



# WE ARE UMB

## **FY 2022 Operating Budget Testimony** to the Maryland General Assembly

PRESENTED BY

**Bruce E. Jarrell, MD, FACS**

President, University of Maryland, Baltimore

March 2021





The University of Maryland, Baltimore (UMB) is committed to improving the human condition through leadership in education, research, clinical care, and public service.

We train the professionals who secure the health and well-being of Maryland's citizens and who promote the rule of law. We create the knowledge that cures disease and strengthens communities locally and globally. We develop the practitioners and innovators who drive discovery and fuel economic growth.

In 2020 especially, we have risen to the challenges facing Maryland and the country. From seeing and treating patients to developing culturally responsive COVID-19 education materials and assisting with legal issues, the UMB community is leading in the response to the pandemic.

I am grateful to Gov. Larry Hogan and the Maryland General Assembly for their continued support of UMB as we strive to keep Maryland strong. In the pages that follow, you'll see some of the ways in which UMB is researching solutions, expanding efforts to train Maryland's workforce, invigorating its economy, and providing exceptional care and counsel to citizens across the state.

We remain eager to work with you in building Maryland's future — one shaped by knowledge, innovation, and, always, care for each other.

Sincerely,

A handwritten signature in black ink that reads "Bruce E. Jarrell". The signature is fluid and cursive.

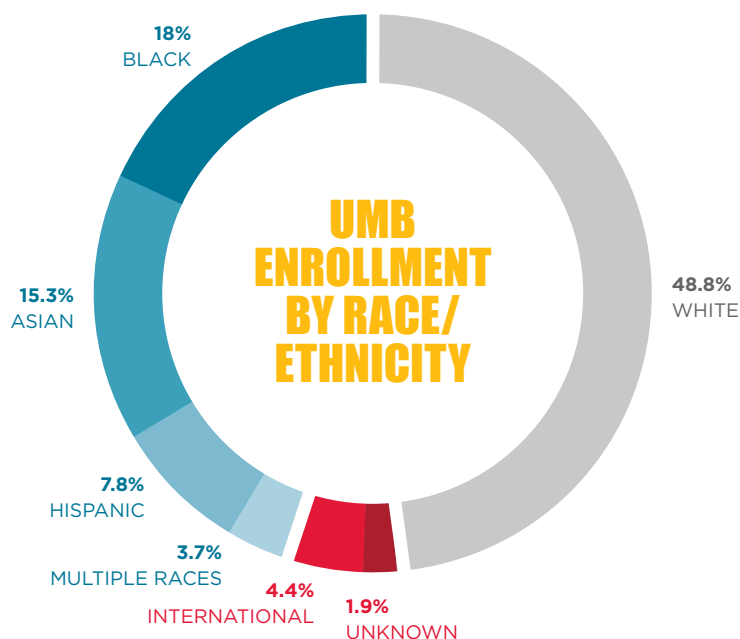
**BRUCE E. JARRELL, MD, FACS**  
*President*

# 7 SCHOOLS

DENTISTRY | GRADUATE | LAW | MEDICINE | NURSING | PHARMACY | SOCIAL WORK



**6,975** FACULTY AND STAFF  
**7,137** STUDENTS



**80** DEGREE AND  
CERTIFICATE PROGRAMS



**69%**

IN-STATE STUDENTS



**45%**

MINORITY STUDENTS



**53%**

SHARE OF MARYLAND'S  
PROFESSIONAL PRACTICE  
DOCTORAL DEGREES  
CONFERRED BY UMB

**17,368** JOBS  
CREATED

**\$3 BILLION** TOTAL  
IMPACT ON MARYLAND'S ECONOMY

**\$159.9 MILLION** STATE  
AND LOCAL GOVERNMENT REVENUES

**\$13** UMB'S RETURN ON  
INVESTMENT FOR  
EVERY \$1 OF STATE SUPPORT

**\$1.2 BILLION** TOTAL UMB  
REVENUE

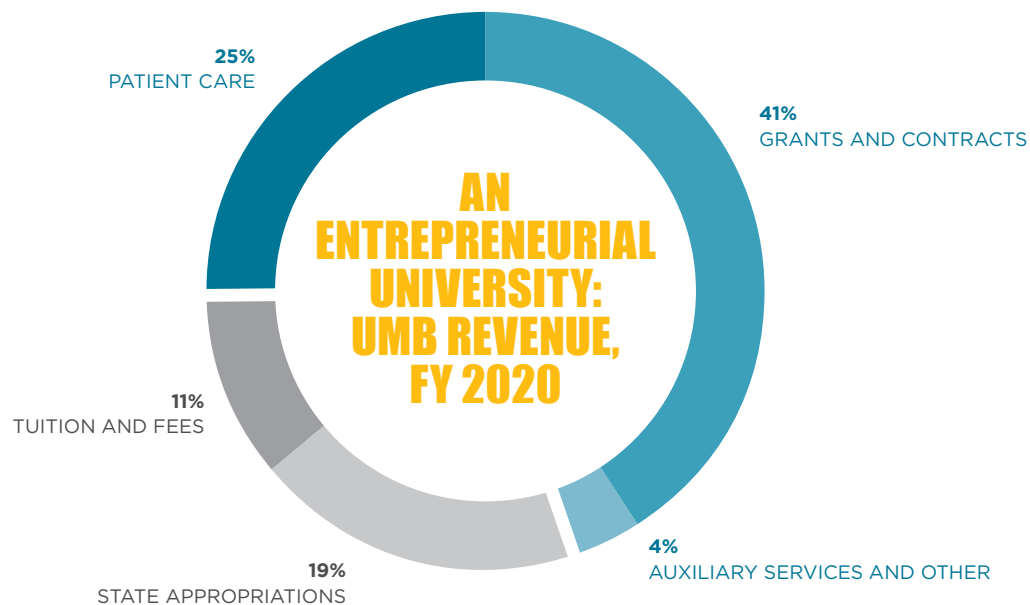
**\$687.7 MILLION** GRANTS AND  
CONTRACTS

**\$1.5 MILLION** GRANTS AND CONTRACTS  
PER CORE FACULTY MEMBER

**69%** SHARE OF REVENUE GENERATED  
BY ENTREPRENEURIAL ACTIVITIES

**\$7.9 BILLION** TOTAL IMPACT ON  
MARYLAND'S ECONOMY  
(with the University of Maryland Medical Center  
and affiliated physician practices)

*All data: FY 2018 except grants and contracts (FY 2020)*



UMB generates 69 percent of its revenue through entrepreneurial activities: grants and contracts, patient care, and auxiliary services.

In-state students comprise 69 percent of UMB's overall enrollment. Many of our graduates are the state's front-line practitioners, tackling Maryland's greatest challenges in health, law, and human services.

## PROFESSIONAL PROGRAM ENROLLMENT BY RESIDENCY

DEGREE PROGRAM	TOTAL ENROLLMENT	IN-STATE STUDENTS
Dentistry—DDS	522	73%
Law—JD	658	60%
Medicine—MD	622	80%
Nursing—BSN	853	92%
Nursing Practice—DNP	645	88%
Pharmacy—PharmD	479	78%
Physical Therapy—DPT	200	84%



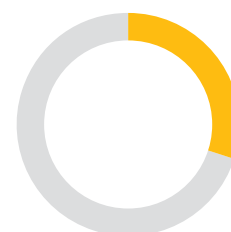
**PROFESSIONAL PRACTICE  
DOCTORAL DEGREE**  
76% IN-STATE  
TOTAL ENROLLMENT:  
3,126



**MASTER'S DEGREE**  
62% IN-STATE  
TOTAL ENROLLMENT:  
2,456



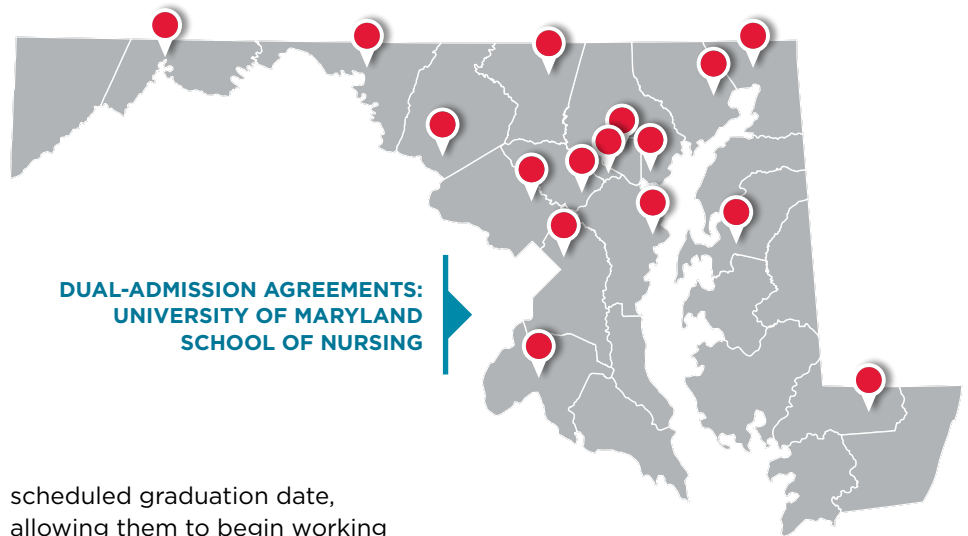
**BACHELOR'S DEGREE**  
92% IN-STATE  
TOTAL ENROLLMENT:  
898



**DOCTOR OF PHILOSOPHY**  
30% IN-STATE  
TOTAL ENROLLMENT:  
489

### UMB EDUCATES MARYLAND'S NURSING WORKFORCE

UMB's School of Nursing (UMSON) has dual-admission agreements in place with all 15 community colleges across Maryland that offer an Associate Degree in Nursing, allowing students to transition seamlessly from their two-year program into UMSON's BSN program. In response to the COVID-19 pandemic, the school twice approved an early-exit option (in May and in December) for entry-into-practice students to exit UMSON in advance of their



**DUAL-ADMISSION AGREEMENTS:  
UNIVERSITY OF MARYLAND  
SCHOOL OF NURSING**

scheduled graduation date, allowing them to begin working as nursing graduates in an effort to bolster the nursing workforce. This provided much-needed support for the state as we faced the spring and fall surges.

### GROWING MARYLAND'S PRIMARY CARE WORKFORCE

Within the next few years, it is predicted the United States will need as many advanced practice professionals in the workforce — e.g., nurse practitioners, physician assistants (PAs) — as we need physicians. Educating the next generation of advanced practice professionals has never been more important. But we are being limited by a lack of experienced educators and high rates of faculty turnover, particularly in PA programs — a crisis only expected to worsen.

UMB therefore is leading an innovative workforce initiative called the Physician Assistant Leadership and Learning Academy (PALLA). Founded in 2019, PALLA supports the development of the PA faculty workforce across the state of Maryland. We focus our efforts in four areas:

- Developing a pipeline of diverse faculty who can prepare future generations of PAs to provide cutting-edge treatment and socially responsible care

- Advancing clinical education to ensure future PAs are prepared with the technical and communication skills they will need in practice
- Supporting PA programs in quality improvement and compliance so that the programs can produce the best outcomes and stay accredited
- Amplifying the scholarly voices of PAs so they can share their knowledge with the world

Led by an interprofessional group of experienced educators, PALLA has developed a regional PA training network to serve the Eastern Shore, Western Maryland, and Central Maryland. By partnering with local programs in these areas — including those in planning with the University of Maryland Eastern Shore, Frostburg State University, Towson University, and the Community College of Baltimore County — we'll do more than increase Maryland's PA workforce. We'll also retain these professionals in high-need regions, because students trained in their home communities are more likely to practice there.

Every year, UMB provides \$40 million in uncompensated care and more than 2 million hours of service to citizens throughout Maryland.

### DENTAL CARE

The Biomedical Sciences and Engineering (BSE) Education Facility at the Universities at Shady Grove (USG) in Rockville includes a dental facility. The University of Maryland School of Dentistry's (UMSOD) facility is expected to provide oral health care to 3,000 to 4,000 patients, many of whom are underserved and eligible for services on a reduced-fee basis. The suite of 24 dental chairs and adjoining operatory facilities will enable UMSOD to provide comprehensive dentistry for adults and children, with treatment by UMSOD postdoctoral dental residents, dental students, and dental hygiene students under faculty supervision. Because of the COVID-19 pandemic, student clinical rotations were placed on hold when the facility closed March 13, 2020. The Clinical Dental Hygiene leader program launched simulation instruction in August 2020. The dental facility reopened for patient care Dec. 7, 2020, offering services to new and existing patients.

UMSOD provided uninterrupted emergency dental services to patients within Maryland, allowing hospital emergency departments to focus on providing care to patients with COVID-19. In addition, UMSOD adopted technologies like high-speed aerosol evacuation, HEPA filters, and safety protocols that allowed the school to safely resume clinical instruction and patient care well in advance of other dental schools.

### ROAR CENTER

The Rebuild, Overcome, and Rise (ROAR) Center at UMB is a “one-stop-shop” in Baltimore City where victims of crime, whom we call survivors, can access wraparound services including legal, social work, nurse care management, and therapy. We

assist people of all ages, races, gender identities, and income levels. The ROAR Center aims to co-create with survivors a community where people who experience crime or systemic injustice are empowered to achieve their own sense of justice, healing, and well-being.

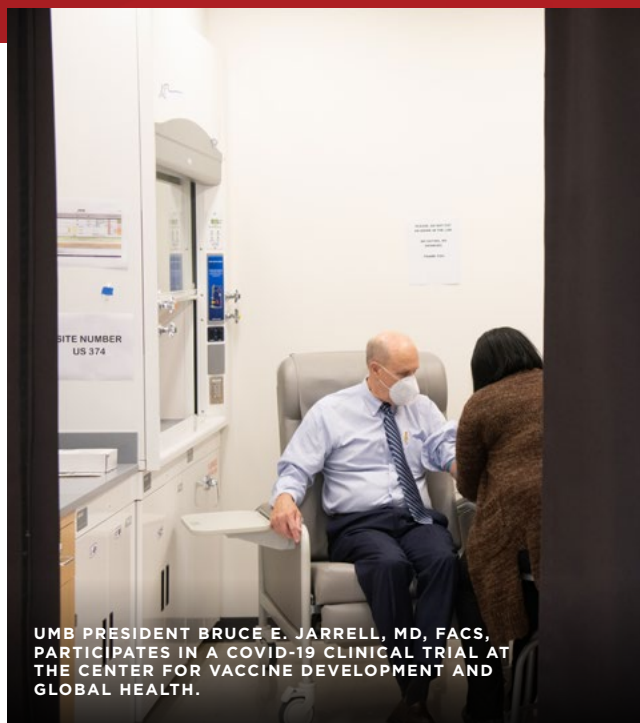
Administered by the University of Maryland Francis King Carey School of Law, the ROAR Center is a collaborative project established to build upon the vast expertise and deeply rooted community connections of UMB through collaboration with the six UMB professional schools — dentistry, law, medicine, nursing, pharmacy, and social work — and community-based organizations to provide expertise and services to the clients of the ROAR Center and broader Baltimore City communities.

### PHARMACY

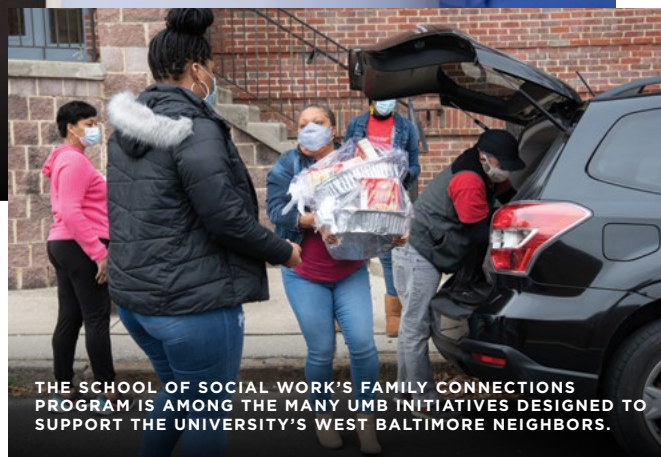
In 2019, the University of Maryland School of Pharmacy launched the first graduate program in the nation dedicated to the study of medical cannabis. The Master of Science in Medical Cannabis Science and Therapeutics aims to provide students with the knowledge and skills needed to support patients and the medical cannabis industry, add to existing research in the field, and develop well-informed medical cannabis policy. It aims to meet the needs of all individuals interested in advancing their knowledge about medical cannabis, including health care professionals such as physicians, nurses, and pharmacists; scientists and regulators; growers and dispensary owners; and policy and industry professionals.

Based at the Universities at Shady Grove in Rockville, the two-year program blends online learning with face-to-face experiences and is designed for any individual who has completed their undergraduate degree and is interested in pursuing a career in the medical cannabis industry. There are 384 students enrolled in the program.





UMB PRESIDENT BRUCE E. JARRELL, MD, FACS, PARTICIPATES IN A COVID-19 CLINICAL TRIAL AT THE CENTER FOR VACCINE DEVELOPMENT AND GLOBAL HEALTH.



THE SCHOOL OF SOCIAL WORK'S FAMILY CONNECTIONS PROGRAM IS AMONG THE MANY UMB INITIATIVES DESIGNED TO SUPPORT THE UNIVERSITY'S WEST BALTIMORE NEIGHBORS.

## PROTECTING MARYLAND'S UNDOCUMENTED RESIDENTS

When the U.S. Department of Justice cracked down on illegal immigration and there was a commensurate rise in the detention and deportation of undocumented residents, the University of Maryland Francis King Carey School of Law expanded its Immigration Clinic, making it possible to help a larger number of people in urgent need of assistance.

Under the supervision of licensed attorneys, students in the clinic represent individuals fleeing persecution in their homelands and seeking asylum in the United States, those in danger of being deported because of criminal convictions, and those who have been victims of domestic violence or other crimes.

## EXPANDING ACCESS TO SOCIAL SERVICES

The Institute for Innovation and Implementation at the University of Maryland School of Social Work supports state and local governments and organizations in implementing and sustaining effective systems and clinical practices that promote system of care values and best meet the needs of children and youth involved in the public systems and their families.

The Institute is establishing a National Quality Improvement Center on Family-Centered Reunification (QICR). The intent of the project is

to work with five to seven public child welfare sites nationally to identify, assess, and implement promising and evidence-based practices that address the individual and collective needs of birth families with children in foster care. These sites will be identified through an application process to launch in spring 2021. The interventions implemented through QICR will support successful reunification of families by preserving, nurturing, and strengthening parent-child relationships and supportive community connections and resources including the meaningful engagement of birth parents, foster families, youth, alumni of foster care, and other stakeholders.

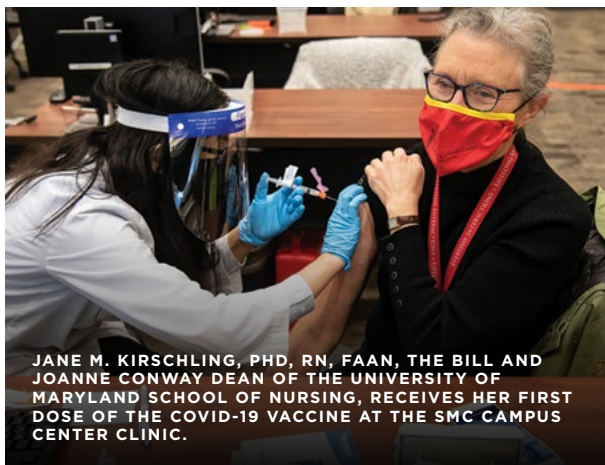
## HELPING MARYLAND AND THE COUNTRY CONFRONT COVID-19

UMB's dedicated health care workers, first responders, and other essential employees are risking their lives every day in the fight against the COVID-19 pandemic. They are treating patients, connecting those in need with resources, and reminding folks to take care of their mental health.

Kathleen Neuzil, MD, MPH, director of the University of Maryland School of Medicine's (UMSOM) Center for Vaccine Development and Global Health, is a co-director of the COVID-19 Prevention Network, which brings together experts from National Institute of Allergy and Infectious Diseases (NIAID)-supported clinical research networks to fight COVID-19. UMSOM researchers became among the first in the United States to begin testing experimental COVID-19 vaccine candidates developed by Pfizer-BioNTech and Moderna. In early 2021, researchers were involved in a Phase 3 clinical trial of an investigational COVID-19 vaccine developed by Maryland-based Novavax and were due to begin research into pediatric COVID-19 vaccines.

UMB and UMSOM launched a large-scale COVID-19 testing initiative in April 2020 that significantly expanded testing capability in Maryland and has been hailed as an unprecedented success. The effort is a unique collaboration between UMSOM's Institute for Genome Sciences and University of Maryland Pathology Associates, with support from the Maryland Department of Health. As of Feb. 25, 2021, the initiative had successfully performed more than 740,000 COVID-19 tests throughout the state.

Over the past several months, the laboratory has averaged about 100,000 tests per month with a turnaround time between 12 and 24 hours, and it has the capacity to process 10,000 tests per day if needed. Recently, the lab has leveraged its more than 20 years of experience in genomic sciences by supporting the state of Maryland with its COVID variants genomic surveillance.



JANE M. KIRSCHLING, PHD, RN, FAAN, THE BILL AND JOANNE CONWAY DEAN OF THE UNIVERSITY OF MARYLAND SCHOOL OF NURSING, RECEIVES HER FIRST DOSE OF THE COVID-19 VACCINE AT THE SMC CAMPUS CENTER CLINIC.

### MARYLAND E-NOVATION: RECRUITING AND RETAINING TOP EXPERTISE

UMB received \$2.3 million in awards to fund four research professorships through the Maryland E-Nnovation Initiative Fund. UMB raised private funds for each chair with the Department of Commerce approving matching grants to support the endowments.

Lishan Su, PhD, was named the Charles Gordon Smith Endowed Professor for HIV Research, and he will lead basic and applied research in HIV/AIDS and other virally linked diseases as well as vaccine development. Dr. Su was recruited by the Institute of Human Virology (IHV) at the University of Maryland School of Medicine (UMSOM) to become its director of the Division of Virology, Pathogenesis, and Cancer. He has an appointment in UMSOM's Department of Pharmacology.

Peter B. Crino, MD, PhD, who chairs the Department of Neurology at UMSOM, was awarded the Dr. Richard and Kathryn Taylor Professorship in Neurology. Dr. Crino was actively being recruited by numerous academic medical institutions, and the endowed professorship allowed the medical school to retain him. This will give him dedicated time to foster innovation and discovery in the field of translational neurosciences with a focus on new applications toward clinical use and potential commercialization to bring new intellectual capital to the state of Maryland.

The Dr. Paul & Mrs. Jean Corcoran Endowed Professorship at the University of Maryland School of Dentistry (UMSOD) will support the work of Robert K. Ernst, PhD, professor and vice chair of UMSOD's Department of Microbial Pathogenesis and the UMB Researcher of the Year in 2017 and Entrepreneur of the Year in 2019. Dr. Ernst's work focuses on the interplay between a bacterial pathogen and the host defense mechanism. His research has led to the development of a diagnostic test to more rapidly identify bacteria- and fungi-caused infections. He also is co-founder of a company, Pataigin, that aims to develop a method to quickly identify disease-producing agents. The professorship also will support Dr. Ernst in furthering the development of novel adjuvants using patented technologies with a goal of producing new ways of preventing and treating disease.

The Richard P. Barth Professorship in Children's Services Research at the University of Maryland School of Social Work will work to accelerate the development of new treatments for clients within and beyond the state of Maryland; provide mentorship of the school's graduate students, postdocs, trainees, and faculty; and increase the commercialization and establishment of new interventions, clinical technologies, and services.

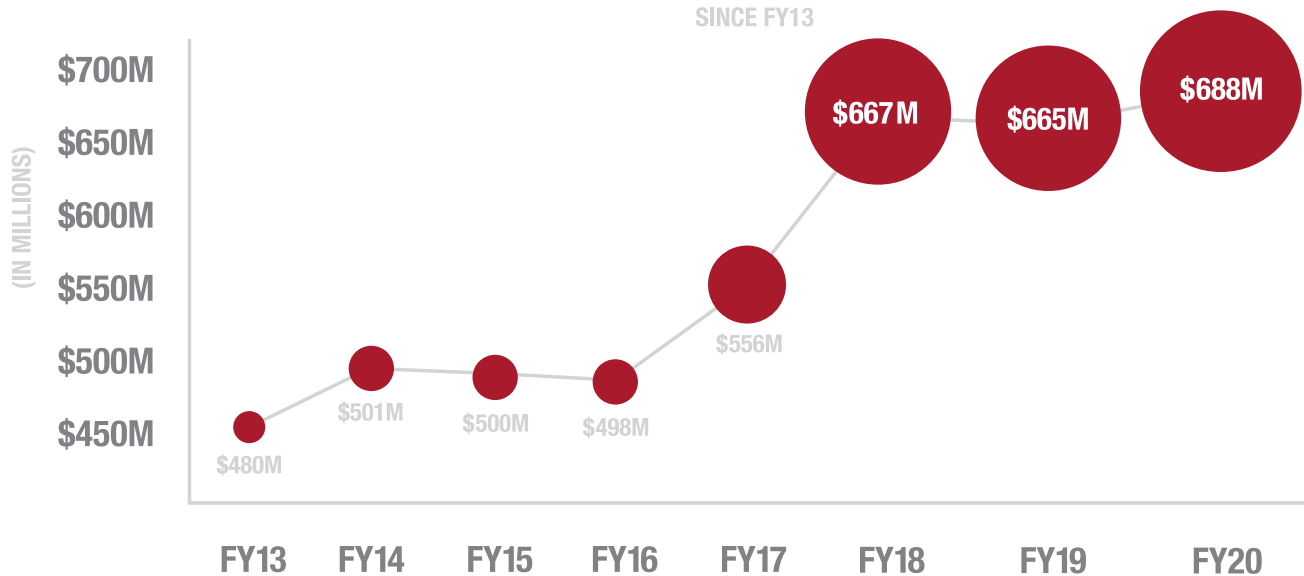
In Fiscal Year 2020, UMB won a record-shattering \$687.7 million in grants and contracts — dollars that fund our research, training, and service activities.

UMB received nearly \$40 million in COVID-19-related awards from more than 50 federal and corporate sponsors. As we continue to look for solutions, UMB has requested more than \$288 million in COVID-19-related sponsored research.

## RESEARCH ACTIVITY

43% INCREASE

SINCE FY13



The University of Maryland School of Medicine's Institute of Human Virology is leading a \$100 million project, sponsored by the President's Emergency Plan for AIDS Relief (PEPFAR), to measure the reach and impact of HIV prevention and treatment programs in Nigeria. It's the largest population-based HIV survey ever conducted in a single country. The 20-month Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) also is one of the largest population-based HIV/AIDS household surveys ever conducted. The preliminary result of NAIIS was released by the government of Nigeria and PEPFAR.

A coordinated global effort is essential in the face of the COVID-19 pandemic, and low-resource countries on the African continent are particularly vulnerable and in need of additional support. In the past, these nations have relied on their PEPFAR-leveraged health systems to tackle Ebola, avian flu, cholera, and other outbreaks. The same is being done today with respect to COVID-19, and UMB's Center for International Health, Education, and Biosecurity (CIHEB) is playing a key role in furthering that effort.

The University of Maryland achieved its highest ranking ever in the National Science Foundation's Higher Education Research and Development (HERD) survey for Fiscal Year 2019, placing eighth nationally among all public institutions and 14th overall in research and development (R&D) spending.

For the first time, the University of Maryland, Baltimore (UMB) and the University of Maryland, College Park (UMCP) were linked together as one research enterprise in the ranking, with combined research expenditures of \$1.1 billion.

UMB/UMCP research has expanded its broad impact in recent years through the University of Maryland Strategic Partnership: *MPowering the State (MPower)*. Established in 2012 and formalized by the Maryland General Assembly in 2016, *MPower* has aligned not only research initiatives between the institutions but also leadership. In 2018, Laurie E.

Locascio, PhD, MSc, was appointed to lead the joint research enterprise as vice president for research.

The HERD survey is the primary source of information on R&D expenditures at U.S. colleges and universities and widely recognized as the pre-eminent national university ranking for higher education institutions engaged in sponsored research.

Recent cross-campus UMB/UMCP research initiatives include responding to COVID-19 and the threat of future pandemics. The teams address the pandemic from multidisciplinary angles including medicine, engineering, pharmacy, and social and behavioral science, and are working to improve acceptance of vaccines among minority communities, develop new rapid testing methods, and better understand the SARS-CoV-2 spike protein.



LAURIE E. LOCASCIO, PHD, MSC,  
LEADS THE UNIVERSITY OF  
MARYLAND RESEARCH ENTERPRISE  
AS VICE PRESIDENT FOR RESEARCH.

**No. 8**  
UNIVERSITY OF  
MARYLAND'S RANKING  
AMONG PUBLIC  
INSTITUTIONS FOR  
RESEARCH AND  
DEVELOPMENT  
SPENDING IN FISCAL  
YEAR 2019

**\$1.1**  
**billion**  
UMB/UMCP  
COMBINED  
RESEARCH  
EXPENDITURES



In Fiscal Year 2020, UM Ventures — the joint technology transfer enterprise of UMB and the University of Maryland, College Park — accelerated the translation of research into market-ready technologies and therapies that improve health, wellness, safety, and productivity.

UMB'S COMMERCIALIZATION ENTERPRISE: FY 2020

274

NEW PATENT  
FILINGS

35

NEW LICENSE  
AGREEMENTS

7

NEW  
STARTUPS

2

STARTUPS ACQUIRED  
BY LEADING  
GLOBAL COMPANIES

UMB LICENSING REVENUE

**\$3.2 million**

IN GROSS REVENUE (FROM LICENSING, PATENTS, AND ROYALTIES)



Baltimore-based startup **Breethe** was acquired by Abiomed for its innovative respiratory device, the first portable artificial lung system. The sophisticated engineering underlying Breethe's novel integrated oxygen concentrator potentially eliminates the need for patients to rely on large, cumbersome oxygen tanks.



**SurgiGYN** was acquired by a leading global medical device firm. It is developing the uterine electrosurgical device (UED) to improve the safety and ease of total laparoscopic hysterectomy. The UED reduced colpotomy time to less than two minutes in early clinical testing.

UMB's 14-acre BioPark is Baltimore's biggest biotechnology cluster, with three dozen tenants and more than 1,000 employees. The research park fuels the commercialization of new drugs, treatments, and medical devices.

As demand for a dynamic innovation district keeps growing, so does the BioPark. At full build-out, the BioPark will consist of 12 buildings totaling 2 million square feet, parking garages, landscaped parks, and \$1 billion of capital investment. Approximately 3,000 people will work in the BioPark.



THE RESEARCH CONDUCTED AT UMB'S BIOPARK FUELS THE COMMERCIALIZATION OF DRUGS, TREATMENTS, AND MEDICAL DEVICES.

The Center for Maryland Advanced Ventures provides tailored funding and education programs to strengthen the commercialization of high-potential discoveries within University System of Maryland (USM) institutions. Additionally, the center provides incentives and resources to encourage university-created or -sponsored technology companies to locate in Baltimore City.

**THE MARYLAND MOMENTUM FUND**, a \$10 million early-stage investment program investing in USM-affiliated companies, has invested \$4.7 million in 16 companies with \$21 million in matching funds from more than 20 co-investors. Five UMB-affiliated companies have received investment: NextStep Robotics, NeoProgen, Veralox Therapeutics, KaloCyte, and ARMR Systems.

**THE BALTIMORE FUND** has encouraged the expansion and location of 18 companies in qualifying areas, creating or retaining more than 400 jobs.

**THE LIFE SCIENCES IP FUND** has assisted 21 early-stage technologies, including 10 device and 11 therapeutic technologies, in moving toward commercialization. Three new UMB startups — Isoprene Pharmaceuticals, Protaryx, and GENIE Lifesciences — have been formed as a result of the program.

**THE GRID** (Graduate Research Innovation District) houses UMB startups and two early-stage companies, b.well and ARMR Systems, and offers business development services through programs such as the Small Business Development Center and the Francis King Carey School of Law's Intellectual Property and Entrepreneurship Clinic.

### UMB CURE SCHOLARS

Now 5 years old, the UMB CURE Scholars Program is a long-term, intensive mentoring program that excites West Baltimore middle and high school students about science, technology, engineering, and math and prepares them for rewarding careers in research and health care.

The program welcomed its sixth cohort of scholars in a virtual white coat ceremony in fall 2020. Due to the COVID-19 pandemic, CURE's after-school and Saturday programming has been converted to a virtual curriculum. The scholars complete virtual learning modules and connect with their teachers and mentors using video conferencing software like Zoom and Google Classrooms.

### PROMISE HEIGHTS

The University of Maryland School of Social Work operates Promise Heights, a network of wraparound services that help stabilize and strengthen families in one of West Baltimore's highest-need neighborhoods. Promise Heights teams used ingenuity, creativity, and nimble responses to

transform and expand their usual face-to-face services into a variety of virtual opportunities for their many constituencies in the Upton and Druid Heights communities due to COVID-19.

### BRIDGING THE DIGITAL DIVIDE

During the COVID-19 pandemic when internet access is essential for work, school, and staying connected, UMB is working to bridge the digital divide. Project Waves, a Baltimore-based organization founded in 2018 with the mission to close the technology gap that disproportionately affects low-income and minority households by providing highly available, transparent, and reliable internet access to families across the city, and UMB have been working together to install Wi-Fi towers on top of buildings in West Baltimore. In addition, they have installed relay stations and sector antennas at several locations across the city, including on top of UMB's new Community Engagement Center at 16 S. Poppleton St., and worked to get families connected. UMB also has partnered with Comcast to sponsor one year of internet connectivity for up to 1,000 families from 14 different schools in West Baltimore.



THE UMB CURE SCHOLARS PROGRAM CELEBRATED ITS FIFTH ANNIVERSARY IN FALL 2020.





### LIVE NEAR YOUR WORK

UMB's Live Near Your Work Program is a homebuying assistance benefit for University employees that offers money toward the down payment and closing costs of homes in select West Baltimore neighborhoods, including the purchase of homes requiring major renovations. In the program, which is entering Phase 2, UMB contributes \$16,000 per eligible participant as a commitment to its surrounding communities, while the city of Baltimore offers a matching grant of up to \$2,500 for those who are eligible. In 2020, the program expanded into two neighborhoods with historic significance: Druid Heights and Heritage Crossing.

### UMB COMMUNITY ENGAGEMENT CENTER

Our new Community Engagement Center (CEC) is the cornerstone of UMB's Community Campus, a location and concept that demonstrate a deep commitment to strengthening West Baltimore in collaboration with the neighbors who live there. The CEC is where UMB works hand in hand with neighbors to support them in achieving their career goals and giving children a safe place to learn and play. With this newly renovated space, the center is even better equipped to partner with the community to reach common goals of health and well-being.

The new space is roughly seven times larger than the original CEC. This major expansion is in response to more than 40,000 recorded visits from men, women, teens, and children who have engaged with its services and programming since it opened in 2015.

While the COVID-19 pandemic is preventing the center from opening to the public, members of UMB's Office of Community Engagement have been working tirelessly to continue to provide some of its programming and resources to West Baltimore neighbors using virtual platforms.

### UMB PAL PROGRAM

In spring 2018, UMB launched a Police Athletic/Activities League (PAL) program for children in West Baltimore, one of just two PAL programs in the United States offered at a university. PAL works to prevent juvenile crime by building positive relationships among children, police officers, and the community. UMB PAL activities include physical fitness, science experiments, career exploration, community service, the arts, and field trips within the city and beyond.

Due to the COVID-19 pandemic, the summer of 2020 looked a little different from the norm, but the PAL kids still engaged in summer fun in the safety of their homes. For five weeks, 28 PAL participants ages 9 to 12 logged into a Zoom conference call every Tuesday through Friday for a full day of summer activities.

*The president should comment on how the transition to remote and online learning and delivery of student services has shifted the thinking of how UMB can better and more effectively deliver its programs and services, opportunities it opens up, and the impact this will have on UMB's business model.*

The transition to remote and online learning has proved that the University of Maryland, Baltimore (UMB) is nimble and able to react to challenges with strength and determination. Continued support of virtual education platforms can open UMB to a much broader audience of learners in Maryland, the United States, and the world. In addition, the efficiencies can result in greater productivity, worker satisfaction, and student exposure to high-quality, contemporary teaching modalities.

UMB experienced increased collaboration within and across our seven schools as we moved to remote learning with the help and leadership of our Faculty Center for Teaching and Learning. Going forward, we see a role for educational research and the use of new tools and technologies such as artificial intelligence, simulation technologies, and adaptive testing platforms.

For example, virtual admissions processes and interviews can afford more prospective students the opportunity to “visit” the UMB campus without necessarily incurring travel expenses. Increased virtual tools also can help us recruit more diverse faculty from afar as easily as we can recruit from nearby. UMB faculty has increased engagement with faculty at other institutions, and the ease of virtual meetings via Zoom/Webex vs. travel has helped specialty faculty engage more closely with other experts in their areas.

At the Francis King Carey School of Law, summer school costs/expenses were reduced as the school created a collaboration with the University of Nebraska College of Law. Each school offered two courses that could be cross-listed. This allowed the Carey School of Law to expand curriculum in the summer at a cost savings. The school also is moving its Health Law MSL program entirely online and expects that greater comfort with online learning will lead to increased enrollment in the program.

The shift to more online learning also could open up more opportunities to increase Doctor of Pharmacy (PharmD) enrollment at the School of Pharmacy by offering more flexibility to students who might otherwise have chosen other programs. The school hopes to attract more candidates by converting some courses into asynchronous online courses as well as developing intensive weekend and hybrid courses.

The School of Social Work is teaching students how to provide remote counseling and therapy as part of its coursework since roughly 50 percent of its students are doing so as part of their experiential learning/field placements.

We continue to explore the impact on our business model. In the Graduate School, for example, we are analyzing how lessons learned can help us decrease educational costs and use those

savings to reduce overall costs of the degree or for reinvestment in clinical training infrastructure. Across UMB, we will examine and reallocate some classroom-based facilities, expenses, and faculty resources to optimize space for clinical training, courtroom, practical, co-curricular, research, or even lab-based/hands-on learning activities. Getting this balance right is crucial. On one hand, we see cost as a barrier for many students and are seeking innovative partners in exploring a model of radically affordable education. On the other hand, we firmly believe that fairly compensating our faculty and staff is one of the keys to retaining top talent here in Maryland. We are committed to finding that balance and living up to our recent *Forbes* magazine survey recognition as one of "America's Best Large Employers."

It is important to note that the emotional state of students has suffered because of the diminished connection with classmates and teachers. The School of Medicine has seen that although implementation of remote didactic teaching and clinical care via robots or the use of iPads has been successful in some areas, these modalities do not allow for realization of the unique bedside component needed for its four-year curriculum. Patient contact has proved to be essential for the School of Nursing as well, to fulfill the mission to produce lifelong learners who are clinically excellent and possess humanism, professionalism, scholarship, leadership, and critical-thinking skills with attention to social justice and diversity. Similarly, the School of Pharmacy does not envision a virtual way to supplant the face-to-face simulation and work with clinical partners to gain hands-on experience caring for persons, their families, and our communities.

The challenge we face is striking the appropriate balance among institutional, cost, and instructional effectiveness to ensure that our students continue to receive the distinctive, rigorous, and quality education each of our seven schools has been nationally recognized for providing.



UNIVERSITY  
*of* MARYLAND  
BALTIMORE

***[umaryland.edu](http://umaryland.edu)***