special edition inside: Transforming our Culture



UNIVERSITY of MARYLAND School of Medicine

SOMnews

Point of PRIDE



Lois Young-Thomas, MD UMSOM Class of 1960

Dr. Young-Thomas became the first black female to graduate from the UMSOM in 1960.

She was known for her immense social conscience and sense of social responsibility, and her particular interest in medical education.

She achieved the rank of Professor in 1980, and one of the four UMSOM House Advisory Systems, which provide academic, career, and personal support to matriculating medical students, was named in her honor.



DEAN'S MESSAGE

One of the main purposes of participating in a community such as ours is to actively celebrate together. When we celebrate, we lift each other up and honor all our individual sacrifices and successes that have combined to deliver us to our current destination. Celebration places us in a posture of gratitude, as this joyous act enables us to consider all the elements that were required to produce our desired outcomes. One of our most significant desired

outcomes includes a school-wide cultural transformation, which we have formally initiated with a program to address our need for a more respectful, inclusive, and professional environment. Academic medicine has been identified nationally as having a high risk for issues and occurrences related to discrimination, inequity, and harassment to occur, according to a report published recently by the National Academies of Science, Engineering and Medicine. Addressing these issues starts with assembling a diverse leadership team which can help guide us through this process of making real substantive cultural changes.

Several women at the School of Medicine will be promoted to executive leadership positions, including to the positions of Chief Operating Officer for the UMSOM, Senior Associate Dean for Undergraduate Medical Education, Associate Dean for Medical Student Admissions, and Associate Dean for Faculty Affairs and Culture Transformation. These new appointees will also provide strong academic and scientific leadership of the various programs and academic units within the UMSOM. I will form a "Dean's Advisory Committee on Culture Transformation" to assess progress on a regular basis and make specific recommendations for action. I also will appoint a senior-level member of my Executive Cabinet with the responsibility of overseeing a slate of new and existing initiatives that represent significant changes in all aspects of professionalism and conduct in the UMSOM culture. Finally, we have created a new "TransformMed" email box (TransformMed@som.umaryland.edu) for anyone in the UMSOM community to raise concerns, ask questions, and share ideas for the Program in Culture Transformation, or to bring issues to the attention of my Executive Cabinet or me. Let us take advantage of this opportunity to grow and excel by celebrating each other and sharing our successes as much as possible. I wish to express my own heartfelt gratitude to all our faculty, staff, trainees, students, friends, and alumni — not only for each of your roles in our amazing accomplishments, but for coming together to celebrate all of the School of Medicine's successes at this year's State of the School Address. From groundbreaking milestones to record-breaking achievements, including:

What's on My Mind...



...is the necessity of professionally respecting and honoring each other within our community through our behavior, as well as inclusively celebrating our individual and collective successes.

• Grand Opening of 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.

• Celebrating a \$20 million philanthropic gift pledge — the largest in the School's history — from longtime benefactors Dr. and Mrs. Robert E. Fischell at the School's annual gala.

• Fulfilling our 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.

• Achieving \$345 million in clinical revenues – an increase of 24 percent over the past five years.

We appropriately combined this annual event with the ribbon-cutting ceremony for the new Health Sciences Research Facility III on October 24, 2018. We enjoyed an incredible turnout of nearly 800 persons, including Governor Larry Hogan, Mayor Catherine Pugh, the members of the University System of Maryland (USM) Board of Regents, the USM Chancellor, the University of Maryland, Baltimore President, and scores of dignitaries including elected officials and business leaders. The reception in the new University of Maryland Medical System Atrium in HSRF III captured our celebrative and inclusive spirit with a classical string quartet playing to a filled room.

Thank you for continually accepting my invitations to celebrate and be thankful, and for doing everything within your abilities to provide cause to do so in the first place.

Special Edition...

SOMnews has expanded this issue to 12 pages, with more information and special sections on our Cultural Transformation, Top Grants, Research & Discovery, Clinical Care, Academic Innovations, and Community Impact.

What's Inside...

- 2 New Program in Cultural Transformation
- 4 Major Grant Awardees

6 Clinical Care: Stroke Team

8 Research & Discovery

10 Academic Innovations

11 Community Impact

• Reaching unprecedented levels in research funding — nearly \$537 million.

May you enjoy a wonderful and relaxing holiday season, and continue 0 personal, professional, and to celebrate collective achievements.

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

". allert

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



Watch the 2018 State of the School Address at:

medschool.umaryland.edu/news/2018/From-Groundbreaking-to-Record-Breaking.html

A Third Century Where Discovery Transforms Medicine 655 W. Baltimore Street • Baltimore, MD 21201

SOMnews NewProgram

Culture TRANSFORMATION INITIATIVE

UMSOM Announces Management Restructuring, Promotions and Open Door Policy

As part of a new school-wide **Program in Culture Transformation**, the University of Maryland School of Medicine (UMSOM) will launch a major restructuring of its senior leadership positions to ensure that women are represented at the highest levels of the UMSOM.

The new Program in Culture Transformation was introduced to faculty, students and staff during a multi-day "listening tour" conducted across the UMSOM community The Program will be designed to transform the UMSOM culture into a national model for a respectful, inclusive, and professional work environment.

Effective Immediately:

A Dean's Advisory Committee on Culture Transformation will be formed to assess progress on a regular basis and make specific recommendations for action;

■ A new senior-level member of the Dean's Executive Cabinet will be given the responsibility to oversee a slate of new and existing initiatives that represent significant changes in all aspects of professionalism and conduct in the UMSOM culture;

A new TransformMed email box has been created (TransformMed@som.umaryland.edu) for anyone in the UMSOM community to raise concerns, ask questions and share ideas for the Program in Culture Transformation, or for issues to be brought to the attention of the Dean or the Executive Cabinet.

Dean Reece has now launched national leadership searches and executive leadership promotions, as part of the overall Culture Transformation Initiative.



Dr. Lowitt and Dr. Parker are engaging with faculty members, such as **Erin Rada, MD**, Assistant Professor in the Department of Surgery, for input in developing the new Program in Culture Transformation.



NEW EXECUTIVE PROMOTIONS



Nancy Lowitt, MD, EdM, who is currently Associate Dean for Faculty Affairs and Chief Conflict of Interest Officer for the UMSOM, will now assume leadership for the new Program in Culture Transformation. She will spearhead a steering committee charged with developing and implementing all aspects of the Culture Transformation Program. Dr. Lowitt has already been involved in several initiatives designed to help women develop as leaders in the UMSOM. Over the past two years, she has led a series of leadership workshops for junior faculty and formed an informal working group for women faculty to discuss mentoring, work-life balance, caregiving, and individual wellness.





Donna Parker, MD, who is currently Associate Dean for Student Affairs is promoted to Senior Associate Dean for Medical Educational Programs. Dr. Parker, who received her medical degree and post-graduate training at UM, will now oversee the Office of Student Affairs, the Office of Medical Education, the Office of Admissions, and the Office of Student Research for the UMSOM. In her new role, she will provide leadership across all medical education initiatives, including planning and revision of the medical student curriculum. She will also continue her medical practice on a part-time basis as Associate Professor in Medicine.

Addressing Need for Broad Cultural Changes

According to Dr. Lowitt, the new **Program in Culture Transformation** will be developed as an academic program involving all of the departments of the UMSOM and in close collaboration with UMMC. As such, it will include a series of metrics-based initiatives to monitor progress and success in promoting leadership, professionalism, diversity, and a respectful and inclusive work environment.

Dr. Lowitt will be naming a steering committee to help guide the new Program. The Program will have particular emphasis on developing measurable initiatives and creating policies and expectations for professional conduct and consequences across the UMSOM.

"We know that our ability to provide high quality patient care, ensure patient safety, develop new devices and therapies, test new ideas, and teach our students and colleagues, depends on an environment and a culture defined by professionalism, respect and collaboration, and where all have the opportunity to contribute and to succeed."

- Dr. Lowitt

A broad "Organizational Culture Scan," conducted earlier this year by an outside consulting firm, examined the cultural climate of the UMSOM and UMMC. Key areas of focus included accountability, fair/respectful/ inclusive work environment, retaliation and retribution, appreciation/value, collaboration/teamwork, communication. The independent evaluators found strengths and identified areas that could be improved.

As a result of this assessment, the University of Maryland, Baltimore (UMB), the University of Maryland Medical Center (UMMC) and the UMSOM have collaborated over the past year to enact a series of initiatives to focus broadly on civil behavior, including the appreciation of and respect for and acceptance of others. There will be new policies and training on how to report instances of unethical and unprofessional behaviors, including sexual harassment and assault, discrimination on the basis of race, religion, national origin, and sex. The UMSOM and UMMC are working closely with UMB's Title IX Officer and a University Compliance Office on these initiatives.

Over the past year, under the leadership of Dr. Quezada, the UMSOM implemented training in "Unconscious Bias in Everyday Life" to help students, residents, faculty, and UMSOM leadership understand how unconscious bias might be impacting day-to-day decisions. The program now continues on a regular basis.

Supporting Women in Leadership Advancement

In 2017, the UMSOM implemented a leadership development workshop series that was targeted to faculty at the Associate Professor level, and another leadership development workshop series that targeted junior faculty. These workshops provided opportunities for participants to develop and practice their skills, and to take steps to becoming our next generation of leaders.

A number of women faculty leaders also have been working with Dr. Lowitt to develop and implement new initiatives for faculty regarding worklife balance and resilience, mentorship for academic promotion, and the importance of individual wellness in a culture defined by caregiving.



Under the leadership of Associate Dean for Research Career Development, **Wendy Sanders, MA**, the UMSOM has begun a new scientific leadership and professional development program for faculty, with special emphasis on women and other minorities. This program emphasizes diversity, retention and collaborative skills. The program includes sessions

on overcoming the challenges facing women and minorities as leaders, as well as providing a series of steps and strategies for leadership in a diverse scientific environment.

Collaborating on Cultural Improvements at UMMC

The UMSOM has also been collaborating with the UMMC on a number of culture initiatives. Earlier this year, a joint UMSOM/UMMC task force was formed to lead the efforts towards a culture transformation with the goal of improving communication, aligning processes, and allowing for great employee empowerment across the two institutions.

■ The "Just Culture" Initiative is a metrics-based approach to balance organizational and individual accountability while maintaining a continuous learning environment. The initiative includes mandatory intensive training at all levels of the institution's leadership with specific algorithms in place to measure effectiveness.

■ The UMMC Professionalism Enhancement Initiative was formed in 2016 to focus attention on achieving rapid follow-up of reported professionalism concerns. The initiative provides easy, confidential, and safe online reporting of any incidents of professional misconduct.

"Our goal is to unify all of these new and existing initiatives and make the implementation and measurement of these as high a strategic priority as we set for our other mission areas. In doing so, we will truly change the culture across our institution. We want everyone in our environment to feel supported and confident, and to feel free to report untoward conduct without fear of reprisals. To this end, we hope to serve as a national model for others in academic medicine." said Dean Reece.

SEEK **DIVERSITY** CREATE **INCLUSION** DRIVE **ACCOUNTABILTY**



Elizabeth Lamos, MD, is promoted to Assistant Dean for Student Affairs. She is currently serving on the staff of the UMSOM Office of Student Affairs, providing counseling and mentoring to medical students. She is also on the faculty in the Department of Medicine, Division of Endocrinology.



Sandra Quezada, MD, MS, who is currently Interim Associate Dean for Admissions is now promoted to Associate Dean for Medical School Admissions, and serves as the senior admissions officer for the UMSOM. Dr. Quezada will continue her part-time medical practice as an Assistant Professor of Medicine in the Division of Gastroenterology and Hepatology at UMSOM. James Kaper, PhD, is now promoted to Vice Dean for Academic Affairs. As Senior Associate Dean for Academic Affairs, he helped coordinate many of the existing cultural programs which helped women scientists advance in their careers. Notably, he provided academic leadership with a schoolwide team which resulted in an 8-year LCME accreditation for the UMSOM.



Mary Pooton, is promoted to Assistant Dean for Development. Ms. Pooton, who has been with the UMSOM's Office of Development since 2005, will oversee and direct all of the operational and strategic initiatives for the UMSOM Development office.



Louisa Peartree, MBA, who is currently Senior Associate Dean for Finance and Business Affairs, was promoted to Chief Operating Officer for the UMSOM. In her new role as Senior Associate Dean and Chief Operating Officer, Ms. Peartree will oversee and manage, along with her team, all of the operational, financial, facilities, and business affairs for the UMSOM.

SOMnews TopGrants

Major Grant Makers

The University of Maryland School of Medicine would like to recognize our major grant makers. The following physicians and scientists are leaders in their field and the foundation for new research discoveries transforming the UMSOM.

*Total Awards are calculated based on the awarded obligated amount, which includes both direct and indirect costs for any award. Total awards include all active awards, as of November 7, 2018, and includes the amount obligated over all years of the award. Awards are based on the data in RAVEN Coeus and include all sponsors and award types but may not include awards where the PI is the co-investigator, multi-PI, etc.



Investigators with >\$30 M total awards*

1 Manhattan Charurat, PhD, MHS

Professor of Medicine, and Division Director of Epidemiology & Prevention, Institute of Human Virology

2 Kathleen Neuzil, MD, MPH, FIDSA

Professor of Medicine, and Director of the Center for Vaccine Development and Global Health

3 Karen Kotloff, MD

Professor of Pediatrics, Division Head, Ped-Infectious Diseases and Tropical Medicine, and Associate Director for Clinical Research, Center for Vaccine Development and Global Health

4 Myron Levine, MD, DTPH

Simon and Bessie Grollman Distinguished Professor, Department of Medicine, and Associate Dean for Global Health, Vaccinology and Infectious Diseases, Center for Vaccine Development and Global Health

Investigators with >\$10 M total awards*

11 Jay Magaziner, PhD, MSHyg

Professor and Chair, Department of Epidemiology and Public Health

12 Stephen Bartlett, MD

Peter Angelos Distinguished Professor in Surgery, and Executive Vice President, and Chief Medical Officer of the University of Maryland Medical System

13 Steven Czinn, MD

Drs. Rouben and Violet Jiji Endowed Professor and Chair of Pediatrics, and Director of the University of Maryland Children's Hospital

14 Claire Fraser, PhD

Dean's Endowed Professor of Medicine, and Director of the Institute for Genome Sciences

15 Zeljko Vujaskovic, MD, PhD

Professor of Radiation Oncology, and Director of the Division of Translational Radiation Sciences

16 Jacques Ravel, PhD

Professor of Microbiology and Immunology, and Associate Director for Genomics, Institute for Genome Sciences

17 Miriam Laufer, MD

Professor of Pediatrics, Associate Director for Malaria Research, Center for Vaccine Development and Global Health

18 Gerard Slobogean, MD, MPH

Assistant Professor and Assistant Director of Clinical Research, Department of Orthopaedics

19 Robert O'Toole, MD

Hansjörg Wyss Medical Foundation Endowed Professor in Orthopaedic Trauma, Division Head of Orthopaedic Traumatology, and Chief of Orthopaedics for the University of Maryland Medical Center's R Adams Cowley Shock Trauma Center

20 Christopher Welsh, MD

Associate Professor of Psychiatry, Medical Director of the University of Maryland Medical Center's Substance Abuse Consultation Service, and Medical Director of the Maryland Center of Excellence on Problem Gambling

21 Melissa McDiarmid, MD, MPH

Professor of Medicine, and Division Head, Occupational & Environmental Medicine

22 Sharon Hoover, PhD

Associate Professor of Psychiatry, and Co-Director of the Center for School Mental Health

23 Robert Schwarcz, PhD Professor of Psychiatry

24 Deanna Kelly, PharmD, BCPP

Professor of Psychiatry, and Director and Chief of the Treatment Research Program at the Maryland Psychiatric Research Center

25 Owen White, PhD

Professor of Epidemiology and Public Health, Associate Director of the Institute for Genome Sciences, and Director of the University of Maryland Center for Health-Related Informatics and Bioimaging

26 Wilbur Chen, MD, MS

Associate Professor of Medicine, and Chief of the Adult Clinical Studies Section, Center for Vaccine Development and Global Health

5 Kevin Cullen, MD

4

Marlene and Stewart Greenebaum Distinguished Professor in Oncology, Department of Medicine, Director, Program In Oncology, and Director of the Marlene and Stewart Greenebaum Comprehensive Cancer Center

6 Michael Terrin, MDCM, MPH Professor of Epidemiology and Pubic Health

7 Robert Sheneberger, MD Assistant Professor of Family & Community Medicine, Institute of Human Virology

8 Deus Mubangizi Bazira, DrPH, MPH, MBA Assistant Professor of Medicine, Institute of Human Virology

9 Robert Gallo, MD Homer and Martha Gudelsky Distinguished Professor in Medicine and Co-Founder and Director, Institute of Human Virology

10 Sylvia Ojoo, MBChB Assistant Professor of Medicine, Institute of Human Virology



Investigators with >\$8 M total awards*

27 Mark Ehrenreich, MD

Assistant Professor of Psychiatry, and Division Director for Psychiatric Consultation, and Director of the University of Maryland/ Sheppard Pratt Psychiatry Residency Training Program

28 Peixin Yang, PhD

Professor of Obstetrics, Gynecology and Reproductive Sciences, Director of the Center for Birth Defects Research, and Deputy Director of Graduate & Postdoctoral Studies

29 Braxton Mitchell, PhD, MPH Professor of Medicine, and Vice Chair for Research, Division of Endocrinology, Diabetes & Nutrition

30 Thomas MacVittie, PhD Professor of Radiation Oncology

31 Howard Goldman, MD, MPH Adjunct Assistant Professor of Medicine

32 Terry Watnick, MD Professor of Medicine, and Director of the Baltimore Polycystic Kidney Disease Research and Clinical Core Center

33 Alan Cross, MD Professor of Medicine

34 James Gold, PhD Professor of Psychiatry

35 Horea Rus, MD, PhD Professor of Neurology

36 James Kaper, PhD Senior Associate Dean for Academic Affairs and Professor & Chair, Department of Microbiology & Immunology

37 Dean Mann, MD Professor of Pathology

38 David Pruitt, MD Professor of Psychiatry, and Division Head of Child and Adolescent Psychiatry

39 Robert Christenson, PhD Professor of Pathology

40 Alan Faden, MD

David S. Brown Professor in Trauma and Director of the Shock, Trauma & Anesthesiology Research (STAR) Center, Department Anesthesiology, and Associate Dean for Trans-Campus Research Advancement



Investigators with >\$6 M total awards*

41 Brajesh Lal, MMBS Professor of Surgery

42 Bartley Griffith, MD Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery, Department of Surgery

43 Cynthia Bearer, MD, PhD, FAAP Mary Gray Cobey Professor of Neonatology, Chief of Neonatology and Associate Chair for Research, Department of Pediatrics

44 Simeon Taylor, MD, PhD Professor of Medicine

45 Anthony Harris, MD, MPH Professor of Epidemiology and Public Health, and Division Head, Health Care Outcomes Research

46 Jonathan Bromberg, MD, PhD Professor and Vice Chair for Research, Department of Surgery

47 Maria Baer, MD

Professor of Medicine and Director, Hematologic Malignancies and Co-Leader, Experimental Therapeutics Program, Marlene

and Stewart Greenebaum Comprehensive Cancer Center

48 Vicki Tepper, PhD Associate Professor of Pediatrics, and Division Head, Immunology & Rheumatology Pediatrics

49 L. Elliot Hong, MD Professor of Psychiatry

50 Eileen Barry, PhD Professor of Medicine

51 Marcelo Sztein, MD Professor of Pediatrics, and Associate Director for Basic and Translational Research, Center for Vaccine Development and Global Health

52 Stefanie Vogel, PhD Professor of Microbiology and Immunology

53 Nancy Lever, PhD Associate Professor of Psychiatry, and Co-Director of the Center for School Mental Health

54 Shyamasundaran Kottilil, MBBS, PhD Professor of Medicine, Director, Division of Clinical Care and Research, Institute of Human Virology and Chief, Department of Infectious Diseases

5

SOMnews ClinicalCare

DEPARTMENTS OF NEUROLOGY AND NEUROSURGERY

Centering on Stroke Survival

MARYLAND'S ACUTE STROKE TEAM AMONG NATION'S BEST By any measure and at any age

By any measure and at any age, strokes are deadly serious. Currently the fifth leading cause of mortality in the nation, these "brain attacks" kill about 140,000 Americans each year — about one death every four minutes. In dollars and cents, the US loses \$34 billion annually due to stroke, when the costs of health care services, medications, and lost productivity due to long-term disability are added up.

Fortunately, for stroke sufferers throughout the state of Maryland, their best chance for survival and recovery is close at hand. The **University of Maryland Medical Center Comprehensive Stroke Center** (CSC) is nationally recognized as the premier center in the state dedicated to comprehensive care of patients with complex cerebrovascular disease and acute stroke conditions.

Due to its exceptional history of providing advanced cerebrovascular care, CSC originally was designated as the state's first certified Primary Stroke Center by The Joint Commission (TJC). Then in 2014, the center joined an elite group of medical institutions in achieving TJC's Advanced Certification as a Comprehensive Stroke Center (CSC), a new designation awarded to fewer than 130 stroke centers in the United States. The center also received a similar designation from the Maryland Institute for Emergency Medical Services Systems (MIEMSS). To become a Comprehensive Stroke Center, medical institutions must demonstrate utilization of state-of-the-art technology (including advanced imaging capabilities), 24/7 availability of specialized treatments, and staff with the unique education and competencies to care for complex stroke patients. "As a stroke center, we are leaders in Maryland," said Marcella A. Wozniak, MD, PhD, Associate Professor of Neurology and Medical Director of the Comprehensive Stroke Center. "One of our central missions here is that anyone in the state who is eligible for stroke therapies can be identified and transferred here to our CSC for treatment."



6

< Comprehensive Stroke Center team members (L to R) Dheeraj Gandhi, MBBS; Carolyn Cronin, MD, PhD; Michael Phipps, MD, MHS; Marcella Wozniak, MD, PhD; and Steven J. Kittner, MD, MPH.

Going to 'BAT' for Stroke Patients

Today, UMMC's CSC is one of the busiest in the region, receiving 1,600 calls annually from area physicians seeking consultation with faculty experts, while providing the most advanced and innovative treatments for more than 1,200 patients with neurovascular disease every year. Managing the front line of these efforts is CSC's **Brain Attack Team** (BAT), a multispecialty group created to rapidly evaluate and treat patients with vascular causes of neurological disorders around the clock, seven days a week. Staffed by board-certified faculty from multiple specialties who can provide rapid evaluation and complex lifesaving interventions for patients, BAT counts among its ranks highly skilled vascular neurologists, emergency physicians, neuro-intensivists, neurosurgeons, vascular surgeons, interventional neuroradiologists, nurses and other professionals.

BAT's patient response format is modeled after the concept of the "golden hour" pioneered at the University of Maryland's Shock Trauma Center. With two million neurons dying every minute, literally every second counts for stroke patients. In response, BAT's accelerated continuum of care can begin well in advance of a stroke patient arriving at UMMC for treatment. The team collectively works as a statewide and even national resource for primary stroke center physicians, providing both general consultation on stroke care and prehospital evaluation of stroke patients.

Those patients deemed candidates for advanced treatment at UMMC's CSC are expedited via land and air interhospital transport to the medical center, where BAT neurologists work closely with the neuro-interventional radiology team to make clinical decisions about patient treatment based on imaging diagnostics. Before and after their treatment, patient receive expert care in UMMC's 22 bed Neurological Critical Care Unit (NCCU) UMMC under the direction of **Neeraj Badjatia, MD, MS**, and staffed by 13 dedicated Advanced Practice Providers, 75 neuroscience nurses, four United Council for Neurological Subspecialties (UCNS) fellows in neurocritical care, and seven neurocritical care trained faculty from Neurology, Emergency Medicine, Anesthesiology, and Neurosurgery.

In the case of a major stroke, the therapeutic time window in which emergent care must be delivered to prevent disability or mortality has expanded. *"The efficacy of stroke treatment traditionally has fallen within a 6-hour window,"* says **Dheeraj Gandhi, MBBS,** Professor of Diagnostic Radiology and Nuclear Medicine and CSC Executive Committee Member. *"However, recent guidelines issued by the American Heart Association and American Stroke Association indicate that a mechanical thrombectomy could benefit certain acute stroke patients up to 24 hours."*

A mechanical thrombectomy involves the use of sophisticated neuro-imaging to guide physicians in threading a catheter up through a major artery to the site of the blood clot blockage in the brain. A stent then is inserted though the catheter to expand the artery's walls at the point of blockage, removing the clot and restoring blood flow to minimize the effects of the stroke. Even major strokes, which comprise 20 to 30 percent of all strokes, can be treated successfully through this relatively new and highly advanced procedure. individualized Stroke Rehabilitation Program, designed to help stroke patients recover and maximize their potential based upon their diagnosis and goals.

As it enters its fourth year in its current designation, the Comprehensive Stroke Center continues to apply the best in talent and technology to helping the victims of stroke survive.

"I'm so proud to be working at the University of Maryland. In our long-term experience with stroke and our collective clinical expertise, we are unsurpassed."

— Dr. Wozniak

THE UNIVERSITY OF MARYLAND COMPREHENSIVE STROKE CENTER

FACULTY & STAF

NEUROLOGY

John Walden Cole, MD, MS, Associate Professor of Neurology Carolyn Cronin, MD, PhD, Assistant Professor of Neurology Tara L. M. Dutta, MD, Assistant Professor of Neurology Steven J. Kittner, MD, MPH, Professor of Neurology Jose Merino-Juarez, MD, M.Phil., Associate Professor of Neurology Melissa Motta, MD, Assistant Professor of Neurology and Program in Trauma Michael Phipps, MD, MHS, Assistant Professor of Neurology Marcella Wozniak, MD, PhD, Associate Professor of Neurology

NEUROSURGERY

E. Francois Aldrich, MD, Professor of Neurosurgery J. Marc Simard, MD, PhD, Professor of Neurosurgery

INTERVENTIONAL NEURORADIOLOGY

Dheeraj Gandhi, MBBS, Professor of Diagnostic Radiology Gaurav Jindal, MD, Assistant Professor of Diagnostic Radiology Timothy Miller, MD, Assistant Professor of Diagnostic Radiology Elizabeth J. Le, MD, Assistant Professor of Neurosurgery. Stroke Rehabilitation

Peter H. Gorman, MD, Associate Professor of Neurology Glenn Joseph Kehs, MD, Assistant Professor of Neurology Robynne Melissa Braun, MD, Assistant Professor of Neurology

VASCULAR SURGERY

Rajabrata Sarkar, MD, PhD, Professor of Surgery Brajesh Kumar Lal, MD, Professor of Surgery

STAF

The ability to perform mechanical thrombectomies for stroke patients is a key requirement of a comprehensive stroke center. UMMC's CSC has four board-certified interventional neuroradiologists who are on call 24/7 to evaluate a stroke patient for mechanical thrombectomy. *"It can take less than an hour to complete this procedure,"* notes Dr. Gandhi. "In terms of recovery, 40-50 percent of patients walk out of the medical center within two to three days. It is a transformative treatment."

Extending services beyond UMMC, the CSC also offers a Rapid Care Program in which a patient can be evaluated in the Neurology Care Center usually within 24-48 hours, with a vascular neurologist collaboratively with an Acute Care Nurse Practitioner (ACNP). Patients also can receive care in an interdisciplinary clinic, staffed by social workers, stroke physicians, and advanced practice providers. And for stroke patients in recovery, the University of Maryland Rehabilitation & Orthopaedic Institute offers a comprehensive, interdisciplinary and Karen L. Yarbrough, DNP, CRNP, ACNP-BC, Clinical Director, UMMC Comprehensive Stroke Center

Chad Schrier, BSN, RN, CEN, Stroke Coordinator



To learn more about the University of Maryland Medical Center Comprehensive Stroke Center or to make an appointment with one of our physicians, please call 410-328-5803.

7

WORKING TOGETHER TO DEVELOP NEW, **RAPID-ACTING TREATMENTS FOR DEPRESSION**

In the United States, 1 in 6 people will experience clinical depression. Unfortunately, about 30 percent of patients don't respond to any of the available treatments and they all take weeks to become effective. It is these patients who will benefit most from work of Scott Thompson, PhD, Professor and Chair of the Department of Physiology, and Todd Gould, MD, Associate Professor, Department of Psychiatry. These scientists in the University of Maryland School of Medicine (UMSOM) are leading research projects individually and collaboratively that are identifying new strategies for treating patients. Both researchers use mouse models and genetic engineering to identify molecular drug targets and new medications for treating depression. Combined, they now have multiple different candidate drugs that show promise as fast-acting antidepressants at various stages of preclinical and clinical development.

Dr. Thompson studies depression at the level of the neurons and neuronal circuits. Dr. Gould studies depression and mood disorders from the standpoint of behavioral outcomes and is an expert in using rodent behavior models to study these complex psychiatric disorders. The labs' expertise and efforts are complementary.

Patients with depression suffer not only from a depressed mood, but also anhedonia. That is, they feel no pleasure from normally rewarding

experiences. Studying the brain circuits underlying reward behavior in mice has allowed the two labs to gain insights into potentially new ways to treat depressed patients. Of particular relevance are excitatory synapses that are activated by pleasurable experiences as part of reward pathways. These excitatory synapses are weakened when mice display anhedonia and are strengthened by the anesthetic drug ketamine, which is known to have fast-acting antidepressant activity, often within hours, in a majority of depressed patients. However, the use of ketamine as a fast-acting antidepressant is limited, because it causes memory and sensory disturbances and has the potential for abuse. Indeed, ketamine is used illegally as the recreational drug "Special K." The finding that ketamine has fast-acting antidepressant activity inspired both Dr. Gould and Dr. Thompson to see if they could "make a better ketamine."

Dr. Gould discovered that ketamine is metabolized into a molecule 2R,6R-HNK that has rapid antidepressant action in animals. He determined that this metabolite lacks the undesirable side effects of ketamine in mice. Together with Dr. Thompson, the molecule was discovered to directly strengthen excitatory

synapses in reward circuits. He received a 2017 Harrington Scholar-Innovator award to continue the study of 2R,6R-HNK with the goal of translating his findings into clinical trials. By collaborating with the intramural program of the National Institutes of Health (NIH), Dr. Gould will be involved in the first-in-man (phase I) clinical trial for 2R,6R-HNK and the planned phase II trials in 2019. His team has taken an approach, which does not involve the pharmaceutical industry. So far, this approach has proceeded at a fraction of the cost that it typically takes industry to develop a new drug.

Dr. Thompson took a different approach to identify fast-acting antidepressants. He reasoned that drugs that reduced an inhibitory input into the reward pathways might be effective antidepressants. By looking through the literature, he repurposed a set of compounds that could be used specifically to increase the activity only within the brain's reward circuits. Dr. Thompson's lab determined that these compounds effectively alleviated stress-induced depression behaviors in mice within 24 hours and strengthened the same neuronal connection that is strengthened by a single administration of ketamine or

2R,6R-HNK. In collaboration with Dr. Gould, they could show that these compounds produced none of the adverse effects of ketamine. Unfortunately, none of the available compounds used in the laboratory are clinically viable for development as treatments for patients. To bring this concept to clinical testing, Dr. Thompson worked with chemists at intramural program at the NIH to develop a compound with similar properties that could be patented. They then started a company, Asulon Therapeutics, to generate the capital needed to proceed toward clinical trials.

Whereas Gould's compound 2R,6R-HNK targets this synapse directly, Thompson's GABA-A-NAM strengthens this connection indirectly. Best of all, these compounds achieve this strengthening of the circuit after a single treatment without adverse effects. Although both researchers study the same disease, they are not competitors. The university encourages collaborative projects between researchers and supports diverse approaches to translating basic scientific findings into clinical practice. As Dr. Thompson states, "Whether Dr. Gould's drug turns out to be the silver bullet or whether mine does, or whether both are, doesn't matter. What matters most is that our research leads to improved treatment options for patients with depression." Î

Dr. Thompson and Dr. Gould

8

TREATMENTS FOR DEPRESSION

PSYCHOTHERAPY MEDICATIONS

- SSRIs, selective serotonin reuptake inhibitors (Prozac, Zoloft, Paxil, Celexa, Lexapro)
- SNRIs, serotonin and norepinephrine reuptake inhibitors (Effexor, Pristiq, Cymbalta)
- NDRIs, norepinephrine and dopamine reuptake inhibitors (Wellbutrin)
- Serotonin and norepinephrine receptor agonist (Remeron)
- Second-generation antipsychotics (Abilify, Seroquel)
 Tricyclic antidepressants (Elavil, Norpramin, Sinequan, Tofranil, Pamelor, Avantyl, Vivactil)
- Monoamine oxidase inhibitors (Nardil, Marplan, Parnate, Emsam)
- Experimental therapy: Ketamine, 4-chlorokynurenine, 2R,6R-HNK, GABA-A-NAM

BRAIN STIMULATION THERAPY

- Electroconvulsive therapy
- Repetitive transcranial magnetic stimulation
- Vagus nerve stimulation
- Experimental therapy: deep brain stimulation

INNOVATIVE APPROACH TO SAVING TRAUMA PATIENTS

Samuel Tisherman, MD, FACS, FCCM, Professor of Surgery, and Director of the Division of Critical Care and Trauma Education at the Program in Trauma, gave a TEDX Talk in November describing his work developing therapeutic hypothermia for treating trauma patients experiencing extreme blood loss and cardiac arrest. He is overseeing a clinical trial into an approach called **Emergency Preservation and Resuscitation** (EPR). The concept behind EPR is to use reduced body temperature (therapeutic hypothermia) to protect and preserve the body of a patient without blood flow for two hours or

longer so that, before the patient is

resuscitated, there is enough time for

transportation and bleeding to be controlled. The goal is to give emergency room doctors and surgeons more time to perform life-saving measures, so that patients survive without major brain damage and be released from the hospital to lead healthy, normal lives.

A patient who is experiencing severe blood loss and is without a pulse only has a few minutes before permanent damage occurs, especially in the brain. By reducing the patient's temperature from 96°F to 93°F, EPR extends the time doctors have to work before resuscitating the patient by 15-20 minutes. By

reducing the patient's temperature to 50°F, EPR extends the time doctors have by up to 90 minutes. This is a clear advantage for the patient and the doctors.

The EPR-CAT (Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma) trial is taking place at the University of Maryland Medical Center with the R. Adams Cowley Shock Trauma Center. The team includes cardiac surgeons and anesthesiologists, trauma surgeons and anesthesiologists, a trauma resuscitation unit, perfusionists, operating room staff, and staff from the blood bank. Patients are enrolled in the trial if they come

to the hospital without a pulse or their pulse is lost within five minutes of arrival, and their pulse cannot be restored by open-chest CPR. The patients are connected to a heart-lung machine and their body temperature is lowered with cold saline until the brain temperature is less than 60°F. Then the patients are taken into the operating room for surgery to repair the injuries that are causing the blood loss.

Given that trauma is the leading cause of death from ages 1-46 with a cost of \$671 billion every year in health care and lost productivity, EPR could be a real game changer in reducing the loss of life and poor outcomes of critically injured patients.

THE EMERGING FIELD **OF XENOTRANSPLANTATION**

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whether from one person into another or from an animal into a person, is rejection of the transplanted organ. Consequently, patients receiving transplants require immunosuppressive drugs, which have many serious complications. A benefit to the studies that Dr. Mohiuddin performs with non-human primates and pig hearts is that he is learning how to avoid organ rejection. Strategies his lab uses include manipulating the organ that is transplanted and establishing new procedures and therapeutic strategies to make the recipient's immune system tolerate the foreign tissue. The eventual goal is not only to be

able to use non-human tissue for transplants but to reduce the need for immunosuppressive medications required to prevent rejection of the transplanted tissue. Although Dr. Mohiuddin's research is specifically related to cardiac transplantation, the work also provides key information for making any type of organ transplant more successful with less reliance on immunosuppressing drugs. Since last summer, great progress has been made on the infrastructure and assembling the surgical and clinical car

team. Two new state-of-the-art

operating rooms and one intensive

Recruited to UMSOM in July 2017, Muhammad Mohiuddin, MBBS, Professor of Surgery, leads the UMSOM's Cardiac Xenotransplantation Program. The Program, funded by a \$24 million grant from United Therapeutics Corporation, is one of only two in the world. He is continuing his work using non-human primates to study how to make the transplant of pig hearts into humans successful. In the United States, there are approximately 4,000 people waiting for a heart transplant. Unfortunately, as many as 25 percent will die before a compatible organ becomes available. The ability to use hearts from animals, like pigs, could greatly increase the number of patients who receive a transplant.

One of the main hurdles in the success of any organ transplant,

care unit (ICU) are expected to be completed in the first quarter of 2019. Having these facilities onsite means that organs will not have to be transported to the patients. The patients and the donor organ will be at the same place. Cardiac surgeons and anesthesiologists, perfusionists, and ICU nurses from the clinical center represent the backbone of the program and are learning about the unique physiology related to animal to human transplants. Dr. Mohiuddin anticipates that the eventual transition from animal studies to human treatment will be a smooth one with this expert team and the program's advanced facilities.

SOMnews AcademicInnovations

PROGRAMS IN MEDICINE

Dual Degrees

W ith specialized training in seven different dual degree programs, the University of Maryland School of Medicine's (UMSOM) MD/Master's programs provides medical students with unique opportunities to explore various interests along with medicine. The MD/ Masters Programs were developed to provide medical students with advanced training in specific areas to complement and enhance their medical training and maximize opportunities after graduation.

"If you are pursuing academic medicine and applying for a residency, a dual degree definitely gives you an added advantage," said Tara Talaie, MD, a resident physician in the department of surgery. Dr. Talaie graduated from the UMSOM in May with a MD and Master of Science in Bioengineering.

"The UMSOM stands apart from other programs for a multitude of reasons," she explained. "The various dual degree programs are some of the most unique offered by any medical school. For example, the biomedical engineering masters is only offered by two medical schools in the country, one of which is UMSOM."

Offered by faculty of the A. James Clark School of Engineering, Department of Bioengineering at the University of Maryland College Park (UMCP), the MD/MS Bioengineering Program seeks to broaden the educational and research scope of medical doctors in specific bioengineering fields, including biomaterials and tissue engineering, biomedical device development, biomedical imaging, drug delivery, and clinical research.

Dr. Talaie hopes to utilize her masters in bioengineering and surgery background to do translational research for biomedical devices from

bench top to clinical trials and eventually into clinical use.

Students can apply to any of these programs though the application to the School of Medicine and also after they have matriculated as an

"There is a strong support system here that allows a student to successfully pursue their interests, whatever they may be,"

- Dr. Talaie

MD-only candidate.

MD/Master's Dual Degrees 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)

UNIVERSITY of MARY SCHOOL OF MEDICINE

- MD/Master in Biomedical Engineering (MD/MS BIOE)
- MD/Master in Business Administration (MD/MBA)
- MD/Master in Health Administration (MD/MHA)
- MD/Master in Public Policy (MD/MPP)

For more information about the UMSOM MD/MS dual-degree programs contact Rick Matterson, PhD, Dual Degree Program Director at dualdegreeprogram@som.umaryland.edu

CLASS OF 2022

First-Year UMSOM Students Receive Their White Coats During Ceremony

The UMSOM held its annual White Coat Ceremony on November 1 at the Hippodrome Theatre in downtown Baltimore.

The White Coat Ceremony has been an annual tradition at the School of Medicine since 1997. During this event, first-year UMSOM medical students are presented their first white coats, which have long been the symbol of physicians and scientists induction into the medical profession.

The coats were put on first-year medical students by School of Medicine house leadership faculty to welcome their new colleagues to the profession of medicine. After being "coated," students recited a Code of Honor acknowledging their acceptance of the obligations of the medical profession.



Presentation Prowess: UMSOM Surgery Residents Share Their Research at ACS Clinical Congress

For the six residents from the UMSOM's General Surgery Residency Program, it was a high point in their budding careers. Through a highly selective review, all were recently invited to present their research at October 2018's annual American College of Surgeons (ACS) Clinical Congress, a premier gathering of the best and brightest in surgery. The ACS Clinical Congress brings together the nation's leading surgeons as well as surgery residents and medical students for named lectures, panel presentations, cutting-edge scientific sessions, and discussions on the latest advances in surgical practices.

UMSOM General Surgery Residency Program presenters were:

Brittany Aicher, MD, PGY2 Research Resident (Oral Presentation) - A Role for Low Density Lipoprotein (LDL) Receptor Related Protein 1 (LRP1) in Vessel Wall Homeostasis.

Laura DiChiacchio, MD, PGY2 Research Resident (Poster) - Predicting Thrombotic Events in Venovenous Extracorporeal Membrane Oxygenation: Low Flow or Inadequate Anticoagulation?

Ali Khalifeh, MD, PGY4 Resident (Poster) - Radial Artery Access for Peripheral Endovascular Interventions: A Safe Feasible and Versatile Approach.



< Brittany O. Aicher, MD, a PGY-2 Research Resident in General Surgery, recently presented her study at the 2018 American College of Surgeons (ACS) **Clinical Congress.**

Jara Jalaie

Student

Nicole Shockcor, MD, PGY2 Research Resident (Oral Presentation) - Removing and Reconstituting Bone Marrow Elements Disrupts Vascularized Composite Allograft Survival.

Philip Wasicek, MD, PGY3 Resident (Oral Presentation) - A Structured Remediation Program Improves American Board of Surgery In-Training Exam (ABSITE) Performance and has a Durable Effect.

Eric Wise, MD, Recent Program Graduate (Poster) - Thirty-day Adverse Outcomes After Laparoscopic Sleeve Gastrectomy and Roux-en-Y Gastric Bypass may be Increased in the National Expanded Body-Mass Index Criteria Cohort.

10

Community Impact

PUBLIC HEALTH

Students Triumph in Public Health Challenge

Six students from the University of Maryland, Baltimore (UMB) showcased the importance of interprofessional education (IPE) as they received the grand prize at the sixth annual DC Public Health Case Challenge at the National Academy of Medicine (NAM) in October.

The challenge, aimed at promoting interdisciplinary, problembased learning, asks student teams from DC area universities, with representation from at least three disciplines, to find a solution to a current public health issue present in the Washington community. This year's real-world issue was "Reducing Disparities in Cancer and Chronic Disease: Preventing Tobacco Use in African American Adolescents."

The UMB's IPE team included six students from four professional schools, with two Science Training for Advancing Biomedical Research Post-baccalaureate Research (STAR-PREP) fellows from the University of Maryland School of Medicine (UMSOM) — McMillan Ching and Dominique Earland.

Through research and development, the scholars formulated a single proposed solution titled "D.C. Health Passport Program," a multilevel advocacy and empowerment initiative targeting middle school students and their families in Wards 7 and 8. The passport itself is an incremental goal-setting tool designed to encourage healthy behavior choices by engaging students through athletics, health education and the arts, while also connecting families with critical resources.

The scholars worked under the guidance of **Greg Carey**, **PhD**, Associate Professor, Department of Microbiology and Immunology and Director of Student Research and Community Outreach along with



several UMB faculty advisors, including Laundette Jones, PhD, Assistant Professor, Department of Epidemiology and Public Health, and Associate Director of STAR-PREP, and Lauren Levy, JD, MPH, Managing Director of the Law and Health Care Program for the UMSOM.

The UMB team's proposal was declared the winner on October 15 at the NAM Annual Meeting, which included a \$2,500 grand prize.

"The students were passionate and excited about tacking the realworld problem. Their solution to the case certainly has potential real-world applications and implications, and we are so very proud of our young scholars," said Dr. Carey.

18TH ANNUAL

Mini-Med School Program

Since 2001, the UMSOM has extended free health screenings and medical education to nearly 8,000 Marylanders of all ages, from elementary school students to their grandparents, through its Mini-Medical "Mini-Med" School programs. The concept of the mini-medical school was pioneered by the National Institute of Health — a community outreach project designed to educate local participants on today's healthcare issues, thus enhancing the community's understanding of the worlds of medicine and science.

The UMSOM's Mini-Med students cover a wide spectrum of professions, including health care professionals, researchers, teachers, and community leaders. Our Mini-Med School programs also reach retirees,

Last year, Baltimore City saw 692 opioid-related deaths — the highest overdose fatality rate of any city in the United States. The UMSOM has been a pioneer in using evidence-based approaches to combat the opioid epidemic through clinical treatment and education. On November 6, **Andrew Forest, PharmD,** Clinical Pharmacy Specialist, from the University of Maryland Medical Center, conducted an opioid overdose response training session where he demonstrated how to safely administer naloxone, a medication designed to reverse the effects of an opioid overdose, namely slowed or stopped breathing, in the case of an suspected overdose. Participates received their own sample of NARCAN, a nasal form of naloxone, at the end of the session.

high school seniors, college students, and children.

Now in its 18th year, over 250 members from the community registered for the fall Mini-Med School program, which ended with a graduation ceremony on November 13. This year's program included a collection of educational sessions on the topics of hypertension, exercise, nutrition, bleeding emergencies, stress, genomics and alcoholism, and a special presentation on social justice.



Faculty presenters also included **Wallace Johnson, MD**, Assistant Professor of Medicine; **Laundette Jones, PhD**, Assistant Professor of Epidemiology and Public Health; **Maureen Black, PhD**, John A. Scholl, MD and Mary Louise Scholl, MD Professor in Pediatrics; **Vincent Conroy, PT, DScPT**, Assistant Professor of Physical Therapy & Rehabilitation Science; and **Chamindi Seneviratne, MD**, Assistant Professor of Psychiatry, Institute of Genomics Science.

"I have been coming to Mini-Med School for over 15 years, and I always learn something new every year," said one participant.

< Habeeba Park, MD, Assistant Professor of Surgery, presented an education session on bleeding emergencies for Mini-Med School on October 23.

> Mini-Med students learning how to "Stop the Bleed" with Dr. Park.



Nov/Dec 2018 Vol.20 No.10

SOM*news*

"When we give cheerfully and accept gratefully, everyone is blessed." - MAYA ANGELOU



IN THE SPIRIT OF THE SEASON, WE WANT TO EXPRESS OUR SINCEREST GRATITUDE TO OUR ENTIRE ACADEMIC COMMUNITY, FRIENDS, SUPPORTERS, AND DONORS.

29th Project Feast Feeds 400+ homeless and needy individuals



he Project Feast Fund supports an annual volunteer project by University of Maryland School of Medicine students that is now in its 29th year. The students organize Project Feast to provide Thanksgiving dinner to Baltimore's underprivileged communities. Each year, students feed about 400 homeless and needy individuals at Booker T. Washington Middle School in Baltimore, an outreach effort that demonstrates the connection UMSOM students feel with their local community.

The event is sponsored by the University Student Government Association, the Medical Alumni Association, Hungry Harvest, and the School of Medicine Student Council.

For more information, please contact Project Feast at projectfeastumb@gmail.com.

Join us for our 30th year in 2019!

SOMPride

AND OBESITY IN V

With diabetes and obesity continuing to escalate at alarming rates in the United States, particularly among women, a new book has been published that provides the most comprehensive, expert coverage of this urgent topic to date

The book, Diabetes & Obesity in Women: Adolescence, Pregnancy and Menopause (Wolters Kluwer), is authored by two of the leading senior academic physicianscientists in the field of diabetes and obesity -

E. Albert Reece, MD, PhD, MBA, who is Executive Vice President for Medical Affairs, UM Baltimore, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean of the University of Maryland School of Medicine; and Donald R. Coustan, MD, who is Professor Emeritus in the Department of Obstetrics & Gynecology at the Warren Albert Medical School of Brown University, as well as



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Nov/Dec 2018 Vol.20 No.10

Attending Maternal-Fetal Medicine Specialist Emeritus at Women and Infants Hospital of Rhode Island, Providence, RI

The release of the book was timely, as the NIH's National Institute of Diabetes and Digestive and Kidney Diseases has designated November as National Diabetes Month. In particular, this year, the National Diabetes Education Program's theme was: Promoting Health After Gestational Diabetes. Gestational diabetes is a type of diabetes that develops during pregnancy.

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E. Albert Reece, MD, PhD, MBA Executive Vice President for Chris Hardwick, Executive Editor Tom Jemski & Mark Teske, Photos

Dave Beaudouin, Oriyomi Dawodu Lisa Morris & Joanne Morrison, **Contributing Writers** Kris Rifkin, Design







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