

THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER AND COLLEGE OF MEDICINE

DEPARTMENT OF INTERNAL MEDICINE

YEAR IN REVIEW | FY 2021



THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER



THE OHIO STATE UNIVERSITY
COLLEGE OF MEDICINE

Message from the Chair



It was a year unlike any other, and the Department of Internal Medicine took a lead role in The Ohio State University Wexner Medical Center's rapid and successful response to COVID-19. While our entire health system was impacted by the pandemic, our department rose to this unprecedented challenge, showing resilience and spearheading system-wide operations and oversight for surge coverage and patient care.

As examples of our leadership, our department had more than 9,200 consults in fiscal year 2021 (more than 14% of all hospital admissions) on seven different consult services, with one exclusively dedicated to COVID-19. The Division of Hospital Medicine staffed crisis shifts, and we opened two additional ICUs. Our Division of Infectious Diseases was instrumental in establishing testing and safety protocols, quarantine procedures and distribution of personal protective equipment. Our department's research scientists explored therapeutic and preventive interventions, including the effective use of monoclonal antibodies. Ohio State was also among the first health care centers in the nation to administer vaccines, and our department helped establish and manage a mass vaccination program at The Jerome Schottenstein Center.

Most remarkable has been our department's continued focus on growth and improvement, even during these demanding times. We added new training programs,

recruited nationally known faculty and secured record levels of funding. Looking to the future, we are excited about the significant construction projects recently completed or underway, including four new outpatient care centers across central Ohio, a 26-story inpatient hospital and Ohio State's Innovation District, anchored by an Interdisciplinary Research Facility. Each of these projects will allow us to provide more convenient care and the most advanced treatment options possible.

There is a real spirit of curiosity, energy and innovation at Ohio State, which I believe you will discover as you read through this brochure. As always, I hope to hear from you directly if you have any questions or want to learn more about our department.

Warm regards,

Rama Mallampalli, MD

S. Robert Davis Chair of Medicine
Professor and Chair, Department of Internal Medicine
The Ohio State University Wexner Medical Center
Rama.Mallampalli2@osumc.edu

DEPARTMENT OVERVIEW

The Department of Internal Medicine comprises 15 divisions and is the largest department in The Ohio State University College of Medicine.



Rama Mallampalli, MD
S. Robert Davis Chair of Medicine
Professor and Chair,
Department of Internal Medicine

DIVISION DIRECTORS



Electra Paskett, PhD, MSPH
Division of Cancer Prevention
and Control



Ayesha Hasan, MD
Interim Director
Division of Cardiovascular Medicine



Mark Bechtel, MD
Division of Dermatology



Matthew Ringel, MD
Division of Endocrinology,
Diabetes and Metabolism



Darwin Conwell, MD
Division of Gastroenterology,
Hepatology and Nutrition



Dan Jonas, MD, MPH
Division of General Internal Medicine



Yiping Yang, MD, PhD
Division of Hematology



Eric Schumacher, DO
Division of Hospital Medicine



Ray Hershberger, MD
Division of Human Genetics



Susan Koletar, MD
Division of Infectious Diseases



Claire Verschraegen, MD
Division of Medical Oncology



Brad Rovin, MD
Division of Nephrology



Jillian Gustin, MD
Division of Palliative Medicine



Jeffrey Horowitz, MD
Division of Pulmonary,
Critical Care and Sleep
Medicine

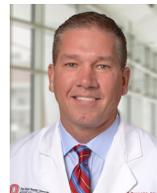


Wael Jarjour, MD
Division of Rheumatology
and Immunology

VICE CHAIRS



Philip Binkley, MD, MPH
Executive Vice Chair for
Academic Affairs



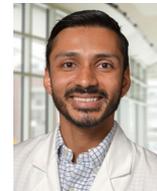
Jonathan Parsons, MD
Executive Vice Chair for
Clinical Operations



Don Benson, MD, PhD
Vice Chair for Faculty Development



Dustin Chase, MD
Vice Chair for Inpatient Operations



Vijay Duggirala, MD
Vice Chair for Quality



Kristen Lewis, MD
Associate Vice Chair for Education



Scott Maffett, MD
Vice Chair for Education



Daniel McFarlane, MD
Associate Vice Chair for Education



Laxmi Mehta, MD
Vice Chair for Wellness



Georgios Papachristou, MD, PhD
Vice Chair for Translational Research



Mauricio Rojas, MD
Associate Vice Chair for Research



Jennifer Sipos, MD
Vice Chair for Diversity
and Inclusion



Sakima Smith, MD, MPH
Vice Chair for Diversity
and Inclusion



Susheela Tridandapani, PhD
Vice Chair for Basic Research



Sharla Wells-Di Gregorio, PhD
Associate Vice Chair
for Wellness

Department of Internal Medicine

By the Numbers

632 faculty

566 clinical | 66 non-clinical

48

APPs

\$110,447,044

research funding

952

grants

Over 1,200
publications

5

nationally ranked specialties
by *U.S. News & World Report*

160 residents | **121** fellows

293

principal investigators

768 staff

473 clinical | 295 non-clinical





Research and Innovation

The Department of Internal Medicine is committed to supporting research and advancing science. Our vision is to promote and sustain bench research that eventually translates into new procedures and therapies. To that end, vice chairs for Research, **Susheela Tridandapani, PhD, Georgios Papachristou, MD, PhD**, and associate vice chair for Research, **Mauricio Rojas, MD**, have committed to helping new investigators through the grant writing and research process. Their discoveries could be key to groundbreaking new diagnostic tests and treatments.

In the last year, national organizations, such as the National Institutes of Health, funded 11,055 grant proposals submitted by 287 principal investigators. This reflects the dedication, support and quality of the research conducted at the Ohio State College of Medicine.

Internal Medicine research program helps junior investigators

New grant funding website to give junior investigators a leg up

Junior investigators are an important part of the research program, but they often have difficulty navigating the grant funding process. The research vice chairs are working to create a website that highlights available funding opportunities and other support.

“We hope the new website will become an important tool for all principal investigators to get support and receive funding for their projects,” says Mauricio Rojas, MD, associate vice chair for Research in the Department of Internal Medicine. “It’s important to provide funding information because, unfortunately, science doesn’t occur in a straight line from an economical point of view.”

CAMELOT program brings in outside experts for grant-writing mentoring

In addition to the new website, the Department of Internal Medicine’s research program also collaborates with outside experts to help junior investigators become proficient in grant writing. CAMELOT (the Center for Cancer Mentoring, Education, Leadership and Oncology-Related Training) helps 10 junior investigators each year by assisting them through a multi-step grant writing process.

All investigators are paired with a mentor who works with them one-on-one to write a draft proposal for funding. A group of the investigators peers then reviews and critiques this draft. After about six months, participants are prepared to write an actual grant proposal and hopefully receive funding.

Research symposium, meetings facilitate synergy and support

In May 2021, 170 Ohio State research scientists attended the Department of Internal Medicine’s Annual Scientific Symposium, held as a virtual event. Attendees viewed over 140 abstracts while networking with other researchers.

As part of ongoing supportive efforts, the research program also hosts monthly meetings attended by 15 research division leads. These meetings help the entire department understand the successes and challenges faced by researchers. They also provide the opportunity for investigators to discuss ways to overcome project hurdles and check in to see if past recommendations have helped.

“We’re committed to building infrastructure to support researchers to advance... We are working to provide more opportunities for collaboration to help our scientists succeed.”

—Susheela Tridandapani, PhD, vice chair for Research

Ohio State takes part in NIH-funded study to address opioid crisis

Rates of opioid-related deaths continue to increase in Ohio — in 2019, the state saw a 7% increase in unintentional drug overdoses compared to 2018, and in 2020, opioid overdose deaths exceeded the highest rates previously recorded.

Of these overdoses, the synthetic opioid fentanyl was involved in an estimated 76% of deaths, often in combination with other illicit drugs such as cocaine, methamphetamine or other opioids.

To combat this problem, investigators at The Ohio State University are taking part in a National Institutes of Health (NIH) and Substance Abuse and Mental Health Services Administration (SAMHSA)-supported HEALing Communities Study (HCS). The \$65.9 million federal research grant will allow investigators and communities to use data collected in real-time to help develop and focus prevention, treatment and recovery programs throughout 19 Ohio communities highly affected by the opioid crisis. The Ohio HCS research team, led by **Rebecca Jackson, MD**, is currently in the third year of the five-year initiative.



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It's not a one-size-fits-all solution, but we've already learned a great deal about which interventions are effective and which are not. We're working toward health equity, and data collected from multiple sources will continue to help inform decisions about opioid use disorder in Ohio.

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Rebecca Jackson, MD

Strengthening society with community data

“When the request for proposals for the HEALing Communities Study was first announced, we knew that as a land grant institution, we had a moral imperative to bring together partners across our state to address one of the greatest public health problems impacting the citizens of our state,” says Dr. Jackson, a professor in the Division of Endocrinology, Diabetes and Metabolism, director of Ohio State’s Center for Clinical and Translational Science and associate dean for clinical research in the College of Medicine. “Our goal is ambitious — to reduce opioid-related deaths by 40% over the next three years by supporting community driven approaches to adopt a multipronged approach of evidence-based practices that have been shown to be effective in treating opioid use disorder.”

Within 19 Ohio counties, community coalitions and other organizations, such as the Ohio Department of Health, Ohio Department of Mental Health and Addiction Services and RecoveryOhio, have partnered with the Ohio State research team and scientists from four other academic institutions in the state to assess current community interventions against opioid use and develop action plans for improvement. This implementation science model focuses on three main goals:

- Increase education about and distribution of naloxone, a highly effective and lifesaving opioid overdose treatment within communities affected by opioid use disorder
- Increase the number of people on medications for opioid use disorder while improving access to recovery and maintenance services for long-term success
- Promote safe opioid prescribing and medication takeback practices

“We work closely with our partners to collect data about the success of interventions they have implemented to reduce opioid overdose deaths and opioid use disorder,” Dr. Jackson says. “How can we extend the reach of evidence-based practices? Does the suite of interventions implemented in a community reduce overdose deaths? Why or why not? We then use data collected in each community to recommend new ways to turn the tide against opioid abuse and unintentional deaths.”

Early interventions already effective

While the study is still ongoing, some early recommendations are already proving effective throughout the 19 study counties. Many have increased access to buprenorphine, an effective treatment for OUD in hospital emergency departments, while also connecting patients to navigators who link them with outpatient treatment and behavioral medicine programs for ongoing care. Several communities have also focused on peer recovery support services, helping provide transportation and other services to recovery centers and treatments.

Additionally, the program has improved educational programs for physicians, nurse practitioners, dentists and other prescribers, such as veterinarians, to raise awareness of safe prescribing practices for opioid medications.

“Our study is unique because it truly brings knowledge and expertise together to address a very real problem,” Dr. Jackson says. “It’s not a one-size-fits-all solution, but we’ve already learned a great deal about which interventions are effective and which are not. We’re working toward health equity, and data collected from multiple sources will continue to help inform decisions about opioid use disorder in Ohio.”



Ohio State leads the nation in COVID-19 response

In January 2021, after being among the first in the nation and the first in Ohio to administer the COVID-19 vaccine to health care workers, The Ohio State University Wexner Medical Center opened its mass vaccination site with fanfare, having turned the Jerome Schottenstein Center into a coordinated machine that could vaccinate more than 3,000 patients a day.

Led by **Jonathan Parsons, MD**, an Ohio State pulmonologist and critical care specialist, the vaccination site — still serving as The Ohio State University's basketball and hockey arena — evolved out of three smaller sites providing vaccines to health care workers.

"As case numbers climbed, we knew the only way to get in front of COVID was to get as many people vaccinated as we could," Dr. Parsons says. "When the vaccines became available in December, we knew we needed a huge operational team to accommodate as many people as possible."

Vaccine clinic serves over 100,000 people

As qualification for vaccination expanded to include the general public, Dr. Parsons and his colleagues selected the 20,000-seat arena, normally home to several Ohio State athletic teams as well as concerts, as an ideal location for a mass vaccination clinic. Staff members followed all public health recommendations when setting up the area for visitors, including social distancing and mandating mask use.

While the process was complex, staff members executed the vaccination clinic successfully. Over 100,000 people received vaccinations through these efforts. Ohio State's COVID-19 vaccination efforts have since spread to several smaller locations.

New antibody therapy shows promising results

In addition to its mass vaccination efforts, Ohio State was among the earliest recipients of a new type of monoclonal antibody therapy. The medical center received 140 initial doses from the state, and nearly 2,000 people have now received this innovative COVID-19 infusion treatment. "The Department of Internal Medicine spearheaded all aspects of the medical center's COVID-19 response," Dr. Parsons says.



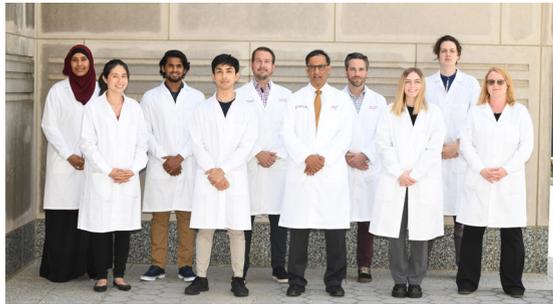
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Our department led vaccination efforts and the monoclonal antibody treatment program, and was instrumental in developing inpatient capacity surge plans as the pandemic worsened. We were also primary providers for the lion's share of COVID-19 patients admitted to our hospital and ICU. I'm confident that we will be able to handle whatever comes our way going forward.

— Jonathan Parsons, MD

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Ohio State scientists awarded top grant for ARDS research



Acute Lung Injury Center lab members

Researchers at The Ohio State University Wexner Medical Center are working in collaboration with others at the University of Pittsburgh to investigate potential therapies against acute respiratory distress syndrome, or ARDS. The work, led by **Rama Mallampalli, MD**, chair of the Department of Internal Medicine at The Ohio State University College of Medicine, is funded by an \$11.6 million P01 grant from the National Institutes of Health.

ARDS is an exceptionally complex lung disease resulting in severe lung damage and inflammation. While mortality from ARDS has fallen in the past 40 years, an estimated 30-35% of people with this condition eventually succumb to the disease or its complications.

Could an immunostimulant help ARDS patients?

Traditional treatments using anti-inflammatories have generally not been helpful for those who develop sepsis as a complication of ARDS. But the immune system may also play a role in the effectiveness of treatments given for ARDS.

In many cases, people with sepsis resulting from ARDS appear to be immunocompromised. In addition to hyper-inflammatory processes that are common with this disease, Dr. Mallampalli's work focuses on the identification and development of new compounds or drugs that might stimulate the immune system to react more effectively.

"It doesn't make rational sense to give someone an anti-inflammatory if we know it's not going to work," he says. "So, the flip side is, why don't we try giving an immunostimulant to help those with lung injury recover faster?"

The current research project, which started about two years ago, investigates three different approaches to immune system stimulation. A large portion of this work occurs in the wet lab setting using animal models, but researchers also have access to a biobank with blood samples collected from people diagnosed with ARDS. These samples allow scientists to examine immune phenotypes and molecular signatures to better understand the impact of their work.

Cellular targets might be key to new therapies

Dr. Mallampalli's research focuses on three separate targets that could be beneficial for stimulating the immune response and reducing inflammation. These include:

- A new class of small molecules, which alter cell death and may help extend the life span of lymphocytes
- Certain transcription factors, which regulate the abundance of inflammation
- Mitochondrial targets, which may help regulate inflammation and help protect host cells from infection

"If we're successful, our work could lead to a new generation of drugs that stimulate host defense and protect people from severe infections that may result from ARDS," he says.

Researchers aim to reduce COVID-19 disparities with RADx-UP award

Ohio communities with high rates of COVID-19-related health disparities are getting a boost with expanded education and testing opportunities for vulnerable populations, thanks to a \$5 million grant received by The Ohio State University College of Medicine researchers in 2020.

Led by endocrinologist **Rebecca Jackson, MD**, director of The Ohio State University Center for Clinical and Translational Science, and **Electra Paskett, PhD, MSPH**, director of the Division of Cancer Prevention and Control, the research team has been using the grant to engage at-risk people through educational opportunities that help make COVID-19 testing and vaccination more likely. Their research efforts are taking place in 12 Ohio counties: Butler, Cuyahoga, Franklin, Hardin, Jefferson, Lucas, Meigs, Muskingum, Ross, Scioto, Trumbull and Washington.



Electra Paskett, PhD, MSPH

The Ohio State University is among 32 other institutions that received grants from the National Institutes of Health's Rapid Acceleration of Diagnostics in Underserved Populations Initiative, known as RADx-UP.

Working to improve community health

"We partner with community health workers — they're our boots on the ground," Dr. Paskett says. "These people go out and educate the public about COVID-19, including providing information about how they can get tested. We've already talked to thousands of people."

Dr. Paskett notes that the team also provides education materials, such as pamphlets, gives presentations, sets up educational tables and takes examples of personal protective equipment to show and share, along with hand sanitizer.

"Our health workers really know the communities they're serving, and they point us toward opportunities for engagement whenever possible," Dr. Paskett says.

Identifying barriers to testing

One important component of grant funding use is the identification of barriers to COVID-19 testing and vaccination.

"People think COVID-19 is gone, or that they aren't at risk. Many don't think they need the vaccination, and many don't trust it," Dr. Paskett says. "We help community organizations we work with identify ways to overcome these kinds of barriers with suggestions about how to frame the conversation or what materials they should give out." With the COVID-19 delta variant causing a surge in cases, the researchers are focused on sending out mailers with information about the community health workers, contact information and other resources. The community health workers also distribute COVID-19 self-test kits. They're also developing strategies to help those diagnosed with COVID-19 get care and other resources.

"If someone is positive for the virus, we can help them become more educated about things like the need for quarantining," Dr. Paskett says. "But we also help connect them to other outside resources to get essential items, like food."

NCI grant helps researchers improve hypoxic tumor therapies

Thanks to a five-year, \$2.9 million R01 grant from the National Cancer Institute (NCI), two Ohio State research physicians hope to improve therapies directed at hypoxic tumors. With over 20 years' experience researching tumor hypoxia, **Nicholas Denko, MD, PhD**, a professor in the Department of Radiation Oncology, has joined **Zihai Li, MD, PhD**, a professor in the Division of Medical Oncology and director of the Pelotonia Institute for Immuno-Oncology (PIIO) at The Ohio State University Comprehensive Cancer Center — Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC — James), in efforts to synthesize new small molecule derivatives of papaverine.

Doctors already prescribe papaverine to improve blood flow in patients with poor circulation. Drs. Li and Denko hope to improve the drug's characteristics and repurpose it into the next generation of anti-hypoxia agents that can be combined with other therapies, such as immunotherapy.



Zihai Li, MD, PhD, and Nicholas Denko, MD, PhD

“

“We’re going to look into the possibility of overcoming immunotherapy’s shortcomings. We hope that, by manipulating tumor oxygen consumption, we can make hypoxic tumors more responsive to newer cancer treatments.”

– Zihai Li, MD, PhD

”

Preclinical research underway

Preliminary results are encouraging in model tumors, so both doctors believe new small molecule derivatives discovered will be superior at reducing hypoxia. To date, there is no Food and Drug Administration (FDA)-approved treatment specific for hypoxic tumors.

“Papaverine works both as a vasodilator and as a mitochondrial complex I inhibitor,” Dr. Li says. “We want to get rid of the vasodilating activity of the molecule while preserving its ability to inhibit mitochondrial oxygen consumption, thereby improving tumor oxygenation.”

As a preclinical study, initial testing will be performed in the laboratory using mouse models. Depending on the success of the program, the researchers hope to move to trials involving spontaneous dog tumors and, eventually, human beings.

The doctors anticipate the project to take more than five years, though Dr. Denko has already been working on this specific research for over 10 years.

“Science is hard work. It requires a lot of resources and smart people coming together to solve problems,” Dr. Denko says. “The Ohio State University has created a wonderful research environment for people to come together to develop new treatments like this.”

New derivatives could also improve other cancer treatments

Prior research shows that papaverine itself doesn't have any anticancer properties. However, some studies show the drug does make other cancer treatments more effective. It's thought that combining new small molecule derivatives discovered in the course of research may especially boost patient response to interventions like immunotherapy and radiotherapy.

“Currently, only a minority of patients really respond to immunotherapy,” Dr. Li says. “We’re going to look into the possibility of overcoming immunotherapy’s shortcomings. We hope that, by manipulating tumor oxygen consumption, we can make hypoxic tumors more responsive to newer cancer treatments.”

Dr. Li says they are patenting the molecules they identify, so that they can be used as anticancer agents.

Education

Residency program offers wide range of clinical options, research opportunities

Across the country, internal medicine residency programs compete to attract the best and brightest new students to help them achieve their medical career goals. According to **David Winger, MD**, program director of the Internal Medicine Residency Program, The Ohio State University College of Medicine rises above the rest by preparing residents to be leaders in whatever aspects of internal medicine they choose to pursue.



Five training pathways available for residents

Five separate training pathways provide opportunities for future internists to receive individualized preparation at Ohio State. Internal medicine residents complete one of five separate pathways:

- **Regular internal medicine track:** This year, 27 interns participate in the largest education track in the College of Medicine. The program prepares residents to assume practice responsibilities immediately after graduating. After three years of internal medicine training, many go on to pursue subspecialty training.
- **Primary care track:** This track prepares four people per class to assume the role of primary care provider in outpatient settings. This group also receives excellent inpatient care experience, and this track is often used as a base for some specialties, such as endocrinology or rheumatology, which have a greater office footprint.
- **Internal medicine/pediatrics:** This four-year program accepts 10 interns each year. They split time between Ohio State and Nationwide Children's Hospital to receive intensified training for care across the lifespan. Some pursue office practices, others provide hospital-based care for children and/or adults, and many complete specialty fellowships in adult care, pediatric care or a combination.
- **Emergency medicine/internal medicine:** Currently accepting two people each year, the five-year program helps residents with equally divided course work between the two specialties. Time spent in the emergency department prepares trainees to deliver care across the full spectrum of patient needs, and many eventually participate in critical care fellowships. They are optimally positioned for health care leadership positions.
- **Physician scientist training program:** For individuals with extensive research backgrounds, such as an MD/PhD, the physician scientist training program enables residents to complete the internal medicine residency in two years, followed by clinical and research fellowship training in their specialty of choice, under the mentorship of accomplished Ohio State researchers.

Preparing residents for the future

Within the five training pathways, the College of Medicine matches residents with a mentor to complete a project on a topic of interest, in areas of research, quality improvement or medical education. Each intern also participates in the Leadership Development Program, a series of seminars occurring over one year that help residents learn core concepts of leadership.

Residents at Ohio State are prepared to care for complicated patients from diverse backgrounds. The program prioritizes diversity in its recruitment processes, realizing this can directly benefit the care of our patients. "We're committed to diversity and inclusion in our program," Dr. Winger says. "We also work to thoroughly train our residents on the social determinants of health which may impact access and quality of patient care. This is especially important to prepare our trainees for the real world of medicine."

FELLOWSHIPS

Division of Cardiovascular Medicine

Adult Congenital Heart Disease Fellowship
Cardiovascular Diagnostic Imaging
Cardiovascular Medicine Fellowship
Electrophysiology
Heart Failure and Cardiac Transplant Fellowship
Interventional Cardiology Fellowship

Division of Dermatology

Micrographic Surgery and Dermatologic
Oncology Fellowship

Division of Endocrinology, Diabetes and Metabolism

Endocrinology, Diabetes and Metabolism
Fellowship

Division of Gastroenterology, Hepatology and Nutrition

Gastroenterology, Hepatology and Nutrition
Fellowship
Inflammatory Bowel Disease Fellowship
Pancreas Fellowship
Transplant Hepatology Fellowship

Division of General Internal Medicine

Geriatrics Fellowship

Division of Hematology and Medical Oncology

BMT Fellowship
Pelotonia Breast Fellowship
Hematology and Medical Oncology Fellowship
T32 Fellowship

Division of Hospital Medicine

Clinician Educator Fellowship

Division of Infectious Diseases

Infectious Diseases Fellowship

Division of Nephrology

Combined Adult and Pediatric Nephrology
Fellowship
Glomerulonephritis Fellowship
Nephrology Fellowship
Transplant Nephrology Fellowship

Division of Palliative Medicine

Hospice and Palliative Medicine Fellowship

Division of Pulmonary, Critical Care and Sleep Medicine

Interventional Pulmonology Fellowship
Pulmonary Critical Care Fellowship
Sleep Medicine Fellowship

Division of Rheumatology and Immunology

Rheumatology Fellowship

New Facility Development



Outpatient Care New Albany

Located at the corner of State Route 161 and Hamilton Road in northeast Columbus, this \$137.9 million, 251,000-square-foot facility is the first of multiple outpatient care centers that will open as part of The Ohio State University Wexner Medical Center's strategic expansion of outpatient services. The goal is to offer patients high-quality care and easy access to Ohio State's nationally ranked experts, right in their own neighborhood.

At this location, patients can have multiple appointments with different health care providers, all in the same place — and often on the same day. Patients can take care of all their major health care needs, from prevention to surgery, in just one building.

Experts from 22 different specialties, including cardiology, gastroenterology, primary care, dermatology and more, will diagnose and treat patients on site. More than 350 faculty and staff will provide more than 100 different services here, with the ability to easily refer patients to other specialists at Ohio State if additional care or hospitalization is needed.

In addition, advanced imaging services and diagnostic testing, as well as cancer screening and diagnosis from the experts at The Ohio State University Comprehensive Cancer Center — Arthur G. James Cancer Hospital and Richard J. Solove Research Institute will be available.



Outpatient Care Dublin

This \$161.2 million Ohio State Wexner Medical Center Outpatient Care Dublin project will bring a new 272,000-square-foot facility to the northwest Columbus suburb. Program offerings will include ambulatory surgery, endoscopy, primary care, specialty medical and surgical clinics and related support spaces.

The Dublin location will join New Albany as the second suburban facility to receive full approval and expand the reach of the Ohio State Wexner Medical Center. The new facility will be built on 34 acres of land just south of — and visible from — State Route 33. A new University Boulevard will be constructed to provide access from Shier Rings Road. Construction began in June 2020 and will continue through summer 2022.



Outpatient Care West Campus

This approximately 385,000-square-foot, cancer-focused facility will include a surgical center and proton therapy treatment facility. Design continues on the facility, which will require additional board action for full approval. Ohio State's investment in the West Campus location is currently estimated at \$343.7 million. Overall plans include outpatient operating rooms, interventional radiology rooms, an extended recovery unit, a pre-anesthesia center, a diagnostic imaging center, a retail pharmacy, a hematology clinic, a genitourinary (GU) clinic, infusion space, medical offices and support spaces. The project will also add a 640-space parking garage. The proton therapy facility, in partnership with Nationwide Children's Hospital, will be the first of its kind in central Ohio.



Interdisciplinary Research Facility

The Interdisciplinary Research Facility envisions an innovative and modern environment to serve multiple disciplines. The project is an anchor for Ohio State's future Innovation District and will create 305,000 square feet of new space for multidisciplinary research discovery. Renderings (shown at left) provide a sneak peek at the proposed five-story laboratory building. The project advances the university's strategic plan by serving multiple research disciplines, including biomedical, life sciences, engineering and environmental sciences, among others. Two floors will be dedicated to The Ohio State University Comprehensive Cancer Center, including its new Pelotonia Institute for Immuno-Oncology. The Interdisciplinary Research Facility will open in June 2023.



DIVISION OF CANCER PREVENTION AND CONTROL

Established in 2010, The Ohio State University College of Medicine's Division of Cancer Prevention and Control conducts research intended to reduce the incidence, mortality and morbidity of cancer. Our research spans the cancer control continuum, from etiology through survivorship, and we use a multi-level focus, from biology to policy, to address cancer from every angle. To capitalize on our division members' strengths and expertise, our studies illustrate particular emphasis on underserved/minority populations, communication research, and behavioral strategies related to epidemiology, biology and lifestyle.

Much of our research is done with transdisciplinary teams to provide a more exhaustive view of cancer's impact and to better understand and address our primary research aims, which are intended to:

- Identify molecular, genetic and behavioral factors related to cancer incidence and mortality
- Develop and test behavioral interventions to prevent or detect cancer early
- Assess and intervene on issues of cancer survivorship

HIGHLIGHTS

- **Mentoring and education** – Our division believes in and supports a strong mentoring program. Our faculty mentors partner with junior faculty, postdoctoral candidates, graduate students and undergraduate students at The Ohio State University, as well as at other institutions. We've also developed a summer program for undergraduate students from historically Black colleges and universities in Ohio. During this 10-week summer research program, participants complete a research paper, poster and presentation. Initial program success has led to subsequent participation from medical students, as well as undergraduate students from Brigham Young University and Kenyon College.
- **Notable new research**
 - U24 for "Participant Engagement and Cancer Genome Sequencing (PE-CGS): Coordinating Center"
 - UL1 for "RADx Large Network for COVID Research"
 - U01 for "A Web-Based Patient-Reported Symptom Monitoring and Self-Management Portal for Adolescent and Young Adult Breast Cancer Survivors"
 - UG1 for Alliance NCORP Research Base
 - Pfizer grant for "Turning the Page on Breast Cancer"
 - Research award and a Breast Cancer Research Foundation grant for "Breast Cancer Prevention through Nutrition Program"
- **Remote accessibility** – Throughout the pandemic, our division was able to continue our vital research initiatives without interruption by working remotely.
- **National leadership** – Our division director and the Marion N. Rowley Professor of Cancer Research, **Electra Paskett, PhD, MSPH**, was named director of the Alliance for Clinical Trials in Oncology Cancer Control Program and Multiple Principal Investigator for the Alliance NCI Community Oncology Research Program (NCORP) Research Base.

Research faculty
4

Fellows
1

FY 21 grants
21

FY 21 NIH funding
\$9.405 million

Active clinical trials
7

FY 21 publications
39

National or international presentations
5

Research collaboration

If you're interested in exploring research opportunities or collaboration with The Ohio State University Department of Cancer Prevention and Control, please contact our division administrator, Sarah Wilkins, at sarah.wilkins@osumc.edu or **614-366-4641**.



DIVISION OF CARDIOVASCULAR MEDICINE

The Division of Cardiovascular Medicine continues to advance novel approaches to disease management and new technology that improves patient care and has led to successful outcomes that are above the national average. Examples of innovation include our electrophysiology program, which has developed a new mapping system for atrial fibrillation that reduces risk and helps assure adequate ablation results, or the minimally invasive treatment for patients with mitral or tricuspid valve disease offered by our interventional cardiology team. In addition, our heart transplant team performed 36 procedures this year, setting an all-time annual record.

Our clinical care is supported by a robust research program, and our division offers multiple fellowship options, including Cardiovascular Medicine and subspecialty programs in Adult Congenital Heart Disease, Cardiovascular Diagnostic Imaging, Heart Failure and Cardiac Transplant, Interventional Cardiology and Electrophysiology.

HIGHLIGHTS

- **Nationally ranked** – The Ohio State University Wexner Medical Center is ranked #46 in the nation for Cardiology and Heart Surgery, according to the *U.S. News & World Report* 2020-21 “Best Hospitals” list.
- **Total artificial heart program** – Provides patients a valuable treatment option to extend time until a transplant organ is available.
- **Amyloidosis scanning program** – Technetium pyrophosphate scanning at outpatient health care sites facilitates earlier diagnosis and treatment of transthyretin amyloidosis (ATTR). We’ve completed over 60 scans this year.
- **Post-COVID-19 cardio screening for athletes** – Developed a protocol for evaluation of collegiate athletes recovered from COVID-19 that led to the Big Ten COVID-19 Cardiac Registry across 13 universities.
- **Cardio-oncology program** – Partnered with Ohio State oncologists to develop a comprehensive program for cancer patients to promote both physical and mental health before, during and after treatments to improve quality of life. The program received early support from a National Institutes of Health (NIH) K-award and recognition at both national and international conferences.
- **Genetic research** – Ohio State scientists investigating the genetic origins of heart disease have discovered links between coronary artery disease (CAD) and human variants in the high-density lipoprotein (HDL) receptor, encoded by the SCARB1 gene. This research could be used to improve therapies for dyslipidemia and to lower the risk of CAD.

Faculty

60 clinical
5 Research

Fellows

32

FY 21 grants

36

Active clinical trials

118

FY 21 publications

215

National or international presentations

37

Referral Information

The Division of Cardiovascular Medicine provides treatment for a full range of issues, including:

- Atrial and ventricular arrhythmias
- Heart failure — including advanced failure requiring transplantation or use of a ventricular assist device
- Structural and adult congenital heart disease
- High-risk pregnancies related to cardiac disease
- Amyloid heart disease
- Pulmonary hypertension
- Cardio-oncology
- Adult congenital heart disease

To refer, please call the Division of Cardiovascular Medicine at **614-293-7677**.



DIVISION OF DERMATOLOGY

As the primary referral center in central Ohio, the Division of Dermatology at the Ohio State Wexner Medical Center offers patient care at multiple specialty clinics as well as an inpatient dermatology program that now handles well over 1,200 consults annually. Our academic dermatologists collaborate extensively with other physicians in cutaneous oncology, bench research, cutaneous surgery, and management of pediatric and adult medical disorders, and they are well-trained in diagnostic dilemmas and complex disease management.

Our growing team also supports an active training program. Residents complete a specially designed preliminary year in internal medicine, then spend three years learning dermatology through clinical experience and comprehensive didactic sessions. We also offer a research fellowship as well as one in Micrographic Surgery and Dermatologic Oncology.

HIGHLIGHTS

- **Specialty clinics** – To better serve the unique needs of each patient, our division offers multiple specialty clinics, including one for urgent conditions.
 - **Multiple advanced cutaneous oncology clinics** are each dedicated to the treatment of conditions such as graft-versus-host disease, drug rashes, cancer therapy rashes, paraneoplastic syndromes, transplant/immunosuppressed dermatology, pigmented lesions and Mohs micrographic surgery.
 - **Cosmetic dermatology** – Patients can select from an entire range of cosmetic procedures, including blepharoplasty, liposuction, toxin injection, fillers, laser and light-based therapies, removal of hair, lesions or tattoos, peeling agents, platelet-rich plasma injections and collagen induction therapy.
 - **Other dedicated clinics** include those for complex dermatology, psoriasis, rheumatologic dermatology, contact dermatology/patch testing, hidradenitis suppurativa and atypical wounds, vulvar dermatology, hair disorders and HIV dermatology.
- **Recent faculty accomplishments**
 - **David Carr, MD** – Established a comprehensive non-melanoma skin cancer database
 - **Catherine Chung, MD** – Created and led the 2nd Annual Dermatology Board-Review Bootcamp, which attracted around 350 graduating residents from across the country.
 - **Brittany Dulmage, MD** – Published a study highlighting largest number of patients to date to describe CDK4/6 inhibitor skin toxicities among breast cancer patients
 - **Natalie Spaccarelli, MD** – Received a patient care innovation award for improving underserved patient access to dermatology utilizing our teledermatology model to partner with Primary One Health Center
 - **John Trinidad, MD, MPH** – Led a national study on conversion of inpatient care to telemedicine during the height of the COVID-19 pandemic

Clinical faculty

22

Fellows

4

FY 21 grants

1

Total grants

3

Active clinical trials

36

FY 21 publications

59

National or international presentations

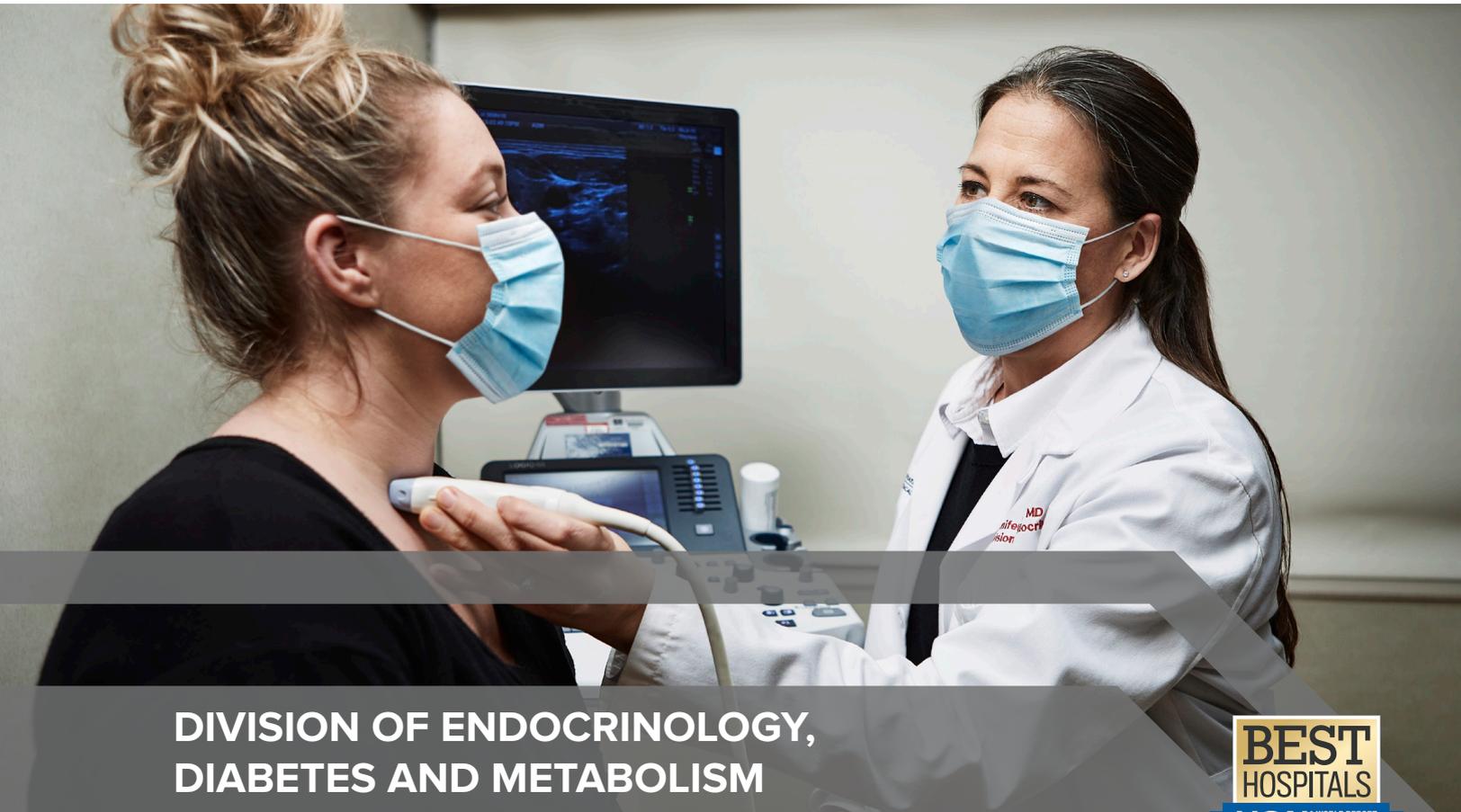
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Referral Information

The Division of Dermatology treats a wide range of conditions, from simple to complex. Common issues include:

- Acne and rosacea
- Skin infections, scabies, warts, rashes and dermatoses
- Hair loss and skin issue related to aging
- Psoriasis
- Skin melanomas
- Birthmarks, moles, scars and pigmentation disorders
- Burns and sun damage
- Cellulitis
- Transplant dermatology

To refer, please call the Division of Dermatology at **614-293-1707**.



DIVISION OF ENDOCRINOLOGY, DIABETES AND METABOLISM



The Division of Endocrinology, Diabetes and Metabolism is a nationally ranked program offering patients the latest available therapies and innovative treatment. Our multidisciplinary team of specialists delivers compassionate care and support to patients as they work to achieve their best health.

In collaboration with other medical experts at our own medical center or elsewhere who deal with conditions affected by diabetes, metabolism or endocrine disorders, we pursue transformative clinical, translational and basic science research that may lead to new treatments or cures. Our community and government engagement activities are intended to increase diabetes awareness and available resources, while our innovative training program at one of the most comprehensive health sciences campuses in the nation helps us develop the best clinicians and researchers for the future.

HIGHLIGHTS

- **National ranking** – The Ohio State University Wexner Medical Center is ranked #25 nationally for Diabetes and Endocrinology by the 2020-21 *U.S. News & World Report* “Best Hospitals” report.
- **Advanced training opportunities** – The curriculum for our Endocrinology Fellowship Program is structured so trainees can be board certified in 24 months. An optional third year provides additional research training for those pursuing an academic career. We also partner with the Pediatric Endocrinology program at Nationwide Children’s Hospital to offer a combined four-year fellowship. A focused Nurse Practitioner Preceptorship provides additional training for professionals interested in our area of specialty.
- **Recent faculty accomplishments**
 - **Kathleen Dungan, MD** – Diabetes Care Top Reviewer, director of the OSU Diabetes Center of Clinical Excellence
 - **Eileen Faulds, NP, PhD** – New K23 award from NIH
 - **Luma Ghalib, MD** – Serves on The Ohio State University North American Skull Base Society team (CCCT James Skull Base) and selected for the society’s Honor Roll
 - **Willa Hsueh, MD** – Co-director of new Cardiometabolic T32; received a new R56 from the NHLBI
 - **Steven Ing, MD** – Clinical trials in hypoparathyroidism and hypophosphatasia; director of the endocrine clinical trials unit
 - **Rebecca Jackson, MD** – 2020 Healthcare Trailblazer, Individual Award; Castle Connolly Exceptional Women in Medicine 2019-2021; Scientific Advisory Council, National Institute of Clinical and Translational Science; director of Ohio State Center for Clinical and Translational Sciences
 - **Joshua Joseph, MD** – Columbus CEO Healthcare Achievement 2021 – Pathway to Populations Health Award; “Philanthropist of the Year” Medical Mutual Pillar Award for Community Service; “40 Under 40 Leaders in Health” from The National Minority Quality Forum
 - **Lawrence Kirschner, MD, PhD** – Co-director of Adrenal Tumor Program, OSUCCC – James
 - **E. Douglas Lewandowski, PhD** – 2022 Research Achievement Award from the International Society for Heart Research (ISHR); Outstanding Reviewer, *Circulation*
 - **Matthew Ringel, MD** – 2021 Sidney Ingbar Career Research Award, American Thyroid Association; national co-chair, American Thyroid Association Thyroid Cancer Guidelines Task Force; editor-in-chief, *Endocrine-Related Cancer*; co-director of the Ohio State Center for Cancer Engineering
 - **Jennifer Sipos, MD** – Appointed vice chair for Diversity and Inclusion for the Department of Internal Medicine

Faculty

25 clinical
2 research

Fellows

4

FY 21 grants

9

Total grants

52

Active clinical trials

38

FY 21 publications

90

National or international presentations

47

Referral Information

The Division of Endocrinology, Diabetes and Metabolism accepts referrals and partners with the referring physicians to treat a wide range of patients, most frequently those with:

- Thyroid cancer and nodules
- Type 1 and type 2 diabetes
- Thyroid function disorders
- Adrenal disorders
- Polycystic ovary syndrome
- Pituitary tumors and disorders
- Metabolic bone disorders and osteoporosis

To refer, please call the Division of Endocrinology, Diabetes and Metabolism at **614-685-3333**.



DIVISION OF GASTROENTEROLOGY, HEPATOLOGY AND NUTRITION

The Division of Gastroenterology, Hepatology and Nutrition is part of one of the nation's leading academic medical centers, dedicated to outstanding patient care that offers the latest available therapies, medical education and translational research. Most importantly, we are committed to "treating others as ourselves."

Our division is currently experiencing growth and expansion in several areas with additional faculty and nurse practitioners added to support the demands of our active endoscopy and clinical services, including a "fast track" methodology to help primary care physicians manage some of the most common gastrointestinal and hepatic diseases. Recognizing the importance of early screening, diet and multidisciplinary care, we offer our patients personalized treatment plans with coordinated care from a range of specialists.

HIGHLIGHTS

- **Computer-aided colon polyp detection tool** – The Ohio State University Wexner Medical Center was the nation's first academic medical center to test this advanced tool for colorectal cancer screening that could reduce cancer rates by more than 40%.
- **Advanced fellowships** – In addition to ACGME-accredited fellowships in Gastroenterology and Transplant Hepatology, we offer advanced fellowships in Therapeutic Endoscopy, Pancreatic Disorders, Inflammatory Bowel Disease and Esophageal Disease. For more than a decade, our fellows have had 100% pass rates on board exams. You can review curriculum and program details at medicine.osu.edu/gastroedu.
- **Recent faculty accomplishments**
 - **Anita Afzali, MD, MPH** – Named associate editor in July 2020 for the *American Journal of Gastroenterology* (AJG)
 - **Zobeida Cruz-Monserrate, PhD** – R21 (PI) awarded December 2020 for "Mediators of Pancreatic Cancer-Associated Cachexia"
 - **Samuel Han, MD** – Awarded winter 2020 Department of Internal Medicine Pilot Award and 2021 ASGE Outstanding Manuscript Award for "Effect of individualized feedback on learning curves in EGD and colonoscopy: a cluster randomized controlled trial – Gastrointestinal Endoscopy"
 - **Khalid Mumtaz, MBBS, MSc** – Published "Terlipressin plus Albumin for the treatment of Type 1 Hepatorenal Syndrome" in the *New England Journal of Medicine* in March 2021
 - **George Papachristou, MD, PhD** – U01 (PI) awarded November 2020 for "Epidemiology and Pathophysiology of Acute Pancreatitis-related Diabetes Mellitus"
- **Division recognition** – Our multidisciplinary Inflammatory Bowel Disease Center was awarded the "Golden Colon" award for the fourth time by the Crohn's and Colitis Foundation.

Faculty

34 clinical | 2 research

Fellows

15 fellows | 4 advanced fellows

FY 21 grants

75

Active clinical trials

23

FY 21 publications

45

National or international presentations

13

Referral Information

The Division of Gastroenterology, Hepatology and Nutrition treats a wide range of conditions, including those related to:

- Hepatology/liver disease
- Inflammatory bowel disease
- Pancreatic disorders
- Neurogastroenterology/motility disorders
- Advanced therapeutic endoscopy
- Hereditary polyposis syndromes
- Endoscopic screening for GI malignancy

The Inflammatory Bowel Disease (IBD) Center — one of the region's highest-volume IBD programs — offers comprehensive, personalized care plans that include dietitian services and medical therapy.

Our Therapeutic Endoscopy program combines the advantages of innovative technology, nationally recognized physicians and a patient-centered approach for studying and providing advanced endoscopic solutions for complex gastrointestinal disorders.

Our Hepatology program is the region's leader and sees numerous types of liver disorders and performs over 140 liver transplantations each year. The program is nationally recognized in patient safety and quality.

To refer, please call the Division of Gastroenterology, Hepatology and Nutrition at **614-293-6255**.



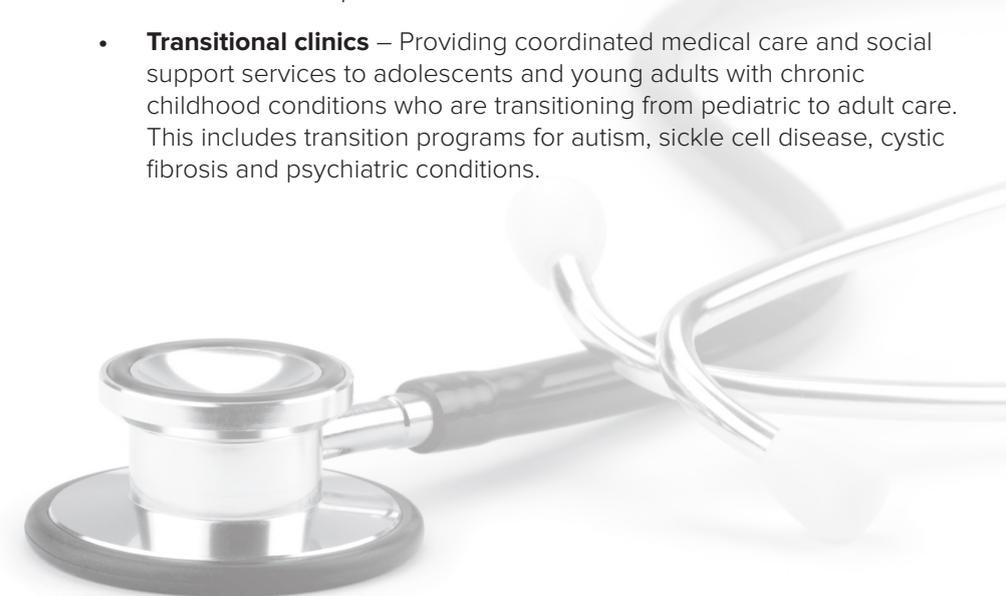
DIVISION OF GENERAL INTERNAL MEDICINE

The Division of General Internal Medicine provides comprehensive primary care services to adults in outpatient settings, as well as hospitalized patients suffering from a broad range of ailments. Many of our practitioners are also board certified in pediatrics or geriatrics.

Our division's mission is to improve the health of local and national populations by providing exceptional and innovative care, conducting exemplary research and training the next generation of primary care clinicians and scholars. Much of our clinical involvement this year — led by a new division director, Dan Jonas, MD, MPH, as of December 2020 — centered on the COVID-19 effort, including patient outreach, immunization and identification of patients eligible for monoclonal antibody treatment. The pandemic reinforced the importance of our already existing faculty, staff and trainee wellness programs.

HIGHLIGHTS

- **Comprehensive Primary Care Plus (CPC+)** – Seven division clinics provide comprehensive primary care via a patient-centered medical home model developed by the Center for Medicare and Medicaid Innovation.
- **COVID-19 initiatives**
 - **Mass vaccination** – Our division was instrumental in the COVID-19 mass vaccination program offered by the Ohio State Wexner Medical Center, which was one of the first health care centers in the nation to offer COVID-19 vaccines.
 - **Surge care** – Our physicians handled inpatient COVID-19 surges from November 2020 to January 2021 managing 785 admissions.
 - **Home care** – Our RN team provided outreach services to over 3,000 patients, offering home care advice, monitoring and triage of ill patients.
 - **Monoclonal antibody treatment** – Our division's pharmacy team was involved in the identification and referral of more than 300 patients for monoclonal antibody treatment.
 - **Post-COVID-19 Recovery Program** – Our division leads a multidisciplinary team to care for patients suffering from post-COVID-19 syndrome. Since opening in April 2021, we've seen hundreds of patients.
- **Transitional clinics** – Providing coordinated medical care and social support services to adolescents and young adults with chronic childhood conditions who are transitioning from pediatric to adult care. This includes transition programs for autism, sickle cell disease, cystic fibrosis and psychiatric conditions.



Faculty

60 clinical

6 research

Fellows

2

FY 21 grants

18

Total grants

36

Active clinical trials

5

FY 21 publications

27

National or international presentations

20

Referral Information

The Division of General Internal Medicine offers a range of services and treats numerous health conditions to provide comprehensive primary care, including preventive screenings, immunizations, minor injuries, annual wellness exams and management of chronic health conditions. We evaluate and manage numerous conditions, coordinating care with the Ohio State Wexner Medical Center specialists (when necessary) to address:

- Cognitive impairment
- Diabetes, hypertension, heart disease, asthma and other chronic health conditions
- Transition clinics for chronic childhood conditions
- Post-COVID-19 syndrome

To refer, please call the Division of General Internal Medicine at **614-293-5123**.



DIVISION OF HEMATOLOGY

The Division of Hematology cares for patients with both malignant and non-malignant blood disorders, using transformative research that translates basic laboratory findings to the bedside in order to offer the most effective therapies. We proactively introduce novel treatments for blood and bone marrow transplantation with leadership in multiple national networks.

Patient care is provided at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James), which has been ranked as a top cancer hospital for the past 23 years by *U.S. News & World Report*. Our team provides compassionate, personalized care to address each patient’s unique situation and goals, and we’re equally committed to training the next generation of physicians and scientists in both the Internal Medicine Residency program and the Hematology and Medical Oncology Fellowship program.

HIGHLIGHTS

- **Nationally ranked** – The OSUCCC – James is ranked #30 in the nation for Cancer, according to the *U.S. News & World Report* 2020-21 “Best Hospitals” list.
- **Clinical programs**
 - Myelodysplastic/myeloproliferative neoplasms (MDS/MPN) program – Led by **Uma Borate, MD**, focuses on treatment of MDS/MPN, a distinct diagnosis for patients with clinical, morphologic and laboratory features that overlap with those of both MDS and MPN.
 - Oncogeriatric program – This program is led by **Ashley Rosko, MD**. Aging patients with cancer receive multidisciplinary care at our Cancer and Aging Resiliency (CARE) clinic, where we develop a comprehensive treatment plan that also addresses quality of life, nutrition, cognition and caregiver support.
- **Research accomplishments**
 - 12 new grants (eight NIH R01s) awarded with \$17.8 million in new NIH funding.
 - Riney Family Foundation Myeloma Center for Advanced Research Excellence – This new center, led by **Don Benson, MD, PhD**, was established with a \$10 million philanthropic gift.
 - 179 publications with many in top journals, including *The New England Journal of Medicine*, *Nature Medicine*, *Lancet Oncology*, *Blood*, etc.
- **Awards and appointments**
 - **Marcos de Lima, MD**, a well-recognized national leader, was recruited to lead our Blood and Marrow Transplant and Cellular Therapy programs.
 - **Payal Desai, MD**, was named president of the Sickle Cell Adult Provider Network, as well as co-chair of the Sickle Cell Disease Coalition’s Research and Clinical Trial Working Group.
 - **Ashley Rosko, MD**, was appointed to the NCI Cancer Moonshot Workgroup for Oncogeriatrics and the FDA Oncologic Drugs Advisory Committee.
 - **Yiping Yang, MD, PhD**, was elected to the Association of American Physicians (AAP), one of the highest honors bestowed upon physician-scientist leaders.

Faculty

33 clinical
16 research
19 physician scientist

Fellows

25

FY 21 grants

12

Total grants

40

Active clinical trials

341 with 1,285 patients enrolled
Over 5,000 patients in active follow-up

FY 21 publications

179

National or international presentations

142

Referral Information

The Division of Hematology treats patients with a range of blood disorders, including:

- Acute leukemia
- Benign hematology
- Chronic leukemia
- Lymphoma
- Myeloma
- Myelodysplastic syndrome

To refer, please call the Division of Hematology at **800-293-5066**.



DIVISION OF HOSPITAL MEDICINE

We are proud to be one of the largest academic divisions of Hospital Medicine in the country and the largest division within the Ohio State Wexner Medical Center's Department of Internal Medicine. Our team of dedicated hospitalists focuses on delivering exceptional patient care while enriching the work-life balance of the physicians we support. Expansion at the Ohio State Wexner Medical Center and the ever-changing landscape of hospital medicine in academics has led our division to grow 30-fold since our inception in 2003.

We have attracted diverse faculty from across the country, and we now operate nearly 40 clinical and medical consultative services across the Ohio State health system. We have developed new medical co-management models and advanced our core curriculum for our residents and medical students to incorporate patient safety, continuous quality improvement and evidence-based medicine, and both our scholarly activity and educational portfolio have grown tremendously the past several years.

HIGHLIGHTS

- **COVID-19 response**
 - Acted as inpatient providers for COVID-19 patients outside of the emergency departments and intensive care units to help the medical center's capacity
 - Covered roughly 500 beds across all eight hospitals, averaging over 550 patient encounters per day, representing an increase of 36% over the previous fiscal year
 - Staffed over 180,000 encounters and 18,000 patient admissions in FY 21
 - Conducted frontline studies in racial disparity in COVID-19 hospitalization and food delivery in the community among at-risk, food insecure residents
- **Opioid addiction prevention and treatment**
 - In partnership with Project Dawn, distributed intranasal naloxone kits and educated the community on how to recognize overdose
 - Joined other Ohio State divisions in the Care Innovation and Community Improvement Program (CICIP) to expand substance abuse prevention and services through all phases of patient care, including Primary Care and Behavioral Health
 - Provided over 1,210 medication assisted treatment (MAT) consults on nearly 900 individual patients
- **Education initiatives**
 - Joined faculty across the medical center and the Ohio State College of Medicine in the Global Health Interest Group
 - Provided diversity curriculum and programming, including monthly invited lecturers on sensitivity and best practices in patient care to division members
 - Hosted the 8th Annual Hospital Medicine Symposium in collaboration with General Internal Medicine and Pediatric Medicine. This virtual event had 140 regional attendees. Over 25 medical students and residents participated in the 2nd annual poster presentation.
- **Patient experience**
 - With focused efforts surrounding patient experience, including specific divisional leadership and initiatives centered on our values and a focus on joint physician-nurse rounding at the patient bedside, the Division of Hospital Medicine HCAHPS Doctor Communication scores have shown consistent improvement in FY 21, with an increase of 3 percentile points from FY 20 and 9 percentile points from FY 19.

Clinical Faculty
130

Fellows
2

Ongoing grants
6

Active clinical trials
5

FY 21 publications
51

See what we're up to next

Follow one of the largest combined internal medicine and pediatrics hospitalist programs in the country, which in addition to service across the Ohio State Wexner Medical Center, includes 24 faculty members covering four Hospital Pediatric services at Nationwide Children's Hospital, plus the Behavioral Health and the Pediatric and Adult Consult services, on Instagram [@ohiostatehospitalists](https://www.instagram.com/ohiostatehospitalists).



DIVISION OF HUMAN GENETICS

The Division of Human Genetics provides outpatient and inpatient consultation services for a broad range of inherited conditions and diseases. In addition to our research and medical student and graduate training, we share information about the important role genetics plays in medicine with specialists across the Ohio State Wexner Medical Center and nationwide, as well as the general public.

Clinical and translational science breakthroughs are pursued by multiple faculty across many conditions in collaboration with patients, their families and research partners. Our scientists focus on identifying and characterizing genes implicated in inherited syndromes, applying novel approaches to genetics service integration, understanding the role genes play in disease processes and performing molecular epidemiological analyses for potential clinical applications.

HIGHLIGHTS

- **Genetic counseling services** – Our team of 16 genetic counselors supports clinical specialties across the medical center. Dedicated counseling services are available for cardiology, neurology, ophthalmology, medical genetics (i.e., familial idiopathic pulmonary fibrosis, carrier screening, pharmacogenomics and syndromic conditions) and oncology (hematology, breast, endocrine, gastrointestinal, gynecologic, genitourinary and general cancers).
- **Genomics Medicine Initiative (GMI)** – A data and bio-specimen repository for patients encompassing all diseases we screen. This initiative will continue to grow in size and scope as different practice areas are added.
- **Research advancements** – This year, two of our faculty genetic counselors received NIH research awards — **Kevin Sweet, MS, LGC**, received an R01 and **Leigha Senter-Jamison, MS, LGC**, received an R21, both to extend insights and to develop new models for genetic counseling. **Ray Hershberger, MD**, and his team completed a six-year NIH study of dilated cardiomyopathy genetics involving 1,230 families with more than 3,000 participants at 25 leading heart transplant centers throughout the U.S.
- **Graduate education** – The course work, thesis component and fieldwork experiences in our genetic counseling graduate program develop the core skills needed to become a highly competent genetic counselor. The program has a 100% job placement and overall board certification examination pass rate. Learn more about our graduate program at medicine.osu.edu/education/masters/ms-genetic-counseling.

Faculty

18 clinical

3 research

Genetic counselors

16

FY 21 grants

7

FY 21 publications

61

National or international presentations

18

Referral Information

The Division of Human Genetics offers patient testing and counseling for a wide range of inherited conditions, including cancers, eye diseases and neurological, gastrointestinal and cardiovascular diseases. We work closely with referring physicians, providing them with detailed summaries of our risk assessment and recommendations for risk reduction and disease prevention based on the patient's family history and genetic test results.

To refer, please call the Division of Human Genetics at **614-293-7775**.



DIVISION OF INFECTIOUS DISEASES

The Division of Infectious Diseases provides consultative services for both inpatients and outpatients with a wide range of complicated, serious and life-threatening infections. In FY 21, we saw more than 9,200 consults (more than 14% of all hospital admissions) on seven different consult services, one exclusively dedicated to COVID-19. Not only did the COVID-19 pandemic require additional clinical service, it provided new challenges and opportunities for our team and for the health care system. Our division was integral in establishing the medical center's testing protocols, quarantine/isolation procedures, distribution of personal protective equipment and many critical safety policies.

As we did with COVID-19, the division aims to improve patient care for all infectious diseases, including tuberculosis, parasitic diseases and HIV/AIDS. Close collaboration with Medical Microbiology, Bioinformatics and other disciplines across the university, medical center and community enhance both our clinical and research missions. We're also committed to providing innovative infectious disease education for medical students, postdoctoral trainees and professional colleagues.

HIGHLIGHTS

- **COVID-19 research** – Research focused on the treatment and prevention of SARS-CoV-2 were high priorities for our division. Notable projects include an AstraZeneca study with nearly 60% of enrolled participants from underserved/minority populations (PI: **Susan Koletar, MD**) and several large treatment studies evaluating the efficacy of monoclonal antibodies at various stages and severity of the disease (PI: **Carlos Malvestutto, MD, MPH**). We also contributed to international COVID-19 pandemic mitigation efforts with a study based in Ethiopia (co-PI **Shu-Hua Wang, MD**).
- **AIDS clinical trials unit** – Ohio State is one of only 30 National Institutes of Health-designated research sites in the U.S. conducting research for the treatment of HIV and AIDS, and related illnesses. Patients can participate in studies that may improve treatment outcomes and drug resistance, prevent and treat co-infections or contribute to better prevention methods.
- **Teleconsultation capabilities** – Using video and web-based telehealth technology, we can connect to primary care doctors and other specialists across the nation to improve speed and quality of treatment.
- **Antimicrobial Stewardship Program (ASP)** – A multidisciplinary team consisting of infectious disease physicians, pharmacists, microbiologists, epidemiologists and a data manager. The goal of ASP is to ensure selection of the right antibiotic, at the right dose, for the right duration in order to cure infection while minimizing toxicity and emergence of resistance.

Faculty

25 clinical

1 research

Fellows

6

Total grants

34

FY 21 grants

16

Active clinical trials

8

FY 21 publications

46

National or international presentations

25

Referral Information

The Division of Infectious Diseases accepts physician referrals for telehealth consultations or in-office patient visits to assist with the diagnosis of unknown or suspected infectious diseases. All testing, diagnosis and treatment information will be shared with the referring physician.

To refer, please call the Division of Infectious Diseases at **614-293-4854**.



DIVISION OF MEDICAL ONCOLOGY

The Division of Medical Oncology’s mission is to provide cutting-edge, compassionate care to those suffering from solid tumor malignancies through Team Science. Team Science is a philosophical approach that integrates scientific discoveries into the care given to patients. As a national leader, we bring 21st century innovative therapies, including cell therapy, molecular diagnostic and therapeutic approaches, and immunotherapy advances to our cancer patients. Because there are no routine cancers, all our clinicians are subspecialized. We work in tumor-specific multidisciplinary teams with surgical, radiation and subspecialty departments to determine the optimal care and to offer participation to the most promising clinical trials. The care we provide is highly coordinated through our subspecialty clinics at The Ohio State University Comprehensive Cancer Center — Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC — James). The Division of Medical Oncology translates the newest cancer research findings by clinical and basic scientists working together to transform patient care and offer realistic hope for cures. Participation in clinical trials at the OSUCCC — James has led to multiple FDA- approved new standards of care for the treatment of various cancers.

To train the next generation of cancer physicians, our fellowship program offers a three-year hematology/ oncology track, as well as two-year tracks in medical oncology or hematology, a breast cancer fellowship and a gastrointestinal cancer fellowship, as well as the opportunity for fellows to be supported by T32 grants. We train the future leaders in oncology.



HIGHLIGHTS

- **Nationally ranked** – The OSUCCC — James is ranked #30 in the nation for Cancer, according to the *U.S. News & World Report* 2020-21 “Best Hospitals” list.
- **The Cancer and Aging Resiliency (CARE) Clinic** – A multidisciplinary care clinic for older adults with cancer. Patients have access to pharmacy, nutrition and audiology services, psychosocial assessment, cognitive and geriatric syndrome evaluation and physical therapy, as well as any appropriate education or intervention.
- **Pancreatic Cancer Multidisciplinary Clinic (PMDC)** – Provides care for newly diagnosed early-stage pancreatic cancer patients. Appointments with medical oncology, surgical oncology and radiation oncology are all scheduled on the same day.
- **ASCO oncology URM student rotation** – Selected as a site for this American Society of Clinical Oncology pilot program — a four-week immersive rotation during summer break between the first and second year of medical school.
- **Living Well with Advanced Breast Cancer Clinic (LWABC)** – This clinic was established in 2017 and is the first of its kind. LWABC provides patient education and personalized supportive care recommendations to patients with metastatic breast cancer. This one-time consultation provides patients and caregivers with 1:1 consultation with medical oncology, palliative care, nutrition and integrative medicine.
- **Research Achievements**
 - **David Carbone, MD, PhD**, received the IASLC 2021 Paul A. Bunn, Jr. Scientific Award.
 - **Margaret Gatti-Mays, MD, MPH**, will serve as a member on the SITC Cancer Immunotherapy Guidelines Oversight Committee for the 2022-2024 term.
 - **Zihai Li, MD, PhD**, received three NCI R01 awards to better understand resistance to immunotherapy in cancer.
 - **Amir Mortazavi, MD**, received the 2021 NIH Director’s Award for his outstanding accomplishments in clinical research.
 - **Carolyn Presley, MD**, received a five-year Beeson K76 NIH award to support her research on aging and oncology.
 - **Daniel Stover, MD**, was awarded an NCI UH2/UH3 for “Assay Validation of Cell-Free DNA Shallow Whole Genome Sequencing To Determine ‘Tumor Fraction’ in Advanced Cancers” and an NCI R21 for “Video Intervention to Address Pre-Test Patient Education for Tumor Genomic Testing.”
 - **Fred Tabung, PhD**, received an American Cancer Society grant for “Metabolomic Profiles of Insulinemic Dietary Patterns and Colorectal Cancer Risk: A Consortium of Metabolomics Studies (COMETS) Analysis.”
 - **Claire Verschraegen, MD**, received third-year renewal of a UG1 for “OSU as a Network Lead Academic Participating Site for the NCI NCTN.”
 - **Robert Wesolowski, MD**, was appointed co-chair to the Correlative Sciences Clinical Trial Working Group for the Big Ten Research Consortium.

Faculty

56 clinical
14 research

Fellows

27

FY 21 grants

18

Total grants

35

Active clinical trials

115, with 365 new patient enrollees for FY21

FY 21 publications

165

National or international presentations

72

Referral Information

The Division of Medical Oncology accepts referrals for patients with these disease diagnoses:

- Breast cancer
- Gastrointestinal cancers
- Genitourinary cancers
- Sarcomas
- Head and neck cancers
- Lung cancer
- Endocrine cancers
- Cutaneous malignancies

We provide cancer prevention services through our Tobacco Research Center and access to the latest clinical trials at our Pelotonia Institute for Immuno-Oncology and other multidisciplinary centers.

To refer, please call The James at **800-293-5066**. To refer a geriatric patient to the CARE Clinic, please call **614-685-0050**. To refer a patient to the Pancreatic Cancer Multidisciplinary Clinic, call **614-293-7171**.



DIVISION OF NEPHROLOGY



The Division of Nephrology provides comprehensive care to patients with the most complex kidney diseases, hypertension, and fluid and electrolyte disorders. We offer cutting-edge therapies, access to clinical trials for novel drugs and specialized clinics for glomerular diseases, refractory hypertension, kidney complications of pregnancy, adult polycystic kidney disease and kidney complications of cancer and cancer treatment.

While our main goal is to prevent anyone from ever needing kidney replacement therapy, we do offer patients with end-stage kidney disease a variety of options to best match their needs. We have an active and growing home dialysis program and are part of one of the largest kidney transplantation centers in the country.

Basic, translational and clinical research, funded through the National Institutes of Health and other agencies, further aides our efforts to improve the lives of patients with kidney disease. We recognize the growing need for nephrologists in the United States and have a dynamic training program to prepare the next generation of nephrology specialists.

HIGHLIGHTS

- **Nationally ranked**
 - The Ohio State University Wexner Medical Center is ranked #32 in the nation for Nephrology, according to the *U.S. News & World Report* 2020-21 “Best Hospitals” list — up eight spots from the previous year.
 - Our kidney transplant program ranks #6 in the country for transplant volumes, and it outpaces national averages for patient outcomes.
- **New multidisciplinary clinics** provide coordinated care from a diverse team of specialists for:
 - **Pregnancy and kidney disease** – Combines the expertise of nephrologists and maternal fetal medicine physicians to monitor and support healthy pregnancies.
 - **Polycystic kidney disease (PKD)** – Offers focused care and access to a growing number of clinical trials for PKD.
 - **Resistant/secondary hypertension** – Partners with primary care physicians to manage secondary/resistant hypertension.
 - **Cardio-renal clinic** – Monitors and treats patients with congestive heart failure who are at high risk for chronic kidney disease, either with or without proteinuria.
 - **Lupus/glomerulonephritis/vasculitis (LGV)** – Seeks to establish a national center of excellence for the treatment and investigation of autoimmune diseases. Based on each patient’s needs, nephrologists and rheumatologists collaborate with other Ohio State specialists to provide appropriate care. This includes experts in cardiology, dermatology, gastroenterology, pulmonary, hematology, infectious diseases, neurology, ophthalmology, obstetrics/gynecology and orthopedics.

Faculty

24 clinical faculty

2 research faculty

Fellows

8 General Nephrology

1 Glomerular Nephritis

1 Transplant

FY 21 grants

7

Total grants

14

Active clinical trials

40

FY 21 publications

105

National or international presentations

40

Referral Information

The Ohio State University Wexner Medical Center Division of Nephrology is the major referral center in central Ohio for nephrology. We partner with referring physicians to treat even the most complex conditions, including:

- Acute kidney injury (AKI)
- BK virus (transplantation rejection)
- Chronic kidney disease
- End stage kidney disease
- Kidney cysts
- Polycystic kidney disease
- Diabetic kidney disease
- Kidney failure
- Acute kidney failure
- Kidney/urinary tract infections
- Vasculitis
- Kidney issues related to cancer or cancer treatment
- Kidney issues during pregnancy

To refer, please call the Division of Nephrology at **614-293-4837**.



DIVISION OF PALLIATIVE MEDICINE

The Division of Palliative Medicine provides interdisciplinary care to patients and families facing serious illness. Our goal is to enhance quality of life by maximizing physical comfort, preventing and alleviating suffering and promoting treatment choices that align with the patient's values and goals. Our vision is to lead the way for empathic, person-centered care through innovation in clinical care, education and research.

Our team supports the palliative needs of patients at any stage of disease in various medical settings, including all Ohio State Wexner Medical Center hospitals and cancer- and cardiac-specific ambulatory locations. Our division includes 18 physicians, one psychologist, 17 advanced practice providers, three social workers, five pharmacists and three administrators. This past year, our inpatient consultations increased by 7%, and we had an 8% increase in new patients. In addition, our growing scholarly output has further built our national reputation in palliative care education and clinical innovation.

HIGHLIGHTS

- **Subspecialty ambulatory clinics**
 - CARE-Pall Clinic – Addresses geriatric and palliative care needs in older adults with cancer, with a special focus on assessment of geriatric syndromes that can affect quality of life and decision making (e.g., frailty and cognition).
 - Cardiac Palliative Care Clinic – Partners with primary cardiologists and/or cardiac surgeons to focus on symptom management, quality of life, advance care planning and goals of care for patients with advanced heart disease.
 - Palliative Harm Reduction Clinic – Provides interdisciplinary care for patients with cancer-related pain and substance use disorder.
 - Thoracic Oncology and Breast Oncology Clinics – Partners with oncologists to address palliative care needs of their patients in their primary oncology clinics.
- **The Serious Illness Conversation Project at the OSUCCC – James**
 - A longitudinal quality improvement program in collaboration with the Alliance of Designated Cancer Centers that promotes goal-concordant care for all cancer patients through communication training and structured documentation.
- **Noteworthy accomplishments**
 - Our division received the College of Medicine 2020-2021 AMRCC Outstanding Site Award based on positive student evaluations of their educational experience.
 - Nine faculty hold leadership positions in national/international organizations such as the American Academy of Hospice and Palliative Medicine, Alliance of Designated Cancer Centers, American Psychosocial Oncology Society, Vitaltalk and International Association of Hospice and Palliative Care.

Clinical faculty
18

Fellows
4

FY 21 grants
4

Active clinical trials
5

FY 21 publications
22

National or international presentations
33





DIVISION OF PULMONARY, CRITICAL CARE AND SLEEP MEDICINE



This past year, the Division of Pulmonary, Critical Care and Sleep Medicine took a leadership role in the medical center's COVID-19 response. We not only cared for more critical care patients than at any other point in our collective careers, but also continued to provide direct care and consultations for patients in both inpatient and outpatient settings, always striving to provide advanced diagnostics and the most appropriate interventional therapies for the best quality of life.

Even during a pandemic, we continued to grow. We anticipate that volume in our lung transplant service will soon place us in the top 10 in the country. We added several new multidisciplinary clinics and have permanently expanded the number of University Hospital medical ICU beds by 33%. Our active research team seeks to improve diagnostic capabilities, advance treatment options and enhance quality of life. Our division also offers four subspecialty fellowship programs: a core combined program in pulmonary and critical care medicine; sleep medicine; interventional pulmonary medicine; and lung transplantation.

HIGHLIGHTS

- **Nationally ranked** – The Ohio State University Wexner Medical Center is ranked #25 in the nation for Pulmonology and Lung Surgery, according to the *U.S. News & World Report* 2020-21 “Best Hospitals” list.
- **COVID-19 response** – In addition to direct care of patients in the ICU, our division supported the medical center’s testing infrastructure and mass vaccination program, worked to develop a biologic specimen biorepository, secured funding for COVID-19-related research and participated in several multi center, national clinical trials that informed our evidence-based new treatment protocols. Our division also was active in the development and implementation of Ohio State’s outpatient Post-COVID-19 Recovery Program.
- **Advanced emphysema care** – Treatments available for advanced COPD/emphysema patients include evaluation for surgical and bronchoscopic lung volume reduction procedures.
- **Multidisciplinary programs** – New dedicated clinics provide streamlined diagnosis and comprehensive treatment for:
 - Chronic Cough, in partnership with the Department of Otolaryngology
 - Neurosarcoidosis, in partnership with the Department of Neurology
 - Vasculitis, in partnership with the divisions of Nephrology and Rheumatology. This clinic often incorporates clinical trials to offer new options not always available elsewhere.
 - Pulmonary Hypertension, in partnership with Cardiovascular Medicine
- **Expanded Interventional Pulmonary Medicine services** – We now offer medical pleuroscopy, and in partnership with the OSUCCC – James, have added a robotic bronchoscopy platform, which will allow more accurate diagnostic bronchoscopy when used in combination with cone-beam CT.
- **Active research** – Our research team explores a range of topics, including acute and chronic lung injury, repair and fibrosis, pulmonary vascular disease/pulmonary hypertension, inflammatory responses within the lung, environmental effects on lung inflammation, sepsis, mechanical support for respiratory failure, autoimmune disease, pulmonary vasculitis, aging and frailty in lung disease, and the recovery from critical illness and the mechanistic and clinical associations of obstructive sleep apnea.

Faculty

55 clinical
12 research

Fellows

22

FY 21 grants

29

Total grants

94

Active clinical trials

85

FY 21 publications

156

National or international presentations

64

Referral Information

The Division of Pulmonary, Critical Care and Sleep Medicine accepts referrals for a range of conditions, including:

- Asthma
- COPD
- Interstitial lung disease
- Lung nodules
- Sleep disorders

To refer, please call the Division of Pulmonary, Critical Care and Sleep Medicine at **614-293-4925**.



DIVISION OF RHEUMATOLOGY AND IMMUNOLOGY

Tested by a pandemic, the Division of Rheumatology and Immunology rose to the challenge. We developed effective safety protocols, added new care clinics and set a record for the number of annual publications — one in the *Journal of Clinical Investigation* reporting the finding that a third of myositis patients have antibodies that interfere with membrane resealing.

During the past year, several faculty were recognized with university and national teaching awards, and we added new faculty to support our diverse clinical and academic training program, including fellowships in Rheumatology and Adult Pediatrics, as well as an advanced fellowship in lupus/vasculitis. We also hosted a Career Pathways in Rheumatology conference. Our division continues to emphasize research, and our committed team of clinical, translational and basic scientists seeks to increase understanding of the basic mechanisms of gene and protein dysregulation and discover breakthroughs that lead to new diagnostics and therapeutics.

HIGHLIGHTS

- **New multidisciplinary clinics**
 - Inflammatory Eye Disease Clinic – Provides a unique approach for patients with inflammatory eye disease who present with autoimmune conditions such as uveitis, scleritis, episcleritis or autoimmune retinopathy.
 - Inflammatory Bowel Disease Clinic – Coordinated care for patients with IBD who have musculoskeletal complaints.
- **Already established multidisciplinary clinics**
 - **Lupus clinic** – Offers patients rapid access to specialists who cover all organ systems potentially involved in immunologic systemic diseases. In addition, innovative treatments are available through a number of clinical trials.
 - **Scleroderma clinic** – Dedicated as a Scleroderma Center by the Scleroderma Foundation in 2018, this multispecialty center is one of only three in the state recognized for advanced scleroderma research, education and care.
 - **Psoriatic Arthritis clinic** – The only multidisciplinary clinic in the state of Ohio that is dedicated to the care of patients with psoriasis who have musculoskeletal complaints.
 - **Vasculitis clinic** – Brings together experts in rheumatology, pulmonology, nephrology and dermatology. A partnership with the Vasculitis Research Consortium expands patient access to clinical trials.
- **Biorepositories and registries** – Important for fueling research and new discoveries, these resources continue to expand. The number of patients currently enrolled are:
 - Lupus, vasculitis, glomerulonephritis (LVG): 684
 - Vasculitis: 108
 - Scleroderma: 110
 - Rheumatology and immunology: 592

Faculty

14 clinical

3 research

Fellows

7

FY 21 grants

1

Ongoing grants

22

Active clinical trials

12

FY 21 publications

26

National or international presentations

19

Referral Information

The Division of Rheumatology and Immunology will work with referring physicians to provide care for patients with a range of conditions, including, but not limited to:

- Rheumatoid arthritis
- Systemic lupus erythematosus
- Scleroderma
- Vasculitis
- Osteoarthritis
- Psoriatic arthritis
- Myositis
- Arthritis associated with inflammatory bowel disease
- Uveitis

To refer, please call the Division of Rheumatology and Immunology at **614-293-4837**.

“Columbus in April reminded me of the D.C. area, where I grew up. I loved all the greenery. I cannot wait to make it home for the next seven years!”



A capital city filled with surprises

Columbus is a great place to start out, to stay, to raise a family and to explore.

- **We're big** – Ohio's capital is the 14th largest city in the U.S. and the second largest in the Midwest, behind Chicago.
- **We're diverse** – Our diversity makes us a top test market, and there are over 109 languages represented here.
- **We're accessible** – The average commute is just over 20 minutes, and John Glenn Columbus International Airport is just 10 minutes from downtown.
- **We're affordable** – The cost of living in Columbus is 10% below the national average.
- **We've earned many high marks and accolades:**

#1 among the 10 largest Midwest metros in population and private sector job growth since 2010 – U.S. Department of Labor

#5 in the world for quality of life – numbeo.com, 2021

Top 10 Best U.S. Cities for Young, Growing Families – CNBC, Sept 2019

#2 City for New College Grads – Smart Asset 2021 edition

Top 10 nationally among large metros – for population ages 25–34

Home to 11 Fortune 1000 headquarters

Columbus scored 100/100 – on The Municipal Equality Index by the Human Rights Campaign, which includes measures of employment, housing and public attitudes toward the LGBTQ+ community

One of the nation's best metro areas for the arts – *Places Rated Almanac*

Top five U.S. city for women-owned businesses – Fit Small Business, 2019

Ranked globally on *The New York Times* list of **“52 Places to go in 2019”**



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