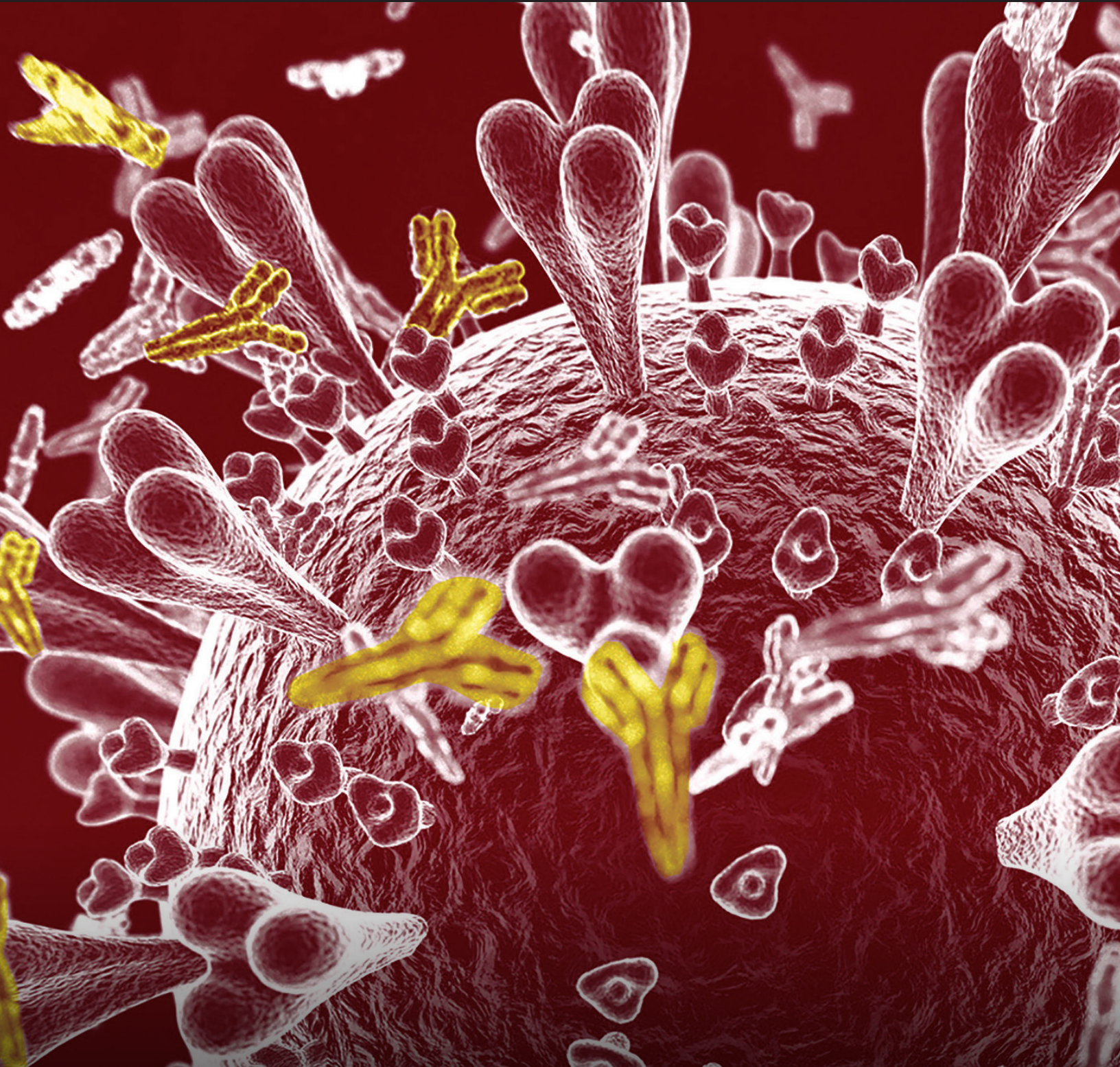


RELENTLESS DISCOVERY

Annual Report 2020



**THE OHIO STATE
UNIVERSITY**
COLLEGE OF MEDICINE



PIONEERING NEW SOLUTIONS IN MEDICINE AT OHIO STATE.



“In this report, you’ll learn how each day our faculty, staff and learners advance innovations and solve unrelenting medical and health care challenges.”

— Dean Carol Bradford, MD, MS, FACS

WELCOME FROM THE DEAN



I came to The Ohio State University College of Medicine because it is on a trajectory like no other in academic medicine. There is tremendous transformation, discovery and innovation happening in Columbus, and I am excited to be part of it.

At The Ohio State University, thousands of brilliant minds focus on our tripartite mission—education, clinical care and research. In fact, we thrive in those three areas—integrating and collaborating across the three pillars to impact our learners and ultimately make a difference in the lives of individuals in central Ohio and beyond. This strategy has proven even more critical during the pandemic.

In this report, you will learn how each day our faculty, staff and learners advance innovations and solve unrelenting medical and health care challenges. How our teams have assisted to make COVID-19 testing possible in Ohio, Detroit, Chicago, New York City and Ethiopia, and how we continue to discover ways to defeat this global pandemic. Further,

you will see how our learners benefit from a sophisticated clinical skills lab that includes a KindHeart simulator for cardiothoracic surgery—one of only a few in the nation.

The report details our Neurological Institute, complete with first-ever gene therapy treatments, innovative research on nerve regeneration, focused ultrasound trials for addiction and Parkinson’s disease—and much more. Beyond neurological therapies, this year has provided opportunities for Ohio State to push forward as a leader in telehealth, innovating beyond primary care and discovering its value for tertiary and quaternary care. Finally, you will learn how, in 2020, Ohio State is working each day to eliminate racism and micro-aggressions in our curriculum, as well as creating structural and systemic change toward equity in health and well-being throughout the medical center.

Our numbers are impressive: more than \$300 million in research funding and outstanding rankings, including #34 for Best Medical School-Research by *U.S. News & World Report*; #9 for Best Teaching Hospital by *Washington Monthly* magazine; #9 Physical Therapy and #13 Occupational Therapy Graduate Programs; and #4 for the Best Employers for Diversity by *Forbes* magazine. With seven health science colleges and a school of health and rehabilitation sciences, The Ohio State University Wexner Medical Center is one of the most comprehensive health sciences campuses in the nation, and we continue to grow. Our projected \$3 billion in capital improvements includes a new hospital tower, a new Interdisciplinary Health Sciences Center and a new interdisciplinary research building.


While new facilities are important, the strength of the Ohio State College of Medicine remains its people. Our new leaders are highly regarded experts in their fields: Benjamin Segal, MD, one of the leading multiple sclerosis physician-researchers in the world; Krystof Bankiewicz, MD, PhD, a world-renowned neurosurgeon and genetic medicine expert; J. Nwando Olayiwola, MD, MPH, an internationally renowned primary care redesign expert and telehealth innovator; Amy Moore, MD, a national leader in plastic surgery and treating patients with nerve pain; Sayoko Moroi, MD, PhD, a top physician-scientist in diagnosing and treating glaucoma; Raymond Benza, MD, an internationally renowned physician-scientist in cardiovascular medicine; and Zihai Li, MD, PhD, an innovative leader in cancer immunotherapy. And Leon McDougale, MD, MPH, has taken on a new role this year as president of the National Medical Association.

And this is just to name a few.

Every day, our more than 4,500 learners, nearly 2,400 faculty and thousands of staff members fulfill each facet of our mission to improve lives—starting with the nearly 2 million people in central Ohio and reaching out to the entire state, the Midwest, the nation and the world.

I am among the ambitious and excited new faculty, learners and staff who chose the Ohio State College of Medicine because we have discovered what the world is learning, and what Buckeyes already know: the future of health care is at Ohio State.

Carol Bradford, MD, MS, FACS
Dean, The Ohio State University College of Medicine
Vice President for Health Sciences
Leslie H. and Abigail S. Wexner Dean’s Chair

 @DeanBradfordMD



Content of this annual was taken prior to the Coronavirus outbreak. Please follow guidelines put forward by the CDC and local health officials to remain safe and healthy during this time.

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Rapid solutions for COVID-19

With a pandemic threatening the world's future, The Ohio State University College of Medicine faced a responsibility in 2020: to serve the public and other institutions in desperate need. But with that responsibility came an opportunity: to maximize the college's broad expertise and resources, focusing its boundless energy on taking research discoveries from the lab and putting them into action immediately.

The resulting interprofessional collaboration among Ohio State's health science colleges—as well as with dozens of other departments at the university and with the The Ohio State University Wexner Medical Center—has created solutions that are saving lives and preserving livelihoods nationwide.

"This is what distinguishes academic medical centers," says Peter Mohler, PhD, vice dean of Research at the Ohio State College of Medicine. "Their work is in the spotlight in 2020. And COVID-19 solutions are being rapidly developed at Ohio State."

PARTNERING FOR THE GREATER GOOD

Technology-research giant Battelle, located across the street from the Ohio State campus, was an obvious partner to improve and expand testing and personal protective equipment (PPE) use, Dr. Mohler says.

The Ohio State Wexner Medical Center was one of the first hospitals in the country to partner with Battelle to re-sterilize masks to increase the supply of PPE for front-line staff. The new machines have the capability to decontaminate up to 80,000 masks each per day, conserving critical PPE.

Ohio State researchers and clinicians also worked with Battelle to establish a lab that would create COVID-19 diagnostic testing in Ohio.

"One Sunday afternoon in mid-March, [Ohio State Wexner Medical Center CEO] Dr. Hal Paz called me and said, 'Mohler, what's it going to take to get a testing lab open?'" Dr. Mohler says. "A team of more than 100 from Battelle, that had already starting working on testing technologies, had a lab up and functioning by the end of the week."

The rapid, sensitive diagnostic test they developed with Battelle was equally swift: it could produce results in hours, helping "flatten the curve" in Ohio.

*"The speed at which COVID-19 solutions have developed here has been a fascinating whirlwind, and it speaks volumes about what we're capable of in the future."
— Peter Mohler, PhD, vice dean of Research
at the Ohio State College of Medicine*

INNOVATING FOR ALL

Early on in the U.S. pandemic, testing sites nationwide struggled to provide enough COVID-19 tests to properly track and contain the virus, in part because testing sites were short on testing swabs and viral transport media (VTM), the sterile solution needed to hold test swabs in vials for examination.

Once the need was recognized, a multi-disciplinary team led by Jacob Yount, PhD, an associate professor in the Department of Microbial Infection and Immunity, collaborated overnight to create an in-house "recipe" for the VTM.

Soon after, a collaboration among multiple Ohio State institutes and colleges produced a program to 3D-print extra testing swabs. The Food and Drug Administration quickly approved the innovations in order to spread the solutions nationwide.

The recipe and VTM supplies have been shared throughout Ohio, in New York City, in several other states and even overseas. Swabs printed through Ohio State continue to supply test kits in every corner of Ohio.

LEADING RESEARCH DISCOVERIES

Ohio State College of Medicine researchers are involved in more than 100 COVID-19 research projects, including a \$10 million National Institutes of Health grant to fund a Center for Serological Testing to Improve Outcomes from Pandemic COVID-19 (STOP-COVID). This transdisciplinary center's goal is

to understand the interface between exposure risk, transmission, immune responses, disease severity, protection, and barriers to testing and vaccination, with the goal of improving population health and clinical outcomes. The center will utilize state-of-the-art serological and molecular tests, developed at Ohio State, in a longitudinal study of Columbus-area first responders, a group at continual high risk of SARS-CoV-2 exposure, as well as their household contacts.

In addition, Ohio State is participating in large, multicenter, inpatient and outpatient COVID-19 clinical trials, including the BLAZE-1 and ACTIV-2 trials to study the world's first neutralizing antibody treatment for COVID-19, and the 30,000-person phase III vaccine trial for the Oxford University-produced AstraZeneca vaccine. COVID-19 clinical trials at Ohio State address the entire spectrum of COVID-19 disease from prevention of infection, to treatment of mild and moderate disease, to treatment and prevention of complications in severely ill patients.

COVID-19 projects aren't detracting from other key research areas. The Ohio State College of Medicine has also led breakthroughs in gene therapy, cancer treatment and nerve fiber regeneration.

"The speed at which COVID-19 solutions have developed here has been a fascinating whirlwind, and it speaks volumes about what we're capable of in the future," Dr. Mohler says. "This pandemic will end, and we haven't lost sight of other medical areas that need our attention. We have a responsibility to continue to innovate."



College of Medicine committed to strengthening resources for underrepresented

Outside of historically black colleges and universities, The Ohio State University College of Medicine is one of the top medical schools in the nation for its percentage of Black students, according to *U.S. News and World Report*. At 13%, it matches the representation of African Americans in the United States. The college has made tremendous progress attracting a high-achieving student body that's diverse.

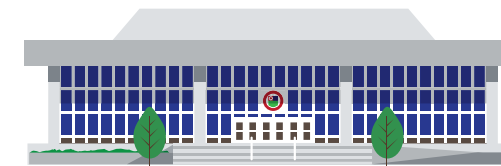
The challenge now, says Jennifer McCallister, MD, associate dean of Medical Education at The Ohio State University, is giving those minorities the support and resources they need to feel welcome and to be successful in their careers.

"We know we're ahead of the curve in admitting underrepresented students," Dr. McCallister says. "But we need to be ahead of the curve in supporting those students too, and ensuring that they don't feel tokenized."

REBUILDING A FOUNDATION

In 2020, Ohio State College of Medicine faculty and leadership heard loud and clear—not just from the protests throughout the U.S., but also from their own students—that racial bias is far from eradicated in their worlds.

In response, the college quickly formed an Equity and Anti-Racism Task Force, led by Dr. McCallister and Demicha Rankin, MD, associate dean of Admissions.



"There needs to be a collaborative and cooperative effort by many at every single layer of an organization to actively and deliberately address the issues of systemic racism that have been woven, intentionally or unintentionally, into policies, practices and culture," Dr. Rankin says.

The multidisciplinary group of 10 faculty and seven students meets biweekly as a whole and weekly in subcommittees. Their aim: To build a framework that can more quickly and more broadly address the unique needs of MD students from backgrounds underrepresented in medicine, and support cultural competency for all.

Their goals also overlap with the initiatives put forth by The Ohio State University Wexner Medical Center's Anti-Racism Action Plan, which provides guidelines for the medical center and all of Ohio State's health science colleges. Initial action items in the Ohio State College of Medicine are based on requests directly from Ohio State medical students and statements from the Student National Medical Association, a long-established organization of medical students and faculty focused on better supporting underserved communities and communities of color.

Short- and long-term aspirations include:

- Providing more resources and support through the university's Office of Diversity and Inclusion
- Curriculum updates to address systemic racism and health disparities with a modern lens
- Professional development for all faculty on the topic of vulnerable populations
- Addressing potential for bias in clinical evaluations

CURRICULAR REVISION

The Equity and Anti-Racism Task Force has begun examining how the MD curriculum at Ohio State can better shift the conversation from race-based teachings to racism as its own public health crisis.

Dr. McCallister gives an example: The classic teaching about health literacy is that those from lower socioeconomic classes are at risk of having lower health literacy. And because many in lower socioeconomic classes are Black or Hispanic, one might say that Black and Hispanic patients are at greater risk of having poor health literacy.

"But that's not true," she says. "It's not being of a certain race that makes you more at risk—it's having poorer social determinants of health, such as less access to your primary care physician, limited transportation or limited access to community resources."

The goal is to pause and reassess how faculty are teaching these concepts, and to provide Ohio State faculty with the resources to erase historic biases.

MENTORSHIP

For many years, students in the Ohio State College of Medicine were randomly assigned faculty coaches who help advise their professional development and career portfolios. Beginning in the 2020 – 2021 school year, students with Black/African American and Latinx/Hispanic backgrounds can also be assigned faculty mentors from similar backgrounds, says the program's coordinator, Joanne Lynn, MD, associate dean of Student Life at the College of Medicine.

*"We know we're ahead of the curve in admitting underrepresented students. But we need to be ahead of the curve in supporting those students too, and ensuring that they don't feel tokenized."
— Jennifer McCallister, MD*

ANTI racism

ACTION

BECOMING MORE RESPONSIVE AND AWARE

In spring 2020, the death of George Floyd and a new racial awakening in the U.S. lit a fire under college leaders.

“Prior to a certain time, there simply was not enough support, attention or momentum directed toward these efforts, but now we cannot move forward without getting this right,” Demicha Rankin, MD says. “The time to act is now, and the momentum must be carried forward for many years.”

Among the first actions to more intentionally guide what Dr. Rankin calls “the ethical and moral compass of our medical school” was a new micro-aggressions workshop preparing students for the clinical environment.

It was just the beginning. Directly facing the problems that perpetuate health care disparities, then creating solid frameworks to address those problems, are the necessary next steps in serving the Ohio State College of Medicine’s minority students, the task force leaders say.

“We got them here to Ohio State,” Jennifer McCallister, MD says. “Now we owe them our support.”



Medical students and residents organize a “White Coats for Black Lives” gathering of more than 500 doctors, nurses, staff and students.

“We matched interested Black and Latinx incoming first-year medical students with a faculty mentor in same-gender, same-race/ethnicity pairs,” Dr. Lynn says. “The volunteer faculty mentors were given mentoring guidelines, and they meet with their students (virtually or in person) at least once a month.”

In winter 2020, a survey will gauge success and satisfaction in the program.

REDUCING BIAS

The first step to mitigating bias is recognizing that it happens.

An implicit bias training developed by Quinn Capers IV, MD, former vice dean for Faculty Affairs at Ohio State, has become a model for medical school admissions across the country. But the Ohio State College of Medicine task force is now analyzing ways to apply Dr. Capers’ training more broadly.

“Clinical evaluations in an MD student’s third and fourth years have a profound impact on their academic standing and their potential to match to their residency of choice,” Dr. McCallister says. “We’re looking at current evaluation structures to analyze the potential effects of bias based on skin color, for example.”

RELENTLESS DISCOVERY The Ohio State University College of Medicine



Nahush Mokadam, MD, professor of Surgery, instructs fellows during a KindHeart simulation for cardiothoracic surgery.

Sophisticated simulations forge new frontiers

INNOVATIVE, REALISTIC EXPERIENCES WITHOUT RISK TO PATIENTS

Simulations are common training tools in myriad industries, but it’s not easy to simulate the tactile elements of heart surgery using a computer alone.

Meanwhile, cardiology faculty face the challenge of teaching more than ever in shorter time periods.

“It once was common for residents to work 120 or more hours per week,” says Nahush Mokadam, MD, a professor and director of the Ohio State Division of Cardiac Surgery and the program director for Ohio State’s Cardiothoracic Surgery Fellowship.

“Residency programs are mandated to keep it below 80 hours. Simultaneously, there’s been a huge increase in knowledge. We needed to create a way that they could still get the experience they need to be prepared for anything.”

That’s why Ohio State became one of a small handful of schools to integrate KindHeart simulation into its cardiothoracic surgery program.

It uses an exhaustive, innovative curriculum, written by Dr. Mokadam and other specialists, centered around the simulator, which uses a pig’s heart attached to balloons to keep it beating, filled with stage blood to simulate bleeding.

“It’s an important complementary process—what we can do in the simulation lab, we can’t do on real patients,” Dr. Mokadam says. “We can operate until they get it right and work through adverse events.”

continued on page 12

frontiers, continued

“In the real world, if something goes wrong, the attending takes over completely. In the simulation lab, I make things go wrong, and I let them sweat.”

The simulation doesn’t completely replace experiences with human patients for Ohio State residents. But Dr. Mokadam says it can create an environment of more deliberate practice and repetition to develop those muscle-memory skills necessary for excellent surgeons. It also gives him the ability to coach and provide formative feedback.

“In the OR, my focus is on the patient. But in the sim lab, the priority is the resident. I can say, ‘Try this,’ or troubleshoot with them, or badger them to induce stress and help them learn how to operate in a high-pressure situation.”

“Take a world-class pitcher in the bottom of the ninth with two outs and the bases loaded. He had to learn how to throw the perfect pitch with and without that pressure. It’s the same concept, being able to restart a heart when someone’s life is on the line.”

EXPERIENCES TO ENHANCE UNDERSTANDING OF INEQUITIES

Trainees and practicing clinicians alike are learning how to provide better care for their most vulnerable patients through virtual reality (VR)-based simulations created in partnership with the Ohio Department of Medicaid and the Ohio Colleges of Medicine Government Resource Center.

The goal of the training programs isn’t just to increase knowledge, but to increase understanding and empathy among care providers, says Sheryl Pfeil, MD, medical director of the Ohio State College of Medicine’s Clinical Skills Center.

“It imparts not so much how to be a dentist, or how to treat back pain, but it’s teaching us how to provide better, more culturally sensitive care for patients in all sorts of circumstances,” Dr. Pfeil says. “Frankly, it’s what we must strive to do as physicians.”

Four Ohio State-developed Medicaid Equity Simulations are funded by an Ohio Medicaid Technical Assistance and Policy Program (MEDTAPP) grant:

Building Empathy in Care of Patients With Dementia

Developed at Ohio State’s Advanced Computing Center for the Arts and Design, this training highlights the effects of short-term memory loss and time-and-place disorientation—common dementia symptoms—for patients and caregivers through a VR experience.

Simulated Patient With Limited English Proficiency

Learners interact with an avatar that’s a virtual simulated patient with limited English proficiency. Learners conduct a virtual health care visit, honing their communication skills and leading the encounter with cultural competency.

Virtual and Augmented Reality Implicit Association Training (VARIAT)

Developed in partnership with Nationwide Children’s Hospital, this mobile app (available to the public) takes learners through gamified modules designed to reveal and emphasize how biases and social determinants of health can lead to inequitable care. The training exercises are linked with educational content to help learners develop strategies to minimize disparities.

Access to Dental Care for Immigrant Families/MPATHI

Wearing a VR headset, the participant assumes the role of a parent seeking dental care for their child in an environment where they don’t speak the native language, highlighting cultural, language and literacy barriers, and best practices when working with interpretive services.

“These trainings are very compelling,” Dr. Pfeil says. “On days that so much is required of physicians, it can seem like a challenge to have a patient with added needs, such as someone who’s not English-speaking. It’s tempting not to take the appropriate extra steps to help them understand.”

“This helps us see what a negative experience we can give our patients. After you’re wearing that headset in the role of a patient, you think, ‘I never want to be that provider who’s impatient and annoyed.’”

The programs are available to providers throughout Ohio and so far have reached about 500 participants in 2020.

VITAL NEW TRAINING IN WOMEN’S HEALTH

Ohio State is filling training gaps for Ohio health care providers with two projects designed by experts in maternal fetal medicine and emergency medicine working with the Ohio State College of Medicine’s Clinical Skills Education and Assessments Center. Both projects are free for providers and funded through the Ohio Department of Health (ODH).

A Virtual Telehealth Delivery Training for Women’s Health Providers seeks to help providers give better care to patients who can’t easily access early prenatal and specialty care.

“Before COVID-19, 92% of obstetric providers in Ohio hadn’t used telehealth, but now, at least 77% of them use it regularly,” says Cynthia Shellhaas, MD, MPH, a maternal fetal medicine specialist who helped design both training programs. “This training helps them lead those encounters effectively.”

Three modules, which began sessions in September 2020, take women’s health providers through simulations to learn efficient workflow management, co-management, virtual patient assessment and other fundamentals of telehealth.

“The scenarios are varied provider-to-patient encounters that use standardized patients, or actors,” Dr. Shellhaas says. “They include a patient with limited English proficiency working through an interpreter, and a patient who’s in the country illegally.”

Two other simulation modules are provider-to-provider communication trainings—one for specialists using video-consult services to work with non-specialists and referring physicians; the second designed for the reverse, teaching referring physicians to use telehealth for patient care and engaging specialists.

A second ODH-funded program, Obstetric Emergency Simulation Training for Emergency Medicine Providers, is designed for emergency medicine (EM) physicians, physician assistants, nurse practitioners, nurses and EMT/EMS.

“Emergency departments see a lot of pregnant and postpartum patients. While 98% of Ohio hospitals have reported conducting simulation drills for obstetric emergencies, 100% of those drills involved labor and delivery or postpartum staff—but only 30% involved emergency department staff.”
— Cynthia Shellhaas, MD, MPH

“Considering that some Ohio hospitals don’t even have maternity units, that leaves EM providers unprepared.”

The program, which began its first trainings in August 2020, puts participants through virtual simulations to improve recognition, treatment and management of obstetric emergencies including hypertensive emergencies, postpartum hemorrhage and cardiomyopathy.

One session involves the simulations themselves, but two other trainings offer EM physicians and nurse educators the tools to facilitate their own low-cost obstetric emergency simulations at their home hospitals.

Because of COVID-19, all trainings are currently being held virtually.



Redesigned disaster medicine course prepares students for COVID-19

You only have five ventilators left and 10 patients in respiratory failure. What will you do?

That's just one of the case scenarios medical students are asked to consider in a newly redesigned course to prepare them for residency training during the unique conditions of the COVID-19 pandemic. Developed at lightning speed with multidisciplinary input from faculty across The Ohio State University's health science colleges—medicine, ethics, pharmacy, veterinary medicine and public health—the course combines features of previous disaster medicine courses with a primary focus on treating COVID-19 patients.

"Today, disaster response requires a different mindset," says Nicholas Kman, MD, professor of Emergency Medicine at The Ohio State University College of Medicine. "We must move from a mode of taking care of individual patients to taking care of the population as a whole. So we had to redesign the course."

"At Ohio State, we've been teaching disaster medicine for some time now. But our team's ability to quickly pivot to COVID-19 education allows our students to gain strong pandemic skills, so they're fully prepared to enter the real world and offer expertise as new graduates."

— Daniel Clinchot, MD, vice dean for education in the College of Medicine

Basic safety practices are now supplemented with instruction on donning and doffing personal protective equipment (PPE) and decontaminating equipment when exposed to chemicals. Designed to develop critical thinking and judgment skills, the course uses a type of incident response playbook that models the spread of an infectious disease as well as scenarios that Dr. Kman implemented during COVID-19.

"Doctors often grapple with difficult ethical decisions when responding to pandemics like COVID-19 and mass casualty events," he says. "This course provides an opportunity for medical students to learn not only best practices for disaster management but also how to manage the psychosocial pressures of caring for large numbers of patients with serious medical issues."

Named "Pandemic and Disaster Medicine: COVID-19 Response From the Bedside to the Federal Level," the new course was initially offered to graduating seniors and other medical students who were eager to serve but who—like fellow trainees across the nation—had been locked out of their traditional third- and fourth-year clinical rotations due to COVID-19 precautionary safety measures.

Along with early graduation and licensing to practice, the training made it possible for these students to serve in hospitals and clinics in advance of the start of their residency program training, while earning 10 hours of course credit. Some were able to assist Ohio State's COVID-19 call center—one of the state's leading help lines—discussing symptoms and answering questions of concerned citizens around the state. This experience provided students with a unique insider's look into how the COVID-19 response was developing. Others helped prepare test kits at The Ohio State University Dorothy M. Davis Heart and Lung Research Institute. And others assisted the Centers for Disease Control with contact tracing.

One graduating senior was asked by the chief medical officer for the Oklahoma City Area of Indian Health Service to assist their statistician in monitoring testing rates across the region and to help public health nurses monitor contacts and resource allocation at the agency's regional incident command center. Another senior was able to assist the Maricopa County Department of Public Health in Arizona with investigating the state's exposure response to the area's first case of COVID-19.





Game-changing medical education expands proficiency in lifesaving technology

Ultrasound isn't a new technology. First used in 1956, it's become a household term that conjures an image of its equipment—handheld transducer, computer and gel. But, despite that familiarity, few clinicians are trained to acquire and interpret ultrasound images.

That's not the case, though, at The Ohio State University College of Medicine, where medical students benefit from a modern, robust curriculum. They're trained early in their first year to harness the power of ultrasound, giving them measurable advantages, particularly in emergent situations.

"It helps our students better master the first-year content, integrating anatomy and physiology, and learning it dynamically in real time," says Creagh Boulger, MD, associate ultrasound director and an associate professor of Emergency Medicine. "They get early exposure to clinical skills and spend one-on-one time with practicing physicians so that they begin to apply clinical skills and think like doctors earlier."

More than 4,000 students have completed the program, and about 800 students learn ultrasound techniques every year through an integrated, mandatory curriculum. An elective, extra curriculum that's student-led but faculty-monitored exposes them to more clinical applications. They can dive deep into their chosen areas, receiving a personalized curriculum.

"The reason this has all been a success, though, is the medical students," says David Bahner, MD, director of Ohio State's Ultrasound Division and a professor of Emergency medicine. "We first invested in first-year med students in 1999. These students turn into interns, residents and faculty, and they learn that they're head-and-shoulders above their peers."

"The course not only prepared me to evaluate a broad range of possible diseases, but also gave me confidence to use point-of-care ultrasound to answer questions at the bedside and provide accurate care to my patients—a game-changer for how I will practice medicine."

—Alexandra Allman, third-year medical student

As residents, they become much more comfortable making vital diagnoses because they have ultrasound in their toolbelts. Bedside, or point-of-care, ultrasound gives health care providers the opportunity to quickly identify fluid buildup, internal trauma, soft tissue infections, extrauterine/ectopic pregnancy and other life-threatening conditions before they advance, giving patients a better chance of survival.

For example, when they see a patient in the emergency department with unexplained low blood pressure, ultrasound skills allow a physician to better recognize fluid around a patient's heart or lungs and treat it as quickly as needed to save someone's life.

"It builds phenomenal residents," Dr. Boulger says. "I've watched our students enter residency with a solid foundation and clinical acumen because they've been exposed early to ultrasound in clinical scenarios. They hit the ground running."

A FREQUENCY ABOVE

Over the course of 25 years at Ohio State, Dr. Bahner has created a collaborative, enthusiastic ecosystem of ultrasound training, providing comprehensive education and hands-on experiences for medical students, residents, fellows and attendings in every specialty—not just radiology.

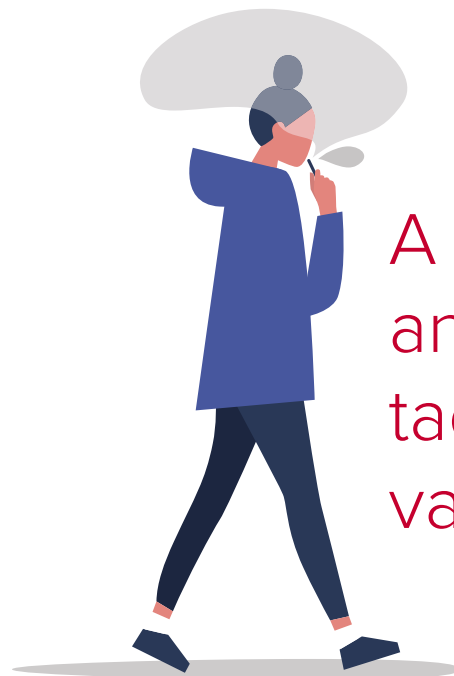
Today, an active Ultrasound Interest Group and Ultrasound Research Interest Group created by Ohio State medical students help lead technological adoption as well as educational advances, which are published regularly in medical journals. The Division of Ultrasound's faculty are active in national and international meetings, giving lectures, participating in national ultrasound competitions and traveling the world to teach point-of-care ultrasound to clinical providers.

AN EDUCATIONAL ROLE MODEL

Third-year medical student Alexandra Allman describes Ohio State's ultrasound training as one of her most formative experiences in medical school.

"Even as a first-year medical student, I was able to start finding images on ultrasound and begin to interpret what I was seeing," Allman says. "The course not only prepared me to evaluate a broad range of possible diseases, but also gave me confidence to use point-of-care ultrasound to answer questions at the bedside and provide accurate care to my patients—a game-changer for how I will practice medicine."

These students, Dr. Bahner says, have a secret. "Getting trained in ultrasound in a program that embeds it early in their education. They're able to use that training throughout their careers."



A bold effort, an urgent need: tackling the youth vaping epidemic

It's an ambitious project, but that was intentional. The American Heart Association was looking for bold, groundbreaking research to provide some desperately needed answers: Why are children growing increasingly addicted to e-cigarettes? What's vaping doing to their hearts, their lungs, their brains? Can we intervene before it's too late?

Ohio State's proposal called for a massive undertaking: a collaboration, led by Peter Mohler, PhD, vice dean of research at The Ohio State College of Medicine, chief scientific officer and director of the Dorothy M. Davis Heart and Lung Research Institute, and Loren Wold, PhD, assistant dean for biological health research in the College of Nursing and a professor in the Ohio State College of Medicine's Department of Physiology and Cell Biology. They pulled in experts from across the university in the colleges of Medicine, Nursing, Public Health and Engineering, and researchers from the Center for Tobacco Research at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

The research would touch nearly every part of the problem, from studying the effects of e-cigarettes on young users to finding ways to make them less appealing to kids and developing methods to help young vapers kick their addiction.

"There's probably only a handful of institutions that could have done this," says Theodore Wagener, PhD, director of the Center for Tobacco Research and an associate professor in Internal Medicine at the Ohio State College of Medicine. "Because of the number of tobacco and heart researchers we had here at Ohio State, it made it easy. With seven health science colleges on one campus, it enables more collaborative team science and strengthens our ability to quickly translate our research into actionable patient care."

Alongside Boston and Yale universities, Ohio State's proposal was announced as one of the grant recipients of the American Heart Association's vaping research initiative, called ENACT: End Nicotine Addiction in Children and Teens.

Ohio State's \$5.5 million award, among the largest ever granted to the university by the American Heart Association, kicked off a flurry of work that has no choice but to move quickly—because of the urgent threat posed to young e-cigarette users, the project has a two-year deadline.

*"Because of the number of tobacco and heart researchers we had here at Ohio State, it made it easy. With seven health science colleges on one campus, it enables more collaborative team science and strengthens our ability to quickly translate our research into actionable patient care."
— Theodore Wagener, PhD, director of the Center for Tobacco Research*

"Our hope is that these projects greatly advance our knowledge about youth vaping—in particular what impact it has on young people's bodies and what the most effective approaches might be to help e-cigarette users, including young people, quit," said Liz Klein, PhD, MPH, associate professor of Health Behavior and Health Promotion in the College of Public Health.

Ohio State's project—VERIFY: Vaping's End Through Research and Innovation for Youth—will explore four areas of youth vaping, each with a specific aim and a dedicated team of experts. Its four components will:

- Test the health effects of adolescent e-cigarette exposure in mice in response to changes in nicotine form, concentration and flavors, with preclinical studies informed by the results of the clinical studies. Dr. Wold is the principal investigator for this project.
- Examine how nicotine form, concentration and flavorings affect youth e-cigarette use, addiction, neurocognitive outcomes and pulmonary health compared to healthy peers. Principal investigators are Megan Roberts, PhD, assistant professor of Health Behavior and Health Promotion in the College of Public Health, and Alayna Tackett, PhD, assistant professor at the University of Southern California.
- Study the influence of nicotine form, concentration and flavor on youth puffing behavior, nicotine delivery, abuse liability, toxicant exposure, and acute cardiovascular and pulmonary effects. Principal investigators are Dr. Wagener and Marielle Brinkman, senior research scientist in the College of Public Health.
- Examine four promising methods of vaping cessation for young adults: quitline-delivered phone counseling, text-based cessation, nicotine replacement therapy and online cessation support. The principal investigator is Dr. Liz Klein.

"It's extremely important because these products are not regulated," Dr. Wold says. "A whole new generation is getting addicted to nicotine—kids are using these electronic delivery systems and inhaling this stuff into their lungs. Our goal is to understand what it's doing to them and help them stop."

World-class neuroscience: discovering the possibilities in unexpected connections

Among the highlights:

When Benjamin Segal, MD, a physician-scientist internationally known for his work in multiple sclerosis and neuroimmunology, was recruited as chair of the Department of Neurology at The Ohio State University College of Medicine in 2019, he had a convincing, one-word reason to come here.

Possibility.

“I feel Ohio State is at an inflection point for dramatic growth in a positive direction,” says Dr. Segal, who also serves as the co-director of Ohio State’s Neurological Institute, which houses over 200 medical, surgical and research specialists dedicated to the treatment of patients with neurological and psychiatric disorders. “There are tremendous riches here in terms of breadth and depth of clinical and research expertise, in terms of support of the academic mission, in terms of the dedication of leadership to enhance education and research as well as clinical excellence.”

Dr. Segal is a key figure in Ohio State’s rapidly growing neuroscience effort, a deep and sweeping investment in tackling the world’s most pressing health challenges of the brain, spine, nerves and muscle. As one of the country’s first academic health centers to combine several neuroscience-related specialties into one program—the Neurological Institute—the university has made it a priority to forge unexpected connections while recruiting the foremost experts across neurology, neuroscience, neurosurgery and psychiatry.

Combined and working in partnership, these powerhouse programs are building a world-class institute in basic, translational and clinical neuroscience research leading to top-notch care.

“Anybody can form a neurological institute, but the advantages unique to Ohio State are the individuals involved, from scientists to staff,” says Russell Lonser, MD, a nationally recognized neurosurgeon and brain and spine researcher who serves as chair of the Department of Neurological Surgery and co-chair of the Neurological Institute. “We’re a massive university with incredible resources and talented individuals coming together in a very intentional way.”

The novel collaborative work emerging from Ohio State’s neuroscience effort spans a wide range of conditions, including multiple sclerosis, dementia, stroke, epilepsy, addiction, schizophrenia, spinal cord and traumatic brain injuries, brain tumors, and Parkinson’s, Huntington’s and Alzheimer’s diseases.

“The Ohio State Neurological Institute is poised to be at the cutting edge of discovery and treatment of a spectrum of neurological diseases,” Dr. Segal says.

USING THE IMMUNE SYSTEM TO STIMULATE NEURAL REPAIR



Benjamin Segal, MD



Andrew Sas, MD

Dr. Segal and Andrew Sas, MD, an associate professor in the Department of Neurology, are exploring how the immune system can be manipulated to rescue damaged nerve cells from death, and to stimulate the regrowth of severed nerve fibers. They’ve identified a unique immune response that directly induces nerve fibers to regenerate in the setting of optic nerve and spinal cord injury. The pro-regenerative immune cells also trigger cortical brain cells to grow new fibers.

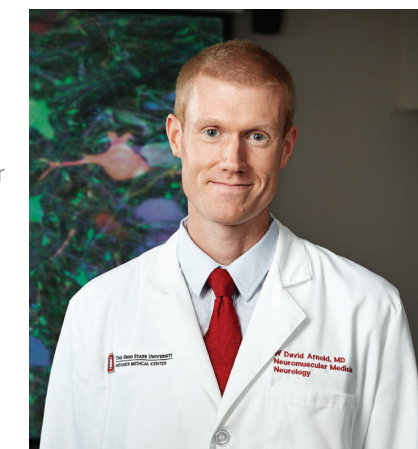
In ongoing research, the Segal lab is investigating how to generate neuroprotective/regenerative immune cells from bone marrow cells in vitro for use as a cellular therapy.

“We’ve come a long way in developing therapies that prevent or mitigate damage, or provide symptom relief, in a range of nervous system diseases such as MS, Parkinson’s disease and epilepsy,” Dr. Segal says. “However, there’s an unmet need for therapies that reverse damage to the brain and spinal cord once it has already occurred. This research could lead to the first treatments that actually restore lost neurological function across a range of conditions, from traumatic brain and spinal cord injury to MS, Alzheimer’s disease and ALS.”

PREVENTING MUSCLE LOSS IN DISEASE AND WITH AGING

In diseases such as ALS and spinal muscular atrophy (SMA), nerves that innervate muscles (known as motor neurons) degenerate, leading to weakness, difficulty swallowing and, ultimately, difficulty breathing. Ohio State was one of the institutions that led the way in the discovery and initial clinical trials of nusinersin, the first FDA-approved gene-based therapy for SMA that halts disease progression and improves motor function.

W. David Arnold, MD, an associate professor in the Department of Neurology, has found that loss of muscle size and function that normally occurs during aging is also related to the attrition of motor neurons. **His lab is exploring the mechanisms underlying motor neuron loss and repair with the long-term goal of developing therapeutics that prevent muscle loss in the elderly, as well as in individuals with neurological diseases, thereby improving day-to-day functioning.**



W. David Arnold, MD



Sandra Kostyk, MD

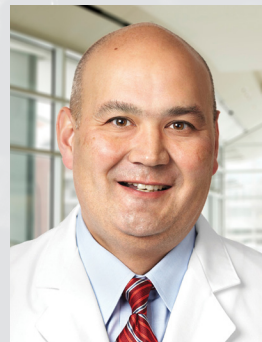
GENE THERAPY FOR NEUROLOGIC DISEASE

A leader in gene therapy, Ohio State has multiple studies for Parkinson's and Huntington's diseases as well as aromatic L-amino acid decarboxylase deficiency, a rare genetic disorder affecting children and resulting in developmental delay, weak muscle tone and difficulty moving.

Using the direct delivery of gene therapy to target diseased brain circuits, Ohio State is performing first-in-patient gene therapy trials for incurable neurologic diseases, including Huntington's disease, Dr. Lonser says. **In a worldwide first, surgeons at the Ohio State Wexner Medical Center treated two patients with Huntington's using a novel gene therapy treatment as part of a multi-center, double-blind randomized clinical trial.** Since 2000, the Ohio State Wexner Medical Center has been designated a Huntington's Disease Society of America Center of Excellence, led by Sandra Kostyk, MD, PhD, an associate professor of Neurology.

NEUROMODULATION AND FOCUSED ULTRASOUND

Deep collaborations across psychiatry, neurology, neuroscience and neurosurgery are leading to state-of-the-art basic, translational and clinical research into the use of neuromodulation to treat conditions such as epilepsy and pain disorders, Dr. Lonser says. And, in a first-in-world clinical trial, Ohio State College of Medicine researchers are studying how well focused ultrasound surgery works in adults with a specific type of epilepsy whose seizures aren't controlled by medication, with the goal of developing real-time physiological feedback during treatment.



Russell Lonser, MD

BRAIN IMAGING IN PSYCHIATRY

"The key theme is: How do we begin to use the most modern neuroscientific tools to discover a brain basis of psychiatric illness?" says K. Luan Phan, MD, chair of the Ohio State College of Medicine's Department of Psychiatry and Behavioral Health. "It's a very important question for us, and we can only answer it in the context of a large integrated neuroscience program that crosses both basic and clinical sciences."

Dr. Phan, nationally recognized for his patient-oriented translational research, and his department are employing functional brain imaging to study how conditions such as addiction, depression and anxiety appear in the brain—and using those findings to see whether they can predict events such as suicide or heavy drinking in young adults.

SPINAL CORD INJURY



Phillip Popovich, PhD

In 2018, a \$10 million gift from the Belford Family Charitable Fund established a center for spinal cord injury and a lifetime commitment to spinal cord research at Ohio State. The center's executive director, Phillip Popovich, PhD, chair of the Ohio State College of Medicine's Department of Neuroscience, together with Dana McTigue, PhD, professor of Neuroscience, and Jan Schwab, MD, PhD, professor of Neurology, are building on a strong basic science base to create a leading translational research program.

Dr. Popovich, whose groundbreaking work has advanced the fields of neurotrauma and neuroimmunology, was the lead author in a recent mouse study that found spinal cord injuries caused an acquired bone marrow failure syndrome that may contribute to chronic immune dysfunction—and that it's possible to overcome certain aspects of this bone marrow failure. All of this could have an immediate impact on people affected by spinal cord injury.

AND MUCH, MUCH MORE

Dr. Popovich easily names other Department of Neuroscience faculty who are conducting translational research in their labs. A short list includes Andy Fischer, PhD, a professor in the department who's studying the cellular and molecular mechanisms of eye diseases; Glenn Lin, PhD, also a professor, whose lab is developing a novel small-molecule therapy with great potential to treat multiple neurological disorders, notably Alzheimer's disease; and Jie Gao, PhD, and Hongjun Fu, PhD, two recently recruited assistant professors who also are focused on developing novel molecular therapies for Alzheimer's disease.

From a brain tumor program with over 40 active clinical trials to industry partnerships driving breakthroughs in medical technology to targeted innovations in bench-to-bedside research, Ohio State's ambitious neuroscience effort continues to gain momentum. Leaders say they're just getting started as they recruit talent from around the world, reach across—and eliminate—aisles, and continue to build life-changing programs and partnerships in ways that could only happen at Ohio State.



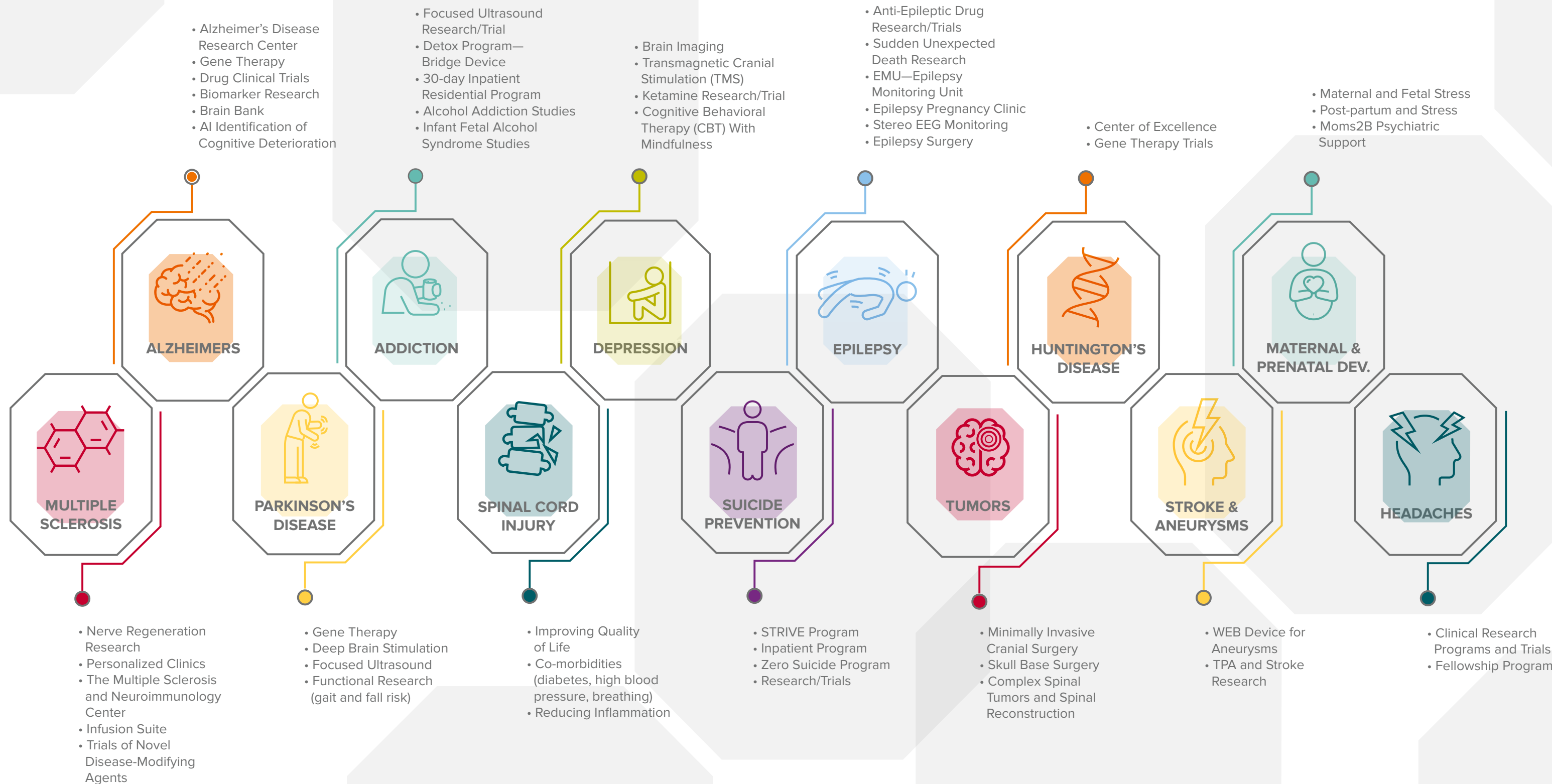
Krystof Bankiewicz, MD, PhD, focuses on the development of AVV-based gene therapies for brain disorders such as Parkinson's disease, Alzheimer's disease, and multiple system atrophy, as well as substance abuse disorders and pediatric neurodevelopmental disorders.

K. Luan Phan, MD, chair of the Ohio State College of Medicine's Department of Psychiatry and Behavioral Health



Highlights of the Ohio State Neurological Institute's Efforts

The Ohio State Neurological Institute combines all our neuroscience-related specialties into a single, integrated program to rapidly unlock the mysteries of the brain and pioneer translational research, innovative technology and novel therapies on every neurological front.



For more information, visit wexnermedical.osu.edu/neurological-institute



Joshua Joseph, MD, MPH

Black impact 100: a community effort to heal a community

Joshua Joseph, MD, MPH, never got the chance to meet his grandfathers. He twice watched the woman who taught him his ABCs clutch her chest in the throes of a heart attack. The second time his grandmother left for the hospital, she didn't come back. At just 8 years old, he'd already witnessed how often premature death hits the African American community.

"That's where the passion developed," says Dr. Joseph, an assistant professor of Endocrinology, Diabetes and Metabolism at The Ohio State University College of Medicine.

Dr. Joseph's experiences led to his research focus on the health of special populations—specifically African American men, who have the shortest life expectancy of any racial gender group. At Ohio State and across Columbus, he's connected with others who share his goals and in the summer of 2020 launched a research study called Black Impact 100.

The 24-week intervention, funded through a Connect and Collaborate grant from Ohio State's Office of Outreach and Engagement, brings together Dr. Joseph; Darrell Gray II, MD, MPH, a gastroenterologist and associate professor in the Ohio State College of Medicine's Department of Internal Medicine; Timiya Nolan, PhD, APRN-CNP, an assistant professor in the College of Nursing; and community partners, key among them the African American Male Wellness Agency, a Columbus-based movement founded in 2004 by John Gregory to raise awareness of preventable diseases.

"This is a testament to team science," Dr. Nolan says. "We're definitely a broad group of folks from different disciplines, but our common goal is to improve the health of African American men, first in Columbus, and then scale up to the United States and the world."

For several years, Drs. Joseph, Gray and Nolan—all of whom spent time building trust within the African American Male Wellness Agency and now serve in leadership roles there—worked with the agency to study the health of its annual walk participants, who are screened for the American Heart Association's "Life's Simple 7," the risk factors that people can improve to achieve ideal cardiovascular health: smoking status, physical activity, weight, diet, blood glucose, cholesterol and blood pressure.

Just a month into the study, the 100 men were already seeing drops in weight and blood pressure—and forming strong bonds with the researchers and each other.

They noted that while the men became aware of their numbers, they weren't successful in improving them.

"So how do we change those numbers?" Dr. Joseph says. "What kind of model can we use to impact the health of Black men?"

A literature review revealed there was no such successful existing model—so Drs. Joseph, Gray and Nolan set out to create it. Working hand-in-hand with the agency, they recruited 100 Black men to work with health coaches and meet once a week for exercise and education.

"One of the things we really value about the research we're doing is that this is truly community-based research," Dr. Gray says. "The community partners are involved in every step."

Agencies across the community have chipped in to help. The City of Columbus Recreation and Parks Department donated 100 free passes, Columbus Public Health and Franklin County Public Health offered to assist with smoking cessation and stress management, and the American Heart Association in partnership with Cardinal Health donated blood pressure cuffs. Others helped meet funding and additional needs.

The goal is for the men to lose 7% of their body weight and achieve 150 minutes of physical activity a week, followed by a secondary goal of getting their blood pressure under control. But the project goes far beyond that, seeking to improve the care Black men receive by addressing social determinants of health that may be a barrier to their journey to wellness; offering implicit bias training to their primary care providers; and increasing the enrollment of Black men in clinical trials.

Early results are promising. Just a month into the study, the 100 men were already seeing drops in weight and blood pressure—and forming strong bonds with the researchers and each other.

"We're pretty much like a family at this point," Dr. Joseph says. "And we want that family—and the male African American community as a whole—as healthy as possible, so that little boys don't have to grow up without their grandparents."



Darrell Gray II, MD, MPH

Leading the nation in reducing nerve pain



Amy Moore, MD, FACS, doesn't have to look hard for her motivation. She sees it in the tears of her grateful veteran patients, in an unexpected rise from a wheelchair. She discovered it when she was just a child tagging along on visits to veterans hospitals with her father.

"I think what you know is because of how you're molded, and I grew up believing that veterans matter," says Dr. Moore, a surgeon-scientist specializing in hand and upper extremity surgery who was named chair of The Ohio State University College of Medicine's Department of Plastic and Reconstructive Surgery in late 2019. "And I knew if I were a physician, I could do even more."

Dr. Moore grew up volunteering at veterans hospitals with her father, who had served in the U.S. Army and worked as an administrator within the Veterans Health Administration. Her medical aspirations grew from there, turning to surgery after she had a knee operation at age 14, then narrowing in on nerves once she got into a laboratory.

At Washington University in St. Louis, where she completed her plastic and reconstructive surgery residency and peripheral nerve research fellowship, Dr. Moore studied under renowned surgeon-scientist Susan Mackinnon, MD, and discovered how she could effectively blend research with practice, her clinical questions driving her science.

"Many of my patients have life-altering pain. That gives me a reason to study it to figure out what injuries cause the most pain, and why some have it while others don't." — Amy Moore, MD, FACS

The study of nerves is a challenging one. No two patients will experience the same injury, and no amount of imaging can reveal how someone is feeling. Conducting serial exams and tracking recovery—or lack thereof—helps paint a broader picture, but Dr. Moore is interested in the mechanism of what caused an injury in the first place. "Then it's biology," she says. "Can we prime biology and push that to create better results?"

Dr. Moore's research and clinical work has helped not just veterans but much younger patients as well. Relying on her understanding of basic science, she pioneered a surgical intervention using nerve transfer to restore lower extremity function in children with acute flaccid myelitis, a rare polio-like illness that saw a dramatic increase in 2018.

Since 2014, she's had three projects funded by the U.S. Department of Defense that have studied ways to alleviate pain and improve sensation after injury, including improving outcomes for war-injured patients. She's also studying how patients respond to electrical nerve stimulation using affordable, off-the-shelf devices that have advanced beyond the clunky, time-consuming equipment of the 1980s.

At the Ohio State College of Medicine, Dr. Moore is primed to do even more. She plans to further elevate a world-class clinical program by expanding research and creating a military medicine program.

"We're already a national leader in treating patients with nerve pain from amputations, and I'm here to help push us forward another step by adding research and novel surgical treatments for patients with pain or loss of function," she says. "I'm confident that we'll be successful because of the collaborative expertise at Ohio State."

Grants over \$2 million: 2019 – 2020

\$5,669,632

Amanda Agnew, PhD, associate professor of Health and Rehabilitation Sciences, and Randee Hunter, PhD, assistant professor of Health and Rehabilitation Sciences, received a grant from the Army Research Office for **"Quantitative imaging analysis to understand variation in skeletal injury."**

\$5,479,018

William Carson III, MD, professor of Surgery; Eric Elliott, DO, assistant professor of Radiology; Wendy Frankel, MD, chair of Pathology; David O'Malley, MD, professor of Obstetrics and Gynecology and director of the division of gynecologic oncology; Manisha Shah, MD, professor of Internal Medicine; Lai Wei, PhD, assistant professor of Biomedical Informatics; Robert Wesolowski, MD, associate professor of Internal Medicine; Julia White, MD, professor of Radiation Oncology; and Jennifer Woyach, MD, professor of Internal Medicine, received a grant from the National Cancer Institute for **"The Ohio State University as a lead academic organization (LAO) for the experimental therapeutics clinical trials network."**

\$4,609,534

Timothy Sahr, MPH, MA, Office of Health Sciences (OHS) Government Resource Center, received a grant from the Ohio Department of Medicaid for **"Ohio Medicaid Assessment Survey (Federal)."**

\$4,481,853

Daniel Merfeld, PhD, professor of Otolaryngology – Head and Neck Surgery, and Ajit Chaudhari, PhD, professor of Health and Rehabilitation Sciences, received a grant from the Office of Naval Research for **"Identifying adverse modes via human-machine cybernetic modeling."**

\$4,049,498

John Byrd, MD, professor of Internal Medicine; William Carson III, MD, professor of Surgery; Arnab Chakravarti, MD, chair of Radiation Oncology; Electra Paskett, PhD, MSPH, professor of Internal Medicine and director of the Division of Cancer Prevention and Control; and Claire Verschraegen, MD, professor of Internal Medicine and director of the division of Medical Oncology professor of Internal Medicine; and Claire Verschraegen, MD,

professor of Internal Medicine, received a grant from the National Cancer Institute for **"OSU K12 training grant in oncology."**

\$3,828,332

Heather Robinson, MA, OHS Government Resource Center, and Cara Whalen Smith, PT, OHS Government Resource Center, received a grant from the Ohio Department of Medicaid for **"Medicaid Equity Simulation Project."**

\$3,644,380

Abhay Satoskar, MD, PhD, professor of Pathology, received a grant from the Global Health Innovative Technology Fund for **"Live attenuated prophylactic vaccine for leishmaniasis."**

\$3,206,532

Timothy Sahr, MPH, MA, OHS Government Resource Center, received a grant from the Ohio Department of Medicaid for **"Ohio Medicaid community engagement evaluation."**

\$3,166,685

Derek Houston, PhD, associate professor of Otolaryngology – Head and Neck Surgery; Oliver Adunka, MD, professor of Otolaryngology; and Irina Castellanos, PhD, assistant professor of Otolaryngology, received a grant from the National Institute on Deafness and Other Communication Disorders for **"Parent-child interactions and word learning in young deaf children with cochlear implants."**

\$3,117,400

Sylvester Black, MD, PhD, associate professor of Surgery; Jae-Kyun Ko, PhD, assistant professor of Surgery; and Jianjie Ma, PhD, professor of Surgery, received a grant from the National Institute of Diabetes and Digestive Kidney Diseases for **"Preservation of DCD allograft integrity for liver transplantation."**

\$2,285,908

Tina Bickert, MA, OHS Government Resource Center, received a grant from the Ohio Department of Medicaid for **"Diabetes Consortium Project."**

continued...

Grants, continued

\$2,777,567

Kymerly Gowdy, MS, PhD, associate professor of Internal Medicine, received a grant from the National Institute of Environmental Health Sciences for **“Dietary DHA mitigates ozone-induced pulmonary inflammation.”**

\$2,686,090

Ginny Bumgardner, MD, PhD, professor of Surgery; Mahmoud Abdel-Rasoul, MS, MPH, Biostatistics; Tibor Nadasdy, MD, professor of Pathology; and Jason Zimmerer, PhD, research scientist of Surgery, received a grant from the National Institute of Allergy and Infectious Diseases for **“Investigating a novel cellular therapy to prevent and treat acute antibody-mediated kidney transplant rejection.”**

\$2,621,818

Allison Lorenz, MPA, OHS Government Resource Center, received a grant from the Ohio Department of Health for **“IMPLICIT Network Quality Improvement Project.”**

\$2,421,335

Dmitry Terentyev, PhD, associate professor of Physiology and Cell Biology, and Andriy Belevych, PhD, assistant professor of Physiology and Cell Biology, received a grant from the National Heart, Lung, and Blood Institute for **“Novel mechanisms of regulation of SK channels: Implications for cardiac arrhythmia.”**

\$2,417,625

Courtney Hebert, MD, assistant professor of Biomedical Informatics; Megan Gregory, PHD, assistant professor of Biomedical Informatics; Harvey Miller, PhD, professor of Geographic Information Science; James Odei, PhD, assistant professor of Biostatistics; Michael Rayo Jr., PhD, assistant professor of Integrated Systems Engineering; and Elisabeth Root, PhD, MA, associate professor of Geography, received a grant from the Agency for Healthcare Research and Quality for **“GeoHAI: A novel geographic tool for hospital-acquired infection visualization and assessment.”**

\$2,354,592

Prabhakara Nagareddy, M.Pharm, PhD, associate professor of Surgery, received a grant from the National Heart, Lung, and Blood Institute for **“Thrombocytopoiesis in diabetes: Role of damage-associated molecular patterns.”**

\$2,351,105

Amy Lovett-Racke, PhD, professor of Microbial Infection and Immunity, and Yuhong Yang, MD, associate professor of Neurology, received a grant from the National Institute of Allergy and Infectious Diseases for **“Role of miRNA dysregulation on T cell differentiation and function in MS.”**

\$2,344,724

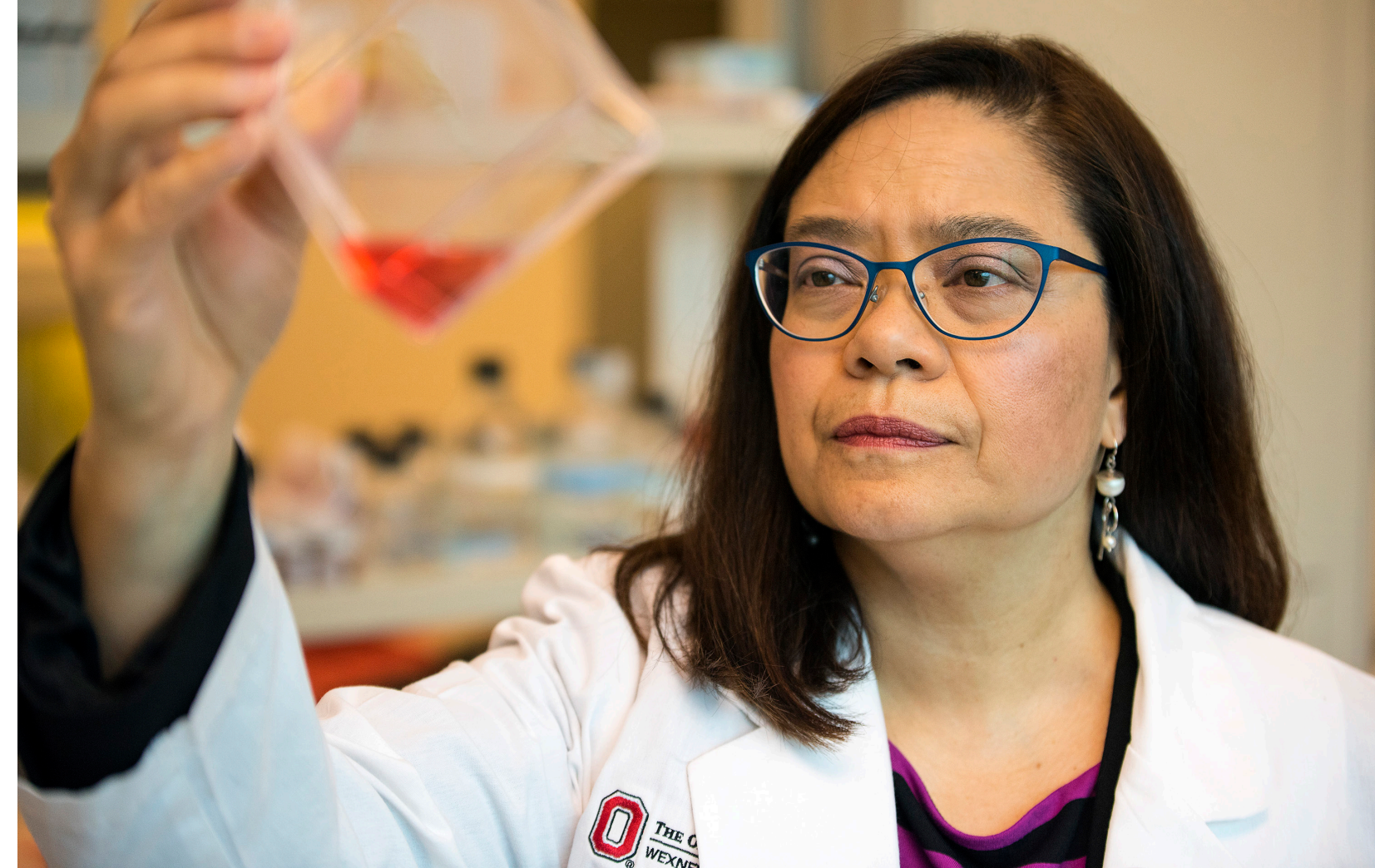
Krystof Bankiewicz, MD, PhD, professor of Neurological Surgery, and Lluís Samaranch, PhD, assistant professor of Neurological Surgery, received a grant from the National Institute of Neurological Disorders and Stroke for **“Development of a nanoparticle-based gene editing technology for neurological applications.”**

\$2,319,443

Peter Mohler, PhD, chief scientific officer for the Wexner Medical Center; Vadim Fedorov, PhD, professor of Physiology and Cell Biology; and Thomas Hund, PhD, professor of Biomedical Engineering, received a grant from the Leducq Foundation for **“Fighting against sinus node dysfunction and associated arrhythmias.”**

\$2,274,560

Matthew Ringel, MD, professor of Internal Medicine; Gregory K Behbehani, MD, PhD, assistant professor of Internal Medicine; Pamela L Brock, LGC, assistant professor of Internal Medicine; William Carson III, MD, professor of Surgery; Lawrence Kirschner, MD, PhD, professor of Internal Medicine; Eugene Oltz, PhD, chair of Microbial Infection and Immunity; and Xiaoli Zhang, PhD, MS, assistant professor of Biomedical Informatics, received a grant from the National Cancer Institute for **“RCAN 1.4 metastasis suppressor in thyroid cancer.”**



Ginny Bumgardner, MD, PhD, received a grant for over \$2.6 million to study a novel cellular therapy to prevent and treat antibody-mediated kidney transplant rejection.

\$2,258,963

Laszlo Farkas, MD, associate professor of Internal Medicine, received a grant from the National Heart, Lung, and Blood Institute for **“Endothelial toll-like receptor 3 in the pathogenesis and therapy of pulmonary arterial hypertension.”**

\$2,224,698

Murugesan Rajaram, PhD, FAHA, assistant professor of Microbial Infection and Immunity; Latha Ganesan, PhD, assistant professor of Internal Medicine; Daniel Wozniak, PhD, professor of Microbial Infection and Immunity; and Lianbo Yu, PhD, assistant professor of Biomedical Informatics, received a grant from the National Institute of Allergy and Infectious Diseases for **“Molecular mechanism of cardiac inflammation and dysfunction in Pseudomonas aeruginosa infection.”**

\$2,113,810

Heather Robinson, MA, OHS Government Resource Center, received a grant from the Ohio Department of Medicaid for **“Ohio Cardiovascular Health Collaborative.”**

\$2,112,751

Isabelle Deschenes, PhD, chair of Physiology and Cell Biology, received a grant from the National Heart, Lung, and Blood Institute for **“Sodium channels and cardiac arrhythmias.”**

\$2,081,328

William Miller, MD, PhD, MPH, senior associate dean of College of Public Health; Carlos Malvestutto, MD, MPH, assistant professor of Internal Medicine; Abigail Norris Turner, PhD, associate professor of Internal Medicine; and Pamela Salsberry, PhD, RN, professor emeritus of Health Behavior and Health Promotion, received a grant from the National Institute on Drug Abuse for **“Implementing a community-based response to the opioid epidemic in rural Ohio.”**

\$2,039,379

Timothy Sahr, MPH, MA, OHS Government Resource Center, received a grant from the Ohio Department of Medicaid for **“Ohio Medicaid Assessment Survey.”**



Building a model for telehealth success — in record time

The expansion of telehealth at The Ohio State University was already underway, slated for a gradual, multiyear rollout.

Then COVID-19 hit.

“And with the pandemic, we realized that we didn’t have the luxury of waiting,” says L. Arick Forrest, MD, MBA, vice dean of Clinical Affairs for the Ohio State University College of Medicine and medical director of Ambulatory Services for The Ohio State University Wexner Medical Center. “We needed to do something quickly.”

As schools and medical care facilities began to close and state officials advised residents to stay home for their safety, Ohio State Wexner Medical Center launched a blitz of telehealth training and began deploying technology to enable remote visits. In just 10 days, 4,700 users, including physicians and other clinicians, were able to provide telehealth services, and the percentage of Ohio State clinicians across all specialties conducting telehealth visits skyrocketed from 2% to more than 95%.

“A major part of our mission is to improve people’s lives, and we realized if we couldn’t reach out to patients in their homes, we couldn’t help them,” Dr. Forrest says. “This was the way we could connect to so many of our patients, whether they needed care for a common sinus infection or a consultation for a complex gastrointestinal problem. And that’s where our clinicians stepped up.”

At Ohio State Wexner Medical Center, remote visits went far beyond basic care. Telehealth was applied to a wide range of primary care needs, such as chronic disease management, physical exams, well-child visits, mental health follow-up, medication management, new patient encounters and acute non-emergent complaints such as back pain, headache and rash.

Specialists also leveraged telehealth to maintain high-quality care and trusted patient-doctor relationships, as well as to conduct electronic consultations with primary care clinicians for seamless specialty care. Otolaryngologist Brad deSilva, MD, says the technology proved particularly useful for speech and swallow therapy appointments. With the help of smartphones equipped with flashlights, he was also able to diagnose cancers of the throat, giving those patients the chance to begin treatment immediately, rather than waiting until COVID-19-related restrictions were lifted for a physical exam.

“Many of us were novices,” Dr. deSilva says, “but in five to seven days we were running a pretty large volume.”

At the peak of the pandemic, Ohio State was conducting 3,000 telehealth visits a day. Optimizing workflows became essential—care teams worked quickly to figure out the virtual flow of a patient visit that preserved the high-quality experience. A multidisciplinary telehealth workgroup led a remarkable series of efforts addressing various technical, clinical, training, logistics, process, communications and workflow needs.

“Telehealth went from being a cool innovation that some people used, to something that was really a necessity for everyone,” says J. Nwando Olayiwola, MD, MPH, chair of the Department of Family and Community Medicine. “We had so many people invested in making sure we were successful from across the medical center.”

That success meant the medical center telehealth effort became a model for others. Academic health centers as far west as Stanford University, as well as in-state health organizations, sought advice from Ohio State Wexner Medical Center, especially related to patient trust and understanding—where the medical center excelled. Patients scored their telehealth experiences incredibly high, and even those who had been reluctant to use digital tools such as MyChart were able to pivot to a new way of seeing their physicians. No-show rates were cut by half.

“Some of my patients don’t like technology that much,” Dr. Olayiwola says. “It’s amazing to see how well so many of them adapted.”

Telehealth also seemed to eliminate the hierarchical barrier between clinician and patient by putting each on equal footing, Dr. Olayiwola says.

“In the traditional in-office experience, you are in my exam room where I examine you and have all the power and all the control. Now we’re both inviting each other into each other’s space. People in their homes are completely different—you see their dog running around or their cat on their lap, and they’re smiling or interacting with other people in the home. A lot of my patients are so much more relaxed.”
— J. Nwando Olayiwola, MD, MPH

The learnings from the COVID-19 era of telehealth will inform the future of the broader telehealth program at Ohio State Wexner Medical Center, both in its practice and teaching of future physicians. The goal, Dr. Forrest says, is to be a leader in telehealth education and make telehealth less of an urgent care vehicle, integrated more into primary and specialty care.

Key developments will include not only standardizing best practices for telehealth exams and care, but customizing individual telehealth experiences through the use of home monitoring equipment—positioning telehealth not as a replacement for traditional care, but as an enhancement with limitless possibilities. Dr. Olayiwola says the medical center will also work to close the “digital divide” by addressing critical inequities that may inhibit a patient’s access to telehealth care, including the lack of a suitable electronic devices or reliable internet service, lower health and telehealth literacy, language barriers and disabilities requiring additional accommodations.

While the original plan for expanding telehealth might not have gone as desired, both Dr. Olayiwola and Dr. Forrest say it was a success rooted in early preparation, institutional readiness, nimble clinician thinking and impressive patient support.

“The way we approached it,” Dr. Forrest says, “was this: We have this crisis in front of us—let’s make it as positive of an experience as possible for our patients and care teams.”



Practice makes perfect: growing a leading robotic surgery program

A Whipple procedure is complex in and of itself. Throw in a robot and it takes some serious practice to master. Do it a hundred times and you become one of the highest-volume centers in the nation.

Faculty at The Ohio State University College of Medicine who practice at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute set out in 2017 to perform the center's first-ever robotic Whipple surgery, removing the head of the pancreas, part of the small intestine, the gallbladder and the bile duct from a 63-year-old man's body.

The procedure was a success and opened up a new path to faster recovery for patients with pancreatic cancer. For The Ohio State University Wexner Medical Center already a national leader in robotic surgery, and the surgeons at the helm of the robot, it also marked the culmination of nearly a year of steady research and practice.

“What was important to me in all of it was growing a team that could do this safely and together. I really wanted to have a team that could do this in perpetuity. It’s part of how we’re continually pushing medicine to take care of patients better.”

– Mary Dillhoff, MD

“We wanted to make sure that we started and ran a program that was safe,” says Mary Dillhoff, MD, an associate professor in the Department of Surgery who performed the first robotic Whipple at Ohio State Wexner Medical Center with a partner. “So we kind of started over. We went back to school.”

As part of a deliberate push to continue to advance surgical innovation and further invest in the nationally renowned robotic surgery program at The Ohio State University College of Medicine, Timothy Pawlik, MD, PhD, MPH, chair of the Department of Surgery, had set a goal of launching a robotic Whipple program and wanted to ensure the team had the resources and time to develop it. The robotic Whipple surgery held a lot of promise for patients—it was less invasive than the traditional procedure and could result in shorter hospital stays.

“These less invasive robotic surgeries are key to our goal of delivering cutting-edge care that helps patients recover faster and, most importantly, improves long-term outcomes,” Pawlik says.

Dr. Dillhoff, returning from maternity leave in early 2017, embraced the new initiative.

“It was different and exciting and anxiety-provoking all at the same time,” she says.

While experienced in robotic surgery, Dr. Dillhoff had never performed a robotic Whipple surgery, also called a pancreaticoduodenectomy. It's a technically difficult, demanding procedure that carries plenty of risks, and the robot—while it's less invasive and enables smaller incisions—removes the surgeon's ability to use touch to explore or hand pressure to stop bleeding.

“That’s where all the practice came in,” Dr. Dillhoff says.

Her team traveled to watch other surgeons perform the robotic surgery, then logged day after day in the Ohio State College of Medicine's Clinical Skills Lab practicing on biotissue. By the time November 2017 rolled around, they were ready for their first patient, a north-central Ohio man diagnosed with a pre-cancerous mass in his pancreas.

The team made it clear to the man: He'd be their first patient to undergo the robotic Whipple procedure.

“He wasn't the least bit hesitant,” Dr. Dillhoff says.

Today, the department is approaching its 100th robotic Whipple and has become one of the nation's highest-volume programs for the procedure, which generally takes about six hours. Four surgeons at Ohio State can perform the surgery, and Dr. Dillhoff expects that number to continue to grow as robotic surgical training becomes less novel and more mainstream.

“What was important to me in all of it was growing a team that could do this safely and together,” Dr. Dillhoff says. “I really wanted to have a team that could do this in perpetuity. It's part of how we're continually pushing medicine to take care of patients better.”



Clinical trials underway to change the future of cancer therapy

FLASH therapy abridges the time to deliver full-course radiation therapy from six to eight weeks to just under one second.

Imagine a world where cancer therapy is delivered in a fraction of a second. Sound like science fiction to you? It may be more realistic than you think.

Researchers at The Ohio State University College of Medicine are studying the safety and efficacy of delivering FLASH radiotherapy, a highly targeted form of radiation therapy, in future clinical trial participants with newly diagnosed, recurrent or advanced cancers. The trials will be the first “out-of-the-box” solution for FLASH inclusive of the most cutting-edge cancer-fighting proton device with integrated shielding in the world.

WHY FLASH?

Conventional radiation therapy, normally given daily over the course of six to eight weeks, poses challenges for very sick patients. That’s where Arnab Chakravarti, MD, chair of Radiation Oncology, and his team come in. They’re studying and testing FLASH, a therapy that boasts shorter, more intense treatments of up to 500 – 1,000 Gray (Gy) per second (conventional radiation delivers less than 1 Gy per second).

“Preclinical data show that FLASH could reduce what is typically 30 to 40 days of treatment into a single treatment,” Dr. Chakravarti says. “And that single treatment could be delivered in less than one second.”

“Preclinical data show that FLASH could reduce what is typically 30 to 40 days of treatment into a single treatment, and that single treatment could be delivered in less than one second.”

— Arnab Chakravarti, MD

HOW IS THAT POSSIBLE?

Proton therapy is an advanced type of radiation treatment that uses protons instead of X-rays to kill cancer cells. A machine (cyclotron) delivers high-energy proton beams painlessly through the skin from outside the body. Protons are accelerated to about two-thirds the speed of light, or more than 100,000 miles per second, to destroy cancer cells, while minimizing exposure to nearby healthy tissues. FLASH, a cutting-edge technology for the delivery of powerful, cancer-killing proton beams, will be investigated, and even pioneered, at Ohio State Wexner Medical Center, first in preclinical models and eventually in clinical trials, should the laboratory results appear safe and effective.

A new multiroom proton therapy center, a collaboration with Nationwide Children’s Hospital, will be equipped with the Varian ProBeam 360° treatment system. It will be the first treatment center specifically built with a dual-capability system that can deliver both conventional proton therapy and FLASH to both adults and children in the United States.

WHAT’S NEXT?

Ohio State researchers also plan to investigate FLASH-electrons to complement the ongoing studies with FLASH-protons, delivering dose rates of over 600 Gy per second delivered by 6 and 9 MeV electrons. This technology, delivering electrons instead of protons, represents a paradigm shift in the field of oncology, with the potential to both expand and improve the role of radiation therapy in the intraoperative treatment of cancer patients.

“Ohio State is extremely well-poised to become the global leader in the development of pan-FLASH clinical capabilities ranging from electrons to protons,” Dr. Chakravarti says. “The existing data on FLASH-electrons, especially in the intraoperative radiation therapy setting, holds the potential of greatly enhancing the overall therapeutic ratio of radiation in a truly transformational manner.”

Arnab Chakravarti, MD, chair and professor of Radiation Oncology at the Ohio State College of Medicine, and Klotz Family Chair of Cancer Research and director of the Brain Tumor Program at The Ohio State University Comprehensive Cancer Center – James Cancer Hospital and Solove Research Institute

The Ohio State University fast facts

Ohio

As one of the largest universities in North America, The Ohio State University boasts more than **12,000 courses**, over **160 undergraduate majors**, **18 colleges and schools**, and more than **200 academic centers and institutes**. Students can choose from more than **1,000 on-campus clubs and organizations** to participate in. We're a **top 12 public research university**, a member of the **Association of American Universities** and named one of the **top 20 most innovative universities** in the nation by *U.S. News & World Report*. In addition to our main campus in Columbus, we have six regional campuses throughout central Ohio. There are nearly **68,000 enrolled students** and **7,000 faculty** who call themselves Buckeyes.

"All these brilliant minds, in hundreds of different disciplines, are just a few blocks away from one another. We've had medical researchers partner with linguistics, engineering, food science...the list is endless. They've had the chance to collaborate with the best minds in other fields — all at Ohio State."
— Peter Mohler, PhD, vice dean for Research at the Ohio State College of Medicine



Booming Columbus

The Ohio State University College of Medicine is home to exciting new research, innovative health care delivery and unique, multidisciplinary education. But the city surrounding the university has rapidly grown, with exciting developments of its own.



A progressive community of big dreamers and bold thinkers.

Columbus is a city unlike any other. Vibrant and alive, Ohio's capital is known for its open attitude, smart style and entrepreneurial spirit. Columbus' neighborhoods, dynamic nightlife, noteworthy music scene, attractions, arts and culinary experiences are made unforgettable by the rich diversity of the community.

Big

- The 14th-largest city in the U.S. and the second-largest in the Midwest, behind Chicago
- Columbus metro area is No. 1 in the Midwest for population, job and GDP growth

Affordable

- With a cost of living nearly 10% below the national average, Columbus offers an affordable market for working professionals
- 71% of homes sold are affordable based on the area's median income

- Columbus is among the top 10 metros in the U.S. for concentration of young professionals (ages 25 – 34) and is the only metro with this distinction in the eastern half of the country
- No. 1 in the Midwest and No. 12 in the U.S. among large metros for millennial migration

Diverse

- 134 nations represented, 109 languages
- 37% of population growth in the metro area is from international migration
- A reputation as an LGBTQ+-friendly city, the annual Pride festival is one of the largest in the Midwest and U.S.

Thriving

- Home to 17 Fortune 1000 headquarters, including 6 Fortune 500s
- A diverse and durable economy, including hubs in the advanced computing, automotive and mobility, e-commerce, finance and insurance, and biomedical industries
- A destination for startups, thanks to scalability and opportunities for venture capital through the largest fund located outside of the coasts

Smart

- Home to more PhDs than the national average, with the largest concentration in the Midwest
- More than 50 college and university campuses, with over 133,000 enrolled students

- Top-ranked K – 12 schools, including 9 public and private high schools in the U.S. top 500 according to *U.S. News* and *Niche.com*. There are 6 public K – 12 districts in the U.S. top 250
- In the past five years, Columbus has been named the world's most intelligent community by the Intelligent Community Forum and the winner of the U.S. Department of Transportation's Smart City Challenge

Accessible

- Average commute of 23.8 minutes. Columbus has low traffic delays and congestion, making it easy to live and work in almost any area of the metro
- Over 400 metro and city parks and 230 miles of existing greenways trails
- Within 500 miles of nearly half of the U.S. population



An interdisciplinary powerhouse

The Ohio State University College of Medicine students learn at one of the most comprehensive academic health centers in the country, collaborating among seven health science colleges, all located on one campus. This includes more than a dozen affiliated research centers and seven hospitals, which provided care to more than 62,000 inpatients in the 2020 fiscal year. As the only academic health center serving a population of 2 million in central Ohio, this gives students unique interprofessional experiences and multidisciplinary solutions to global health issues.

The academic health center includes:

- Seven health science colleges, including colleges of Dentistry, Medicine, Nursing, Optometry, Pharmacy, Public Health and Veterinary Medicine, along with a School of Health and Rehabilitation Sciences
- University Hospital and East Hospital, the medical center's two full-service hospitals
- Richard M. Ross Heart Hospital, dedicated to the study, treatment and prevention of cardiovascular diseases
- Ohio State Harding Hospital, an inpatient and outpatient psychiatric hospital
- Dodd Rehabilitation Hospital, housing Ohio State's nationally ranked inpatient rehabilitation services
- Brain and Spine Hospital, with specialized units for stroke care, neurotrauma and traumatic brain injuries, spinal cord injuries and spine surgery, epilepsy, chronic pain, acute rehabilitation and neurosurgery
- A unified physician practice representing more than 1,200 preeminent physicians
- A network of community-based primary and subspecialty care facilities that manage nearly 2 million patient visits each year

The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute is one of only 51 National Cancer Institute (NCI)-designated Comprehensive Cancer Centers and one of only a few centers funded by the NCI to conduct both phase I and phase II clinical trials on novel anticancer drugs sponsored by the NCI. Physically adjacent to University Hospital is The James, the cancer program's 356-bed adult patient-care component and the third largest cancer hospital in the nation. It is a transformational facility that fosters collaboration and integration of cancer research, education and clinical cancer care.



Ohio State's clinical areas of distinctiveness include cancer, heart, neurology, transplantation, diabetes, musculoskeletal, digestive diseases and critical care. Research programs of distinctiveness include allergy and infectious disease; behavioral health and addiction; cancer; genomics and immunology; health policy; heart, lung and blood; metabolic diseases; neurological disorders; pharmaceutical sciences; precision medicine; translational data analytics; and translational sciences.

This year, The Ohio State University Wexner Medical Center was named to *U.S. News & World Report's* "Best Hospitals" list for the 28th consecutive year. *U.S. News* consistently names Ohio State Wexner Medical Center the top hospital in central Ohio, and it's now ranked #2 in Ohio, behind Cleveland Clinic. Its nine nationally ranked specialties include the country's #5 ear, nose and throat program.

NATIONWIDE CHILDREN'S HOSPITAL

Nationwide Children's Hospital (NCH) in Columbus is recognized as being among the country's best children's hospitals and a highly funded pediatric research institute. This year, it was named #8 in the nation on *U.S. News & World Report's* "Best Children's Hospitals" list.

Ohio State's partnership with NCH began more than a century ago. Today, it's one of the university's largest medical training classrooms. All Ohio State pediatric rotations are completed at NCH, and the College of Medicine and the OSUCCC – James have partnered with NCH on thousands of clinical and research programs. Hundreds of Ohio State's faculty also see patients, conduct research and teach at the children's hospital.

BRICK-AND-MORTAR GROWTH

To expand Ohio State's commitment to advancing the future of health science and revolutionizing the way health care is delivered, the Ohio State Wexner Medical Center is adding a new, 1.9-million-square-foot, 820-bed, \$1.79 billion inpatient hospital tower to its medical campus—the largest single facilities project ever undertaken at The Ohio State University.



The 26-floor tower includes state-of-the-art diagnostic, treatment and inpatient service areas; 60 new neonatal intensive care unit bassinets; enhanced integration of care with the OSUCCC – James; and additional green space and parking. It's expected to open in early 2026.

This project is in addition to continued progress on a new, 225,000-square-foot interdisciplinary health sciences learning facility that integrates the Ohio State College of Medicine's Hamilton Hall with state-of-the-art lab and classroom space, and a multi-use atrium that opens to an exterior terrace.



“The time is always ripe to do right. The coronavirus pandemic served as a ‘community stress test’ for African Americans and people of color. The results indicate that immediate life preserving interventions are required and underscore the need for longer-term remedies to unequal justice, unequal health and health care outcomes.”
 — Leon McDougle, MD, MPH, in his acceptance speech on becoming president of the National Medical Association

National medical association installs Ohio State’s Leon McDougle as 121st president

Leon McDougle, MD, MPH, has been an advocate for diversity in medicine his entire career. As The Ohio State University College of Medicine’s associate dean for Diversity and Inclusion and the first chief diversity officer at The Ohio State University Wexner Medical Center, he’s collaborated with faculty, staff, learners and the community to help transform the center into one of the most diverse and inclusive organizations in the country—recently ranked fourth by *Forbes* magazine on a list of America’s Best Employers for Diversity.

Now he’s taking that charge nationally as the president of the National Medical Association (NMA), the oldest and largest national organization representing over 45,000 African American physicians and their patients in the United States. Their mission is to promote the interests of both doctors and patients

of not only African descent, but also of other races, to foster the utmost quality of care for all Americans. The association also aims to help the U.S. health care system prevent and manage disease effectively.

A confluence of events, including the COVID-19 pandemic, systemic racism and police-involved violence has elevated the voice of the NMA as a trusted messenger in the Black community. The national climate and the need for continued advocacy for African American physicians and the communities that Ohio State serves motivated Dr. McDougle to seek the position.

As president, Dr. McDougle will strive to:

- Champion diversity, equity and inclusion in medicine
- Convene a COVID-19 commission in partnership with the W. Montague Cobb/NMA Health Institute to provide trustworthy and vital information for the Black community
- Advocate for investment in institutions serving African Americans as a remedy of the slave health deficit
- Advocate for policing and justice reform to include abolishing capital punishment, passing the George Floyd Justice in Policing Act of 2020 and ending the mass incarceration of Black and brown people



“The College of Medicine’s faculty, researchers and students have risen to the challenge, proving that there has never been a better time to be at Ohio State, where we are building the model academic health center of the future.”

— Hal Paz, MD

WELCOME FROM HAL PAZ, MD



The Ohio State University College of Medicine has played an important role on the world stage this year, uncovering and developing solutions for a global pandemic. The stakes have never been higher. But The Ohio State University College of Medicine’s faculty, researchers and students have risen to the challenge, proving that there has never been a better time to be at Ohio State, where we are building the model academic health center of the future.

The boundless innovation on display in this annual report is one reason that Ohio State has committed its largest-ever investment in physical growth—scientific innovators often are limited not by their minds or their skills, but by the resources available.

To support a health sciences campus bursting with discovery, we are in the midst of building a new, interprofessional health sciences center that gives students from our seven health science colleges new opportunities to collaborate outside of silos, learn in state-of-the-art lab and classroom spaces, and study in environments that emphasize wellness, connecting interiors with the natural light and greenery of the outdoors.

A new, interdisciplinary research facility will house about 270,000 square feet of biomedical advances, including 8,000 square feet of core lab space, 100 wet labs for experimental research, 16,000 square feet of collaborative space and a 15,000-square-foot vivarium, along with a large seminar space, offices, conference rooms and a café.

Perhaps most exciting of all is our new inpatient hospital. Adding 26 floors and 820 beds to an already large medical campus means we can provide even more specialized, more seamlessly coordinated care to more patients. The state-of-the-art facility will also allow us to hire additional brilliant health professionals and increase collaboration across multiple disciplines.

This tower is designed to reflect the extraordinary care provided by our clinicians and staff and positions us to be a leader in the rapidly changing health care landscape by revolutionizing the way care is delivered.

Interprofessional curriculum and modern facilities are vital to training health care providers for the real-life challenges they will face in the future. At Ohio State, we are building a new and better model for academic health that can improve global well-being and decrease the financial and emotional burdens of sickness for the next century.

Harold Paz, MD, MS
Chancellor and Executive Vice President of Health Affairs, The Ohio State University
Chief Executive Officer, The Ohio State University Wexner Medical Center

 @drhpaz

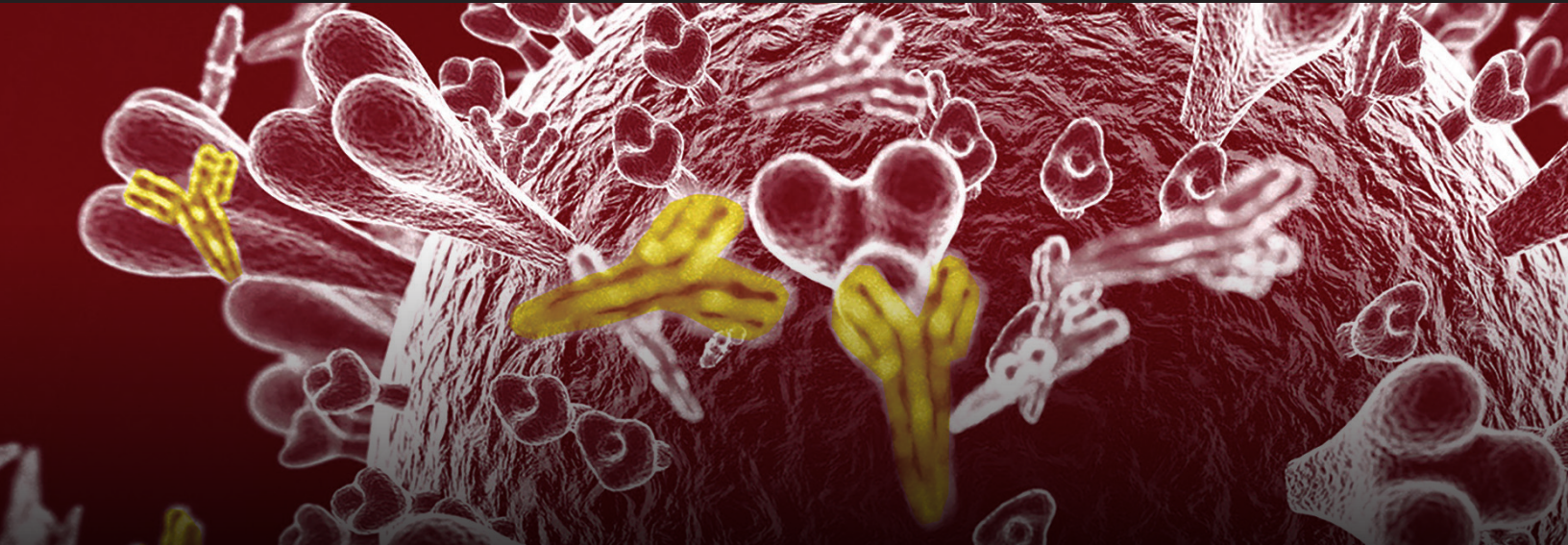
RELENTLESS DISCOVERY



**THE OHIO STATE
UNIVERSITY**

COLLEGE OF MEDICINE

Annual Report 2020



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