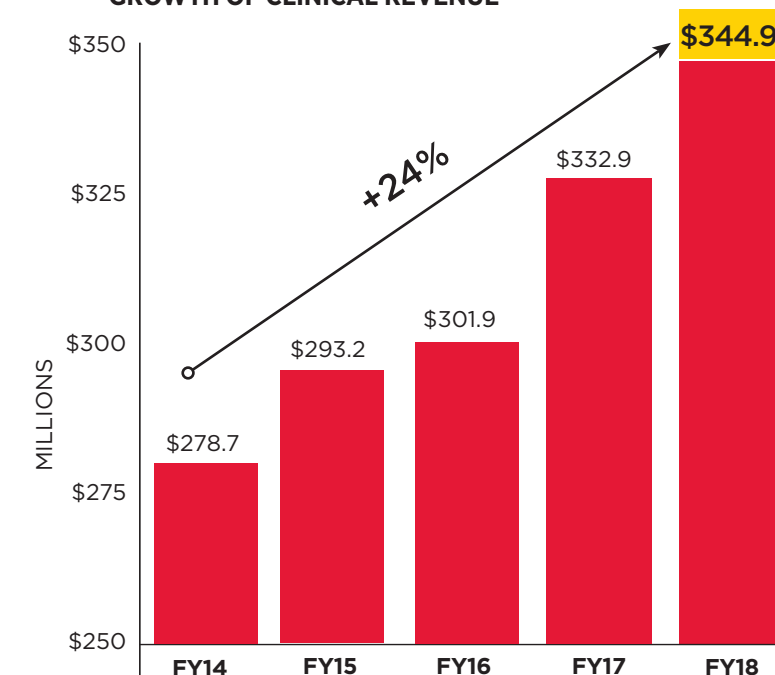


**performance in patient safety, quality, patient satisfaction, and cost management.**

In January 2018, **Stephen T. Bartlett, MD**, the Peter Angelos Distinguished Professor in Surgery and Chair of the UMSOM Department of Surgery, transitioned from his long-term service as chair of the Department to a greater role at the UMMS as Executive Vice President and Chief Medical Officer.

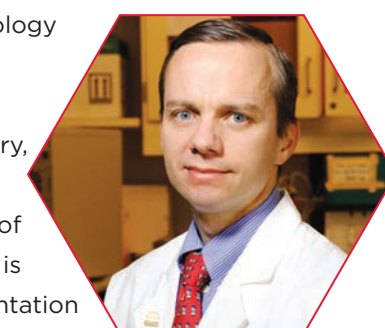
At the same time, Dr. Bartlett, who has been recognized internationally for blazing the trail in revolutionary transplant procedures, will also serve as Director of UMSOM's new Comprehensive Program in Transplantation. In this role, he will foster collaboration in clinical practice areas, with the goal of increasing quality in patient care, improving outcomes and, growing and supporting a top-tier aligned research enterprise in this field. A new framework to further integrate the Departments of Medicine and Surgery has also been created, to be led by section chiefs in

PRACTICE PLAN PERFORMANCE  
GROWTH OF CLINICAL REVENUE



Nephrology, Hepatology, Cardiology and Pulmonology.

**Rolf N. Barth, MD**, Associate Professor, Department of Surgery, who heads the Division of Transplantation and is Director of Liver Transplantation at UMMC, is closely involved in the Transplantation Program both as a surgeon and as a researcher studying novel immunosuppressive therapies, immunologic tolerance, and the use of genetically engineered animal organs for human transplantation (xenotransplantation).



**Across the U.S., more than 120,000 people are on waiting lists for organ transplants.** On February 6, 2018, **Maryland House Speaker Michael E. Busch**, led a salute to the UMMC transplant team during a session of the Maryland House of Delegates. Speaker Busch has become a forceful advocate for organ donation since last year, when one of his sisters donated a portion of her liver to him during a living-donor transplant at the UMMC.



Speaker Busch



CLINICAL CARE



FIGHTING OPIOID ADDICTION FROM BALTIMORE TO KENYA

For more than a decade, UMSOM in collaboration with UMMS, has developed a range of innovative and successful efforts to help those who are struggling with opioid addiction. These endeavors include several longstanding clinical service and research grants, as well as work on state and national committees and task forces dealing with the opioid crisis.

UMSOM faculty have received a \$1 million award from the Maryland Department of Health to develop telemedical support for clinicians using buprenorphine to treat addiction. In addition, **Christopher Welsh, MD**, Associate Professor, Department of Psychiatry, **Eric Weintraub, MD**, Associate Professor, Department of Psychiatry, along with other UMSOM clinicians, are working with the UMSOM's Institute of Human Virology (IHV) and the Centers for Disease Control and Prevention (CDC) to develop medication-assisted treatment for opioid addiction in Kenya. **The team established Nairobi's first methadone clinic, which has been operating for more than a year, and has treated more than 500 patients.**



NEW DEVICE SAVES HIGH-RISK PATIENTS WITH LIVER FAILURE

UMSOM researchers reported that Molecular Adsorbent Recirculating System (MARS®), a device that removes toxins from the blood, also can effectively provide a bridge to liver transplantation or buy time for a traumatically injured liver to heal, suggesting broader uses for the device than previously thought.

**"MARS can be likened to a dialysis machine for the liver. It essentially 'washes' a patient's blood with a solution containing albumin — normally produced by**

**healthy livers — to remove toxins such as bile acids, ammonia, bilirubin, copper, iron and phenols from the blood. In patients deemed to be good liver transplant candidates, MARS can get them to transplant with excellent survivals,"** said **Thomas M. Scalea, MD**, the Honorable Francis X. Kelly Distinguished Professor of Trauma Surgery and Director of the Program in Trauma at the UMSOM, and Physician-in-Chief at the R Adams Cowley Shock Trauma Center.

**Deborah Stein, MD, MPH**, the R Adams Cowley, MD Professor in Shock and Trauma at the UMSOM and Chief of Trauma, leads the MARS team with Dr. Scalea.



IMPROVED TREATMENT FOR HEART PATIENTS

UMSOM researchers have found that using intensivists to help treat cardiac patients improved their care, decreased the length of their hospital stays, and lowered treatment costs. While intensivists specialize in the care of critically ill or injured patients, UMMC intensivists have additional expertise in pulmonary medicine and the use of mechanical ventilators. Prior to the addition of these intensivist consultations, cardiologists were responsible for monitoring patients as well as weaning them from mechanical ventilators in the CICU.

**"When we looked at the clinical results of our intervention, we were removing breathing tubes faster and getting patients out of the CICU about two days earlier than previously,"** said

**Michael T. McCurdy, MD, FCCM, FCCP, FAAEM**, Associate Professor, Department of Pulmonary & Critical Care Medicine, and Emergency Medicine, and the study's senior author. **"Plus, we saved well over \$4 million a year in hospital costs. It was striking."**

The researchers analyzed the average length of patient hospital stays, assessed whether patients met a benchmark of 28 days of unassisted breathing, calculated costs associated with both length of stay and total hospitalization, and recorded in-hospital mortality rates.



THE GAMMAPOD™

Developed by scientists at the UMSOM, The GammaPod™ — a first-of-its kind stereotactic radiotherapy system to treat early-stage breast cancer — received clearance from the U.S. Food and Drug Administration (FDA) in December 2017, paving the way for the manufacturer to bring this system to market for the treatment of breast cancer patients.

**Elizabeth Nichols, MD**, Assistant Professor, Department of Radiation Oncology is leading efforts to advance the use of GammaPod.™ Radiation oncologists at UMMC expect to be able to offer this treatment to breast cancer patients by spring 2019.

USING GENOMICS TO IDENTIFY NEW TARGETS FOR LUNG DISEASE TREATMENTS



Every year, approximately 12 million adults in the U.S. are diagnosed with Chronic Obstructive Pulmonary Disease (COPD). For people with COPD, *Haemophilus influenzae*, can be particularly dangerous.

**Hervé Tettelin, PhD**, Associate Professor, Department of Microbiology and Immunology and member of the Institute for Genome Sciences (IGS), has teamed up with researchers from the University of Buffalo and Yale University to better understand how *Haemophilus influenzae* bacterium evolves in the lungs of people with COPD.

The team studied the genomic isolates from distinct time periods: What the isolates look like when *Haemophilus* is acquired by a patient as opposed to their appearance when they're about to be expunged from the lungs. These findings may open new avenues for therapy and treatment for people with COPD, and other disease such as ear infections and pneumonia.

**"The question we asked was why are certain strains of the bacterium so much more dangerous than others. We discovered a genetic pattern, which helps explain why certain strains are so virulent,"** said Dr. Tettelin. **"This offers key clues about what this microbe does to evolve in the lungs of people with COPD, and it may open exciting new avenues for treatments and vaccines in the future."**



NEW LABOR & DELIVERY SUITE

On September 5, 2018, the Department of Obstetrics, Gynecology and Reproductive Sciences celebrated its newest arrival in a big way. Joined by **Baltimore Mayor Catherine E. Pugh**, the leadership of the UMSOM and the UMMC, as well as an overflow crowd of well-wishers, the department officially opened its new and expanded **Labor & Delivery Suite with a ribbon cutting, reception, and tours. The \$22 million labor of love was made possible through hospital and state funding, as well as by private donations.**



Dean Reece, Mayor Pugh, Dr. Harman and Dr. Suntha at the ribbon cutting

FACULTY PRACTICE PERFORMANCE

Patient Care Statistics	FY17	FY18	Change
Total Patient Volumes (includes office, asc, and inpatient/outpatient visits)	1,297,730	1,479,097	14.0%
Admissions (UMMC only, includes newborns and trauma)	28,882	29,316	1.5%
Inpatient Surgeries (UMMC only, GOR & STC)	15,717	15,598	-0.8%
Outpatient Surgeries (UMMC only, GOR & STC)	7,750	7,336	-5.6%
Key Indicators for Billing and Collections			Change
Days in Accounts Receivable	34	33	-1 Days
% of Accounts Receivable>90 Days	17.0%	16.9%	-0.1%
Denial Rate (Initial Denials)	6.7%	5.8%	-0.9%
% of Credit Balances to AR	1.8%	1.9%	0.1%





Over the past 19 years, the School of Medicine has consistently enrolled between **50 to 60 percent women**, this year, UMSOM's number stands at **60%**

**4,851**  
UMSOM  
applications

**2,437**  
Women  
2,414  
Men

**911**  
Maryland  
residents  
3,940  
Non-Maryland  
residents

UMSOM OFFERS  
SEVEN DUAL DEGREE  
PROGRAMS:

- MD/Master in Public Health (MD/MPH)
- MD/Master in Clinical Research (MD/MSCR)
- MD/Master in Cellular & Molecular Biomedical Science (MD/MS CMBS)
- MD/Master in Biomedical Engineering (MD/MS BIOE)
- MD/Master in Business Administration (MD/MBA)
- MD/Master in Health Administration (MD/MHA)

## EDUCATION

Of the 50,907 applicants attempting to find spots in U.S. medical schools in 2018, **4,851 applied to the University of Maryland School of Medicine**. A total of 156 students, ranging in age from 21 to 33, were accepted into the Class of 2022. Seventy-four percent of the students are Maryland residents. Thirteen percent are under-represented minorities in medicine, and 60 percent are female.

The Class of 2022 came from 69 different colleges and universities, and they had an overall grade point average of 3.80 and an average MCAT score of 513, both above the national average.

### STUDENT ENROLLMENT & DIVERSITY

While 621 students comprises nearly 50 percent MD students and the other 50 percent non-MD, with the total student enrollment of 1,261, our student body also includes other degree programs in the UMSOM.

Program	2018	Diversity %
MD	621	13.5%
MD/PhD	54	18.5%
PhD	228	20.6%
Graduate (MS)	64	18.8%
Public Health (MPH)	55	29.1.8%
Physical Therapy (DPT)	186	12.9%
Genetic Counseling (MGC)	16	18.8%
Medical and Research Technology (BS&MS)	29	44.4%
Clinical Research Certificate	8	12.5%
<b>Total Enrollment</b>		<b>1,261</b>

### 2018 GRADUATES

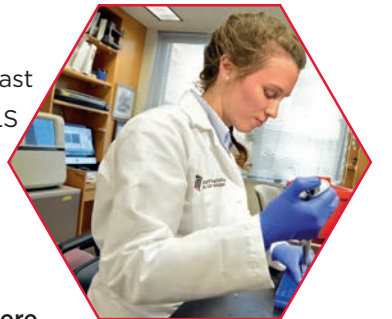


We take great pride in our graduates. In May 2018, we conferred degrees on 333 students, including 146 new physicians, 10 of whom received dual degrees. **UMBC President Freeman Hrabowski** delivered the keynote speech at the hooding ceremony for our MD graduates.

Program	2018
MD	138
MD/PhD	8
PhD	42
Graduate (MS)	34
Public Health (MPH)	21
Physical Therapy (DPT/PhD)	63
Genetic Counseling (MGC)	6
Medical and Research Technology (BS&MS)	21
Clinical Research Certificate	0
<b>Total Graduates</b>	<b>333</b>

### STUDENTS IN OUR GRADUATE PROGRAM IN LIFE SCIENCES (GPILS)

GPILS students appeared as authors in 324 publications last year, 119 of which had a GPILS student as first author. They had **grants worth \$605,686 in funding**. Among the 62 new MS and PhD students we welcomed, 58 percent were female, and 13 percent were under-represented minorities.



### MATCH DAY

Of the 142 MD graduates securing residency spots on Match Day 2018, **39 will stay in the state of Maryland for their residency training**. Match Day is when fourth-year medical students around the country learn the programs into which they have been accepted. This is an important statistic to track, since many young doctors end up setting up practice where they do their residencies, and we want to keep Maryland talent here in Maryland. With more and more students applying each year for an unchanging number of residency spots, this was the most competitive Match in the history of The National Resident Matching Program.

Our graduates placed very well though, finding spots at **69 different hospitals in 30 different states**. Internal Medicine took 22 percent of this year's matched graduates with pediatrics second at 13 percent.



### CLASS OF 2022

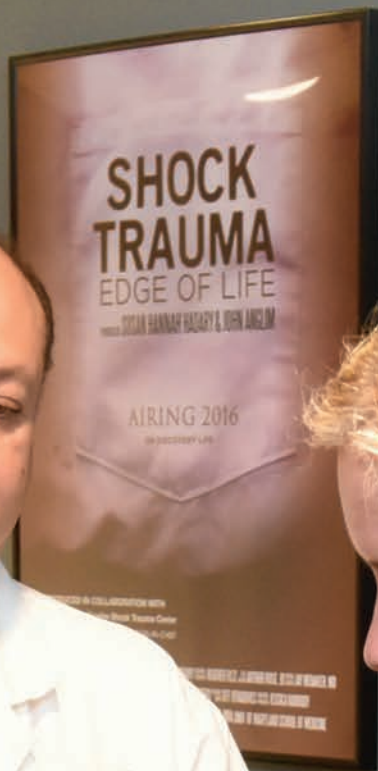
<b>Total Students</b>	<b>156</b>
Male	40%
Female	60%
Maryland Residents	74%
Non-Resident	26%
Age Range (Years)	21-33
Under-represented Minorities	13%
Colleges/Universities	
Represented	69

<b>Average GPA</b>	<b>Average MCAT</b>
Overall 3.80	513
Science 3.76	



**The School of Medicine  
strives to promote  
community impact.**

**UMB**  
President Perman  
leads multiple  
UMB initiatives  
to improve the  
health and well-  
being of our  
local community



From *ground***BREAKING** to **RECORD-BREAKING**

2018 State of the School Address

## COMMUNITY IMPACT

The University of Maryland School of Medicine in partnership with the University of Maryland Medical Center, is transforming our existing community of primary care and specialty practices into a fully integrated “medical neighborhood” to deliver the best health care for West Baltimore, and thus promote the health and well-being of its citizens.

The goal is to dramatically improve the health and well-being of the Westside 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.

A collaborative study between UMSOM, Maryland State Department of Education, and Maryland Department of Health, examined how schools across the state are doing in terms of school wellness, integrating physical activity into the classroom, and discouraging marketing of unhealthy foods and beverages.

*“Our data shows that many Maryland schools are making significant progress in this area. We think the end result will be that students are getting more physical activity and are eating more healthy foods. That’s good news for Maryland,”* said Erin Hager, PhD, Associate Professor, Department of Pediatrics, and principal author of the report.



### MINI-MED SCHOOL

Our Mini-Med School is also still going strong, with more than 200 participants registered for this year’s session. Mini-Med School for Kids was held for the 11th time this past summer with one of the largest groups ever.

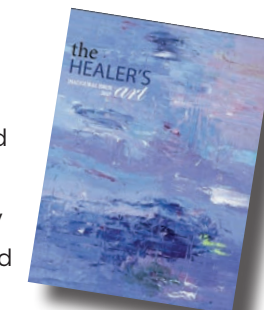
Dr. Hager along with other UMSOM faculty spent the summer teaching campers about the negative health

effects of smoking; asthma and allergies and their triggers; how to exercise safely; and nutrition through kid-friendly interactive classes held at the Boys and Girls Club facility in Franklin Square.

In addition, our fourth annual Seniors Medical Symposium — Mini-Med School designed for adult seniors — was held in April 2018. For six weeks, participants learned about recent discoveries in science and treatments in medicine from UMSOM physicians and researchers.

### CREATIVE HeARTS

Creative HeArts is a student-run arts and humanities group that features monthly workshops designed to inspire creativity and encourage reflection for medical and science students.



Last fall, the organization published its inaugural issue of *The Healer’s Art*, an annual medical humanities and literary arts journal, which features a variety of visual and expressive arts including photographs, paintings, drawings, poems, and many other creative arts created by UMSOM students and faculty.

### STOP THE BLEED PROGRAM

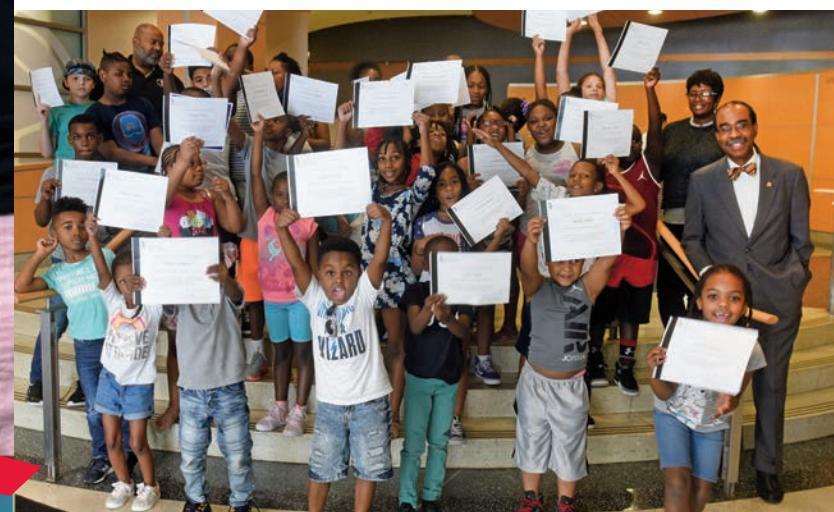
Through the national Stop the Bleed Initiative from the American College of Surgeons, physicians at the UMSOM are among the trauma center staff who teach the community how to apply pressure to a wound and pack it or even apply a tourniquet to stop the bleeding until medical help arrives.

University of Maryland, Baltimore President Jay Perman, MD, Professor, Department of Pediatrics at the UMSOM, attended a Stop the Bleed class at Shock Trauma with Dean Reece and other leaders.

### GLOBAL ENGAGEMENT

Our students are also playing an active role in service and community outreach around the world. A fourth year medical student launched a campaign to ship an ultrasound machine to a hospital in Uganda.

Furthermore, UMSOM medical students helped to raise more than \$2,500 to help victims of Hurricane Maria in Puerto Rico.







Almost half of the School of Medicine's stories this past year made national news.

231M+  
Total audience impressions

2M+  
Visitors to the UMSOM website

2,420  
Stories in news media



Governor Larry Hogan with Dr. Aaron Rapoport, Professor, Department of Radiation Oncology and Director of the new cancer laboratory.



WBAL-TV  
Baltimore Sun  
Daily Record  
WMAR-TV

Covered the University of Maryland Medicine opening of the new Fannie Angelos Cellular Therapeutics Laboratory, which will allow cutting-edge research in cancer immunotherapy. Governor Larry Hogan was among those who attended.

From *ground*BREAKING to RECORD-BREAKING



# RECOGNITION & VISIBILITY

The University of Maryland School of Medicine has had an impressive number of extraordinary things happen this year, which led to extensive media coverage. For example, **overall print and online news media coverage of University of Maryland Medicine (UMSOM and UMMS) for FY18 totaled 2,420 stories, with nearly half receiving national coverage.** Total audience impressions also increased by 12 percent to more than 231 million.

We continue to see marked increases across all social media platforms. Facebook “likes” increased from 5,076 to 5,445. LinkedIn followers increased by 6 percent to more than 11,200. Twitter activity also increased by more than 25 percent to 13,200 and Twitter followers increased to 4,509.

After ten years in development, **The GammaPod™** — a first-of-its kind stereotactic radiotherapy system to treat early stage breast cancer — received clearance from the U.S. Food and Drug Administration (FDA). This major breakthrough was one of the biggest stories of late 2017 and early 2018, generating news coverage in the *Baltimore Sun*, all the local television stations, and the *Daily Record*.

*The Guardian* newspaper in the UK did a special piece featuring **Tracy Bale, MD**, Professor, Department of Pharmacology and Director of the UMSOM Center for Epigenetic Research in Child Health and Brain Development, **new research in mice** which found links between fathers' stress level and brain development in their offspring. Dr. Bale and her colleagues have unraveled crucial genetic mechanisms behind brain development and parental physiology, which suggests that even mild environmental challenges can have a significant impact on the development and potentially the health of future offspring.

## NATIONAL NEWS: NEW DIRECTOR OF THE CDC

**Robert R. Redfield, MD**, Co-founder and Associate Director of the Institute of Human Virology, **was covered widely in national news media** when he was appointed as the new Director of the country's foremost public health agency, the U.S. Centers for Disease Control and Prevention (CDC) in March, 2018. In making the **announcement on a national news broadcast**, Health and Human Services Secretary Alex Azar said **“Dr. Redfield has dedicated his entire life to promoting public health and providing compassionate care to his patients, and we are proud to welcome him as director of the world's premier epidemiological agency.”**

2018 State of the School Address

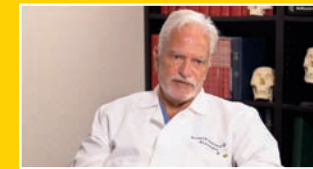
## TOP COVERAGE



*The Guardian*  
*The Economist*  
Economist podcast interview  
*The Sun*  
*New Zealand Herald*  
*Science Daily*  
*The New Telegraph*  
Dr. Tracy Bale talks about her new study, which found links between fathers' stress level and brain development in their offspring. She presented the work at the latest AAAS conference, the largest scientific meeting in the country.



*Associated Press*  
*NBC News*  
*South China Morning Post*  
Dr. Charles Hong talks about the results of a new multi-gene test that may help gauge the risk for heart disease and other elements. The AP story was picked up widely, including by the *New York Times*.



*NPR*  
Dr. Howard Eisenberg and Charlene Aldrich discuss the use of focused ultrasound to reduce essential tremor. The story was broadcasted on Morning Edition and was heard on hundreds of NPR stations.



*Baltimore Sun*  
Dr. Man E. Charurat of the UMSOM's Institute of Human Virology will lead a new \$100 million service grant to measure the impact of HIV programs in Nigeria.



*Baltimore Sun*  
*WJZ-TV*  
*FOX45*  
*WBAL-TV*  
*MSN.com*  
*Daily Record*  
*Baltimore Business Journal*  
*Maryland Public Television*  
Dr. William Regine, Dr. Elizabeth Nichols and Dr. Cedric Yu discuss the FDA clearance for the GammaPod breast cancer treatment device.



Secretary Azar and Dr. & Mrs. Redfield



# 2018 GALA

**\$20M**  
Celebrated a pledged gift from Dr. and Mrs. Robert E. Fischell, reaching over 50 percent of the School's \$550 million philanthropic goal

**1,000+**  
Guests  
  
Honorary Gala Chairs were Gloria and Ken Banks



## FINANCE & PHILANTHROPY

Of our more than \$1 billion budget, only \$47.4 million comes from the state. We value that very much, and we are always grateful for the support that they give us. However, that number doesn't come anywhere close to the yearly funds we need to operate, so we have to find other means of support. Tuition and fees contribute \$32.2 million. As for the rest, \$536.9 million comes from competitively secured grants; and \$523 million comes from reimbursements from hospital contracts and physician services.

The additional funds needed must come to us from philanthropy. These private gifts are very important, because we need those discretionary funds to make up gaps in funding. Our philanthropy dollars are typically a combination of private, individual gifts and foundation grants.

On June 30, 2018, the School of Medicine concluded FY18, during which the School secured gifts and commitments totaling \$60,544,233, which is 104 percent of its FY18 goal of \$58 million. This is an overall fundraising increase of 16 percent compared to FY17. For a third year in a row, the total amount of private philanthropy (\$42,326,304) outpaced non-government research support (\$18,217,929).

At this year's School of Medicine Gala, the UMSOM celebrated a \$20 million philanthropic gift pledge — the largest in the School's history — from long-time board members and benefactors Dr. and Mrs. Robert E. Fischell. The gift, which will be used to transform the UMSOM into a major center for bioengineering innovation, is part of Dr. Fischell's longstanding commitment to integrating the fields of medicine and engineering for the benefit of society. *"This generous gift from the Fischells will elevate the UMSOM as a national leader in making innovative discoveries and developing new medical technology in ways that will have direct benefit to patients around the world,"* said Dean Reece.

### TOP PHILANTHROPIC GIFTS

ROBERT E. FISCHELL, SCD AND SUSAN FISCHELL	\$20,000,000
JAMES AND CAROLYN FRENKIL CHARITABLE FOUNDATION/ CAROLYN B. FRENKIL	\$2,739,936
UNIVERSITY OF MARYLAND ANESTHESIOLOGY ASSOCIATES, PA	\$2,450,000
UNIVERSITY OF MARYLAND PEDIATRIC ASSOCIATES, PA	\$1,516,423
MARYLAND E-INNOVATION INITIATIVE FUND AUTHORITY	\$1,420,000
GEORGE E. GROLEAU, MD '82 AND DEBORAH F. GROLEAU	\$1,300,185
SCOTT RIFKIN, MD AND FRANCES MAIZELS RIFKIN	\$1,292,495
ANONYMOUS	\$950,000
ELIZABETH L. TSO, MD '79	\$927,909
ROBERT J. BYRNE, MD '56	\$500,000

**TOTAL \$33,096,948**

### INVESTITURE

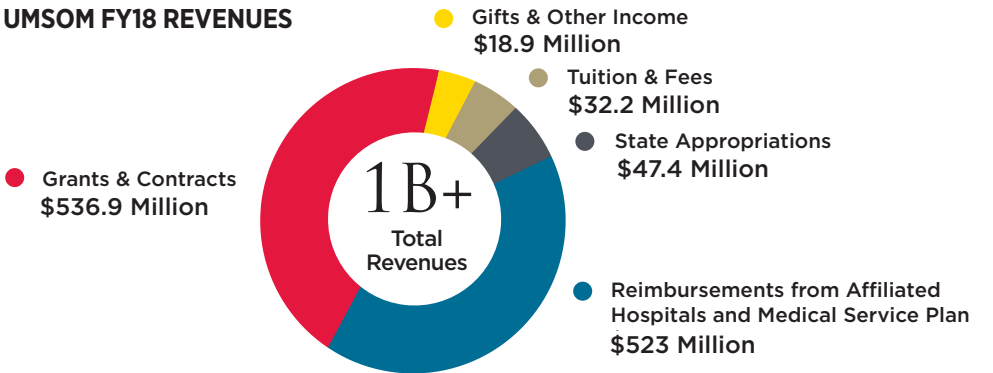
Zhongjun Jon Wu, PhD, was named the Peter Angelos Distinguished Professor in Entrepreneurial Surgical Science.



Joining Dean Reece in presenting the John B. Davidge Medal to Dr. Wu was Rajabrata Sarkar, MD, PhD, the Barbara Baur Dunlap Professor in Surgery



### UMSOM FY18 REVENUES





# LEADERSHIP & FACULTY *highlights*

**1 Clement Adebamowo, BM, ChB, ScD, FWACS, FACS**, Professor, Department of Epidemiology and Public Health and Director for Global Health Cancer Research, has been named a **2018 Fellow of the American Society of Clinical Oncology (ASCO)**. ASCO Fellows are awarded this prestigious award in recognition for their extraordinary volunteer service, dedication, and commitment to the clinical oncology association.

**2 Maureen Black, PhD**, the John A. Scholl, MD and Mary Louise Scholl, MD, Professor, Department of Pediatrics and

**3 Kathleen Neuzil, MD, MPH, FIDSA**, Professor of Medicine and Pediatrics and Director of the Center for Vaccine Development and Global Health, were honored in March by the *Daily Record* newspaper as **Maryland's Top 100 Women**.

**4 Søren Bentzen, DSc, PhD**, Professor, Department of Epidemiology and Public Health, was awarded a Gold Medal, its **highest honor, from the American Association for Radiation Oncology (ASTRO)**. ASTRO awards its annual **Gold Medal** to individuals who have made outstanding lifetime contributions in the field of radiation oncology, including achievements in clinical patient care, research, teaching and service to the profession.

**5 Wilbur Chen, MD, MS**, Associate Professor, Department of Medicine, was elected as a **Fellow by the Board of Directors of the Infectious Disease Society of America (IDSA)**. Fellowship in IDSA is a top honor for those who have achieved professional excellence and have provided significant service as an infectious disease physician and scientist.

**6 Robert Edelman, MD**, Clinical Professor, Departments of Medicine and Pediatrics, was elected as a **Fellow by the Board of Directors of the American Society of Tropical Medicine and Hygiene (ASTMH)**. This honor was awarded for his sustained professional excellence in tropical medicine, hygiene, global health, and related disciplines.

**7 Robert Ferguson, MD, MACP**, Clinical Professor, Department of Medicine, and Director of the UMSOM Professionalism Enhancement Initiative, was awarded the **2018 Dema C. Daley Founders Award by the Alliance for Academic Internal Medicine (AAIM)**.

**8 Robert Gallo, MD**, the Homer & Martha Gudelsky Distinguished Professor in Medicine, and Director, Institute of Human Virology, received the **ASI Lifetime**

**Achievement Award from the AIDS Society of India (ASI)**, at the Pioneers in Infectious Agents and Cancer meeting in Naples, Italy in March 2017. ASI conferred the prestigious honor upon Dr. Gallo in recognition of his pioneering role in advancing path-breaking HIV science over the decades.

**9 Mohit Gilotra, MD**, Assistant Professor, Department of Orthopaedics, received the prestigious **2018 Charles S. Neer Award from the American Shoulder and Elbow Surgeons (ASES)** for a clinical study that demonstrated an effective method to potentially reduce the risk of serious infection following shoulder surgery.

**10 Ana Lia Graciano, MD, FAAP, FCCM**, Associate Professor, Department of Pediatrics, was awarded the **Society of Critical Care Medicine (SCCM) Presidential Citation award**. This award honors SCCM members who have made outstanding contributions to critical care and to the mission of the Society of Critical Care Medicine.

**11 Cheng-Ying Ho, MD, PhD**, Assistant Professor, Department of Pathology, was honored in December with the **2018 Passano Foundation Clinician-Investigator Award** for Career Development from the Passano Foundation and the UMSOM.



**12 Marc Hochberg, MD, MPH, MACP, MACR**, Professor and Vice Chair, Department of Medicine, has been **inducted as President of the U.S. Bone and Joint Initiative** and will serve from June 2017 through June 2019. The United States Bone and Joint Initiative (USBJI) is the U.S. National Action Network of the Global Bone and Joint Decade, a multi-disciplinary initiative targeting the care of people with musculoskeletal conditions.

**13 Charles Hong, MD, PhD, FAHA**, the Melvin Sharoky Professor of Medicine, was **named Director of Research and Associate Chief of the Cardiology Division**. His appointment is part of UMSOM's Special Trans-Disciplinary Recruitment Award Program (STRAP), which launched in 2016 to recruit top physicians and scientists.

**14 Deanna Kelly, PharmD, BCPP**, Professor, Department of Psychiatry, was awarded the **2017 Maltz Prize for Innovative and Promising Schizophrenia Research from the Brain and Behavior Research Foundation**. The Maltz award is considered one of the top awards in the field of psychiatric disorders.

**15 Miriam Laufer, MD, MPH**, Associate Professor, Department of Pediatrics and Director of the Division of Malaria Research, was awarded the **2017 J. Tyson Tildon Award for Excellence in Pediatric Research**.

**16 David Marcozzi, MD, MHS-CL, FACEP**, Associate Professor, Department of Emergency Medicine, was **named Co-Director of the Department of Epidemiology and Public Health's Program in Health Disparities and Population Health**. In this new capacity, he will help oversee the program, which combines research, education, and service to advance health equity by addressing the critical health issues often influenced by social determinants of health.

**17 Donna Parker, MD, FACP**, Associate Dean for Student Affairs, and Associate Professor, Department of Medicine, received the **2017 Careers in Medicine Excellence in Medical Student Career Advising Advisor Award** from the Association of American Medical Colleges.

**18 Laura Pimentel, MD**, Clinical Associate Professor, Department of Emergency Medicine and Vice President and Chief Medical Officer for the Maryland Emergency Medicine Network (MEMN), was **promoted to Chief Executive Officer of the Network**.

In her new role, Dr. Pimentel will provide operational management of the community-based hospital network, and will work collaboratively with the UM Faculty Practices, Inc. (FPI), to manage the financial, business development, human resources and compliance functions of the Network.

**19 Robert Redfield, MD**, the Homer & Martha Gudelsky Distinguished Professor in Medicine, Co-founder and Associate Director of the Institute of Human Virology was appointed **Director of the U.S. Centers for Disease Control and Prevention (CDC)**.

**20 Terry Rogers, PhD**, Professor, Biochemistry and Molecular Biology, and Assistant Dean for Research Affairs, was **promoted to Associate Dean for Research Development & Administration**.

**21 Stephen Schimpff, MD**, Clinical Professor, Department of Medicine, was advanced to **mastership in the American College of Physicians**. This is a distinct honor as only about 50 fellows in the ACP are elected as Master each year from around the country out of a membership of about 150,000.

**22 Michael Winters, MD**, Associate Professor, Department of Emergency Medicine, received the **2018 Joe Lex National Educator of the Year Award from the American Academy of Emergency Medicine (AAEM)**. This is AAEM's highest honor for educational excellence and it is the third national teaching award for which Dr. Winters has been selected.



*Congratulations to all.* 



IN MEMORIAM

Stewart Greenebaum

Stewart Greenebaum, a prominent business and civic leader in Baltimore who dedicated much of his philanthropic work to supporting cancer research, treatment, and education, passed away on December 10, 2017.

Mr. Greenebaum held several key leadership positions with the University of Maryland — including past Chairman of the University of Maryland Medical System, and Chairman Emeritus and member of the Board of Advisors for the UMSOM's Institute of Human Virology. He continued to serve as an Emeritus member of the University of Maryland School of Medicine Board of Visitors, until his passing. His son, Michael Greenebaum, President of Greenebaum Enterprises, Inc., is an active member of the UMSOM Board of Visitors.

Mr. Greenebaum was perhaps best known at UM Medicine for his tireless support for cancer research, treatment, and education. He and his wife Marlene gave the founding gift for the University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center (UMGCCC) in 1994. From its beginnings, the mission of the Center was to conduct innovative basic and clinical research to impact the understanding and treatment of cancer around the world and to provide state-of-the-art clinical care to cancer patients in Maryland and beyond.



*“Stewart Greenebaum has truly been a legendary figure for both the University of Maryland School of Medicine and Medical System. We are so grateful to him and his entire family for their support over the years. He was a father figure to many of us and will be forever remembered by everyone in the School of Medicine community for his leadership and legacy of philanthropic support.”*

— Dean Reece



Edson Xavier Albuquerque, MD, PhD

**Faculty**

A Professor of Epidemiology and Public Health, Dr. Edson Xavier Albuquerque, passed away on July 22, 2018. Throughout his distinguished academic career, Dr. Albuquerque studied the effects of different toxicants, including lead and organophosphorus compounds, nerve agents and insecticides, on neuronal functions *in vitro* and *in vivo*. He researched nicotinic and glutamatergic synapses in the central nervous system, which are known to be involved in cognition, learning, and memory, as well as several pathological conditions, such as Alzheimer’s disease and epilepsy.

Dr. Albuquerque had been longtime Chair of the Department of Pharmacology at the University of Maryland School of Medicine. Most recently he served as Division Head, Translational Toxicology in the Department of Epidemiology and Public Health. He was known to those who worked with him as a preeminent scientist, colleague, friend, and someone who will be greatly missed in and outside the School of Medicine.



Mark E. Shirliff, PhD

**Faculty**

A Professor of Microbial Pathogenesis in the University of Maryland School of Dentistry and of Microbiology and Immunology in the University of Maryland School of Medicine, Dr. Mark E. Shirliff, passed away on July 12, 2018. The author of more than 120 peer-reviewed scientific papers and book chapters on pathogenic microbes, Dr. Shirliff explored their biofilm mode of growth and the chronic diseases they cause. He was known for collaboration with colleagues in multidisciplinary research, his entrepreneurship, and his mentorship.

They will be greatly missed.





Representing the unique partnership between UMSOM, UMMS and UMMC, Dean Reece tours HSRF III with UMMS President and CEO Robert Chrencik and UMMC President and CEO Dr. Mohan Suntha.

# FORGING NEW PATHWAYS FOR THE FUTURE

Together, we have made unprecedented progress during the past year. We have advanced beyond what many could have imagined would be possible.

Yet, as has been true throughout our history, we can never rest.

Enduring leaders are constantly evaluating, constantly re-inventing, constantly changing and evolving. We must keep our focus on the key mission areas as described in our strategic plan:

### In Education, our overall goal is to champion excellence in teaching and scholarship.

*We will accomplish this by:*

- Achieving educational and curricular innovation;
- Prioritizing recruitment and retention of an outstanding, highly qualified and diverse body of faculty and students;
- Valuing, recognizing and rewarding teaching activities to better encourage and inspire our educators.

### In Clinical Care, our overall goal is to promote excellence in healthcare, centered on local and global needs.

*We will accomplish this by:*

- Promoting patient-centered care and excellence at every point of care in all faculty practices and hospital settings.
- Enhancing and expanding our clinical destination programs in cancer treatment, transplantation, trauma and critical care, heart and vascular medicine, and neurological care, which attract patients from across the region and around the world;
- Establishing new clinical destination programs, reflecting our expertise and the needs of our community;
- Growing our ambulatory care capacity across the region, in response to a shift in care delivery to more outpatient and satellite patient care facilities;
- Establishing a strong population health program in West Baltimore, in partnership with the University of Maryland Medical Center, to understand and positively affect the health of our neighbors.

### In Research, our overall goal is to develop innovative medical discoveries and breakthroughs.

*We will accomplish this by:*

- Enhancing research collaboration across all academic units: departments, centers, institutes and programs;
- Promoting the growth and advancement of existing and emerging centers of clinical-translational research excellence;
- Enhancing the productivity of existing senior and junior faculty and prioritizing recruitment of new well-funded investigators;
- Enhancing the visibility of School of Medicine research and increasing philanthropic support;
- Managing the regulatory burden to reduce institutional costs and protect investigator time by developing efficient management systems;
- Identifying aspirational research goals that focus on state-of-the-art basic and clinical research, and develop new and effective interventions and therapies based on those goals.

### In Community Engagement and Impact, our overall goal is to partner to influence health at home and abroad.

*We will accomplish this by:*

- Strengthening evidence-based initiatives that address community health needs;
- Supporting our faculty members in conducting translational, community-based research that improves health outcomes and enhances the UMSOM's reputation as a national academic leader in population health;
- Enhancing the UMSOM's impact on health policy at all levels, from local to international, based on sound science.

Dr. Suntha, Dean Reece and Mr. Chrencik







## LOOKING AHEAD: A New Perspective

Just as HSRF III reaches majestically towards the sky, we now must move forward with undaunted purpose to reach even greater heights, working collaboratively to achieve a new set of milestones, which we will call ACCEL-Med 2.0:

### Research:

- Elevate UMSOM to the **top 10 percent** of all U.S. medical schools;
- Transformational **discovery and development** of major therapeutics and cures;
- Reach a “**stretch**” goal in 2019 of \$600M in total grants and contracts.

### Education:

- **Exceptional medical education** with innovation and discovery;
- **1/3** graduates with **joint degrees**;
- **1/3** graduates trained as **physician scientists**;
- All graduates competitively trained for excellent placement nationwide.

### Clinical Care:

- Become the **#1 destination of choice** for advanced/complex diseases:
  - Cancer
  - Trauma & Critical Care
  - Neuroscience
  - Cardiovascular Medicine & Surgery
  - Transplantation

### Leadership in Diversity and Community Impact:

- Seen as a **premier institution** that invests in diversity of faculty, staff and students;
- Continue to make a **significant and measurable** impact on improving local and global community health and taking on the most challenging global health issues.
- **Reducing the burden of infectious diseases:**
  - HIV/AIDS
  - Malaria
  - Influenza
  - Zika virus
- **Leader in cancer treatment and care;**
- At the **forefront of combatting health disparities.**

In the relentless pursuit of excellence,  
I am sincerely yours,

**E. Albert Reece, MD, PhD, MBA**

*Executive Vice President for Medical Affairs, UM Baltimore  
John Z. and Akiko K. Bowers Distinguished Professor and  
Dean, University of Maryland School of Medicine*



The back side of HSRF III faces Fayette Street to the north





## UNIVERSITY *of* MARYLAND SCHOOL OF MEDICINE

### **A Third Century**

*Where Discovery Transforms Medicine*

655 W. Baltimore Street • Baltimore, MD 21201

**OUR MISSION:** The University of Maryland School of Medicine is dedicated to providing excellence in biomedical education, basic and clinical research, quality patient care and service to improve the health of the citizens of Maryland and beyond.

The School of Medicine is committed to the education and training of MD, MD/PhD, Graduate (MS, MPH, PhD), Physical Therapy and Rehabilitation Science, and Medical and Research Technology students. We recruit and develop faculty to serve as exemplary role models for our students.