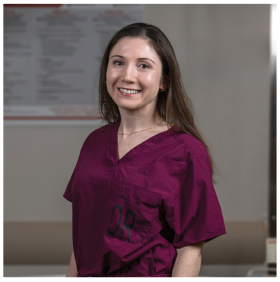


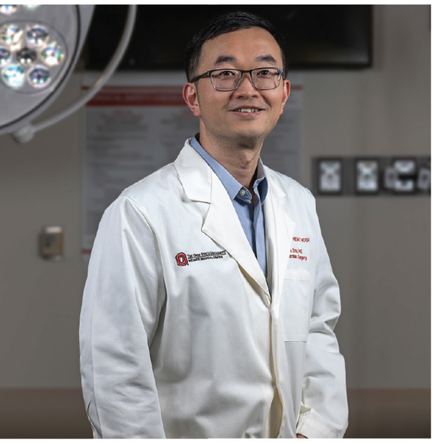



Department of Surgery

Year in Review | 2024

THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER



Letter From the Chair

Reflecting on the journey of the Ohio State Department of Surgery, I am filled with pride and gratitude for the remarkable achievements of our team of surgeons, researchers, advanced practice providers, nurses and staff. Our story is one of dedication, innovation and commitment to excellence.

Surgeons play a significant role in the stories of our patients and their families. We provide the best care in that moment and then return to our own stories. I find it humbling and inspiring to witness the stories of our Buckeye surgeons. This year's annual report showcases their amazing stories and successes, always moving the Department of Surgery forward.

Over the past eight years, we have prioritized the professional growth of our faculty, staff and learners. The creation of a new vice chair role for faculty development has led to leadership and communications retreats, workshops, and national leadership courses. Our department also offers professional development events that empower our team to excel. These efforts are part of our broader story of continuous improvement and aspiration toward excellence.

Advancing quality and safety is a cornerstone of our mission. We have established a Division Quality Review scorecard and a Resident Quality track to drive continuous improvement. Our faculty members participate in national quality programs and task forces, ensuring we remain at the forefront of patient care excellence.

Our department consistently ranks in the top 12 for NIH funding, a testament to our groundbreaking research. We have seen significant growth in research funding, publications and clinical trials. Our faculty members have received numerous awards and grants, solidifying our reputation as leaders in surgical research.

Our clinical programs have garnered national recognition for excellence in patient care, research and community service. They have significantly impacted patient care by providing cutting-edge treatments, improving outcomes and enhancing the overall patient experience. For example, our Comprehensive Transplant Center has achieved some of the highest success rates in the country, and our Division of Surgical Oncology has been at the forefront of innovative cancer treatments.

The story of the Department of Surgery is woven with the individual stories of our surgeons, staff and patients. Each achievement and every innovation add a new chapter to our collective narrative. I invite you to delve into this year's annual report and witness the remarkable and inspiring stories that define us as Buckeye surgeons.

Thank you for being an integral part of our story.

Timothy Pawlik, MD, PhD, MPH
Chair, Department of Surgery
The Urban F. Meyer III and Shelley M. Meyer Chair for Cancer Research
Surgeon in Chief

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>
> Timothy Pawlik, MD, PhD, MPH

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To learn more about the Department of Surgery, visit **go.osu.edu/surgery-year-in-review-2024**.

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>
> **Ginny Bumgardner, MD, PhD**
> Transplant surgeon

A lifelong commitment to transplant research and mentoring

When Ginny Bumgardner, MD, PhD, talks about how she became a transplant surgeon, she mentions faculty members at each turn who helped her find her way.

The instructor who sparked her interest in how the immune system works. The professor who helped her find a residency with a strong transplant program. The transplant surgeon she worked alongside in the operating room and in the lab – a woman in a field with very few women.

On the path to becoming a surgeon and a researcher, Dr. Bumgardner had many mentors.

From several of them, she realized the value of doing research along with being a surgeon. A little more than a decade into her career as a transplant surgeon, Dr. Bumgardner developed the first structured research program for surgeons at The Ohio State University College of Medicine.

She would go on to enhance access to the master's degree program in medical science for resident doctors and fellows to encourage them to engage in formal research.

Teaching the next generation

Over the years, Dr. Bumgardner has mentored countless medical students, helping them learn to evaluate biomedical studies and do research, adding another dimension to their work helping patients live healthier and longer lives.

Mentoring comes naturally to Dr. Bumgardner.

"Every accomplishment of any of the trainees is just a joy for me – every time," says Dr. Bumgardner, a professor of Surgery in the Division of Transplantation Surgery at the Ohio State College of Medicine. "It's sort of a relationship forever."

While generous in her support of others, Dr. Bumgardner has also contributed to the field through her own research findings and by extending the lives of so many patients with donated kidneys, pancreases and livers that she transplanted.

Digging deep into why transplants fail

When she started out in the field, Dr. Bumgardner was curious why sometimes a transplanted organ that initially worked well would later fail. That's long been a critical issue to solve.

A transplanted organ can fail for several reasons: blood clotting, infection, problems with the donated organ and other issues. But one of the most challenging reasons is the patient's immune system reacting to an organ their body considers foreign.

As a resident physician at the University of Minnesota, Dr. Bumgardner would learn how to transplant organs and how the immune system reacted to donated organs. She worked closely with Nancy Ascher, MD, PhD, the first woman ever to perform a liver transplant surgery.

Dr. Bumgardner was part of Dr. Ascher's research team when it made the discovery that a patient's immune system reacts not only to the immune cells circulating through the donor organ called passenger leucocytes, but also to the parenchymal cells within the transplanted organ that are crucial for it to function.

Before that discovery, strategies to prevent an organ from failing focused primarily on eliminating the passenger leucocytes in the transplanted organ.

Throughout her time working alongside Dr. Ascher, she showed a lot of promise as a researcher, Dr. Ascher says.

"Although she took direction, she was also always self-directed and held herself to an incredibly high standard," she says of Dr. Bumgardner. "She has been remarkably successful because she combines talent, hard work and perseverance."

Five years ago, Dr. Bumgardner and the staff in her lab realized the fruits of their perseverance. The team discovered a new type of immune cell that can reduce the production of antibodies that can reject a transplanted organ rapidly or slowly over time.

People who have enough of these immune cells, a subset of CD8 T cells, don't develop the antibodies and therefore are less likely to reject a donated organ. If scientists can grow this subset of CD8 T cells in a lab, they can then deliver them to a patient after a transplant surgery to increase the odds the transplanted organ will thrive.

The power of organ transplants

What has always fascinated Dr. Bumgardner is how much someone's life can improve after receiving a transplanted organ. She first observed that in her third year of medical school at the University of Virginia when she worked with kidney transplant patients at the university's medical center.

Even now, despite a hectic schedule teaching and mentoring medical students and young physicians, Dr. Bumgardner continues to perform surgeries and care for patients before and after their transplant surgery.

She enjoys helping them and their families understand what to expect from the surgery while offering them hope. The hope Dr. Bumgardner spreads comes from seeing so many people get stronger and active again, sometimes just weeks after receiving a donated organ.

"I love seeing how transplantation can change their lives," she says, "for the better."

Check out the Department of Surgery's faculty successes for FY24

Creating their own Buckeye surgeon story

The Ohio State University College of Medicine's Department of Surgery welcomed three new division directors in 2024. They're poised to inspire and lead our surgeons to new levels of success and innovation.

Matthew Corriere, MD
Leading the way in vascular surgery

Joining us as the director of the Division of Vascular Surgery, Matthew Corriere, MD, brings a remarkable background in vascular health and innovation to the Department of Surgery. Dr. Corriere's previous tenure at the University of Michigan saw him contribute significantly to vascular surgical education and patient care. His research in clinical outcomes set new benchmarks in the field.

Dr. Corriere hadn't planned on being a surgeon, but thankfully, during his vascular surgery rotation in medical school, he found the work incredibly interesting and impactful.

"I love how vascular surgeons blend expertise in diagnosis, medical management and imaging with a wide variety of procedural techniques. The rewards of vascular surgery more than justify the demands," he says.

He went on to complete his residency in general surgery at Vanderbilt University School of Medicine and a fellowship in vascular surgery at Wake Forest University School of Medicine.

Dr. Corriere is now improving vascular health through evidence-based practices and innovative research projects. Inspired by the faculty at Ohio State and its commitment to advancements in patient care and research, he brought his expertise and leadership to the Division of Vascular Surgery.

"Even before I came to Ohio State, I admired their vision of clinical excellence, and I'm thrilled that I now get to pursue that with the team daily.

"I believe our division is poised to become truly elite," Dr. Corriere says. "I am thrilled to be here at such an exciting time and look forward to amplifying the visibility of our group and the amazing work we are doing together."

We believe that his elite leadership will inspire many more stories of success in vascular surgery.

Susan Tsai, MD, MHS
A visionary in surgical oncology

We're thrilled to welcome Susan Tsai, MD, MHS, as the new director of the Division of Surgical Oncology. Dr. Tsai's journey to Ohio State is marked by exemplary leadership and groundbreaking research, particularly in pancreatic cancer.

"Surgical oncology fascinated me because it blends science, compassion and advocacy," she says. "Working with patients with cancer, I appreciated how surgery fits within a multidisciplinary care model – coordinating with medical oncologists, radiologists and researchers to craft personalized care plans. We are living through an exciting time in oncology with the expansion of precision medicine and immuno-oncology. Now more than ever, patients with cancer have hope."

This multidisciplinary approach is one aspect that drew her to Ohio State.

Meet our new surgery faculty

"I've always been passionate about accelerating the delivery of state-of-the-art scientific advancements to patients, and Ohio State's comprehensive cancer program – with its focus on multidisciplinary collaboration and translational research – felt like the ideal place to advance that mission," Dr. Tsai says. "The integration of research, patient care and education creates an environment where I feel empowered to make a meaningful difference – not only in the operating room but also through mentorship and community impact."

Dr. Tsai comes to the Department of Surgery from the Medical College of Wisconsin, where she was an endowed professor and led the LaBahn Pancreatic Cancer Program and the gastrointestinal cancer disease-oriented team for the Medical College of Wisconsin Cancer Center. She directed a multidisciplinary team to advance clinical and translational research.

Her expertise in blood-based biomarkers and precision medicine has earned her NIH funding and key roles in prominent research projects. Dr. Tsai's academic path began at MIT, followed by medical school and residency at the University of Michigan and specialized training at Johns Hopkins. We're eager to see how she'll continue to craft her story here at Ohio State, guiding new generations of surgeons.

Bryan Whitson, MD, PhD
Pioneering advances in cardiac surgery

We're equally excited to announce Bryan Whitson, MD, PhD, as the new director of the Division of Cardiac Surgery. With his incredible background in cardiothoracic surgery, Dr. Whitson has been making significant strides in both clinical and academic arenas at Ohio State for more than 12 years.

"I wanted to become a surgeon-scientist because, as a trainee and young physician, I recognized that this blend had the greatest potential for positive patient impact," Dr. Whitson says. "By developing cutting-edge technologies and implementing them directly in clinical care, we can address the surgical needs of patients more effectively."

And he's doing just that. The NIH-funded surgeon-scientist is currently the vice chair for Innovation and Translational Research in the Department of Surgery and co-director of COPPER Laboratory. Dr. Whitson oversees a robust and diverse faculty of scientists, surgeon-scientists and surgeons who conduct tremendous breadth of research within the Division of Cardiac Surgery across discovery science, translational science, implementation science and clinical trial portfolios. The team is actively working on treatments that target cells to reduce damage caused by restricted blood flow and to keep the heart, lungs and vessels healthy as diseases progress or are treated.

"With our current research and robust clinical trials portfolio in the division, we are not only enhancing the quality of life for our patients but also paving the way for future innovations in cardiovascular care," he says. "This research is a testament to our commitment to pushing the boundaries of medical science and delivering the best possible care to our patients."

Dr. Whitson also oversees the Ohio State Heart and Vascular Center as interim co-director. After he received his medical degree from Indiana University, he went on to the University of Minnesota where he completed his general surgery and cardiothoracic surgery training, as well as a clinical fellowship in surgical infectious diseases. He also received a doctor of philosophy degree from the University of Minnesota.

The next generation should outdo us

That's what the new program director for the Ohio State Department of Surgery General Surgery Residency Program believes. Kelly Haisley, MD, took on the new role in August, leading a training program made up of 55 resident whom she hopes will be even better surgeons than the generation before them.

Dr. Haisley always thought she was following in the footsteps of her mother, a doctor, when she became a surgeon. During residency though, her passion for education blossomed. "I got so much joy out of those lightbulb moments," Dr. Haisley says. "I found that I was getting as much joy and fulfillment out of teaching and learning as I was out of the clinical aspects of training."

It was then that she realized that it was also her father's footsteps that she was following. Her father, a teacher, was a driving force behind where she is today – heading a program that, for the fourth year in a row, is ranked in the top 10 nationally on Doximity's 2024-2025 Residency Navigator.

Dr. Haisley's developed a philosophy that every experience is a learning opportunity, and that the next generation of surgeons should always outdo the current generation. She's committed to creating a generation of surgeons who are not only excellent technicians but who are also compassionate, ethical and well-rounded humans.

"We get the opportunity to shape the minds and skills of the best of the best residents who will one day be the next generation of leaders in surgery," Dr. Haisley says.

For four years, Dr. Haisley has been an asset to the General Surgery Residency Program as associate program director. She'll continue bringing a wealth of experience, passion and dedication to the program and a commitment to always growing and learning. Recently, she was accepted into the 2024-2025 Surgical Education and Leadership Fellowship Program, a prestigious one-year fellowship designed for Association for Surgical Education members who wish to improve their teaching, education design and leadership skills in surgical education.

In her new role, Dr. Haisley is looking forward to maintaining the residency program's exceptional tradition of fostering technical mastery, clinical judgment, interpersonal and professional development and research innovation within a diverse, inclusive and supportive environment.

Within its robust clinical and educational program, there are several key highlights that help ensure that our General Surgery Residency continues to excel:

The Research Training Program offers residents the opportunity to earn a tuition-free master's degree during their research time. The program provides extensive statistical and research support, enabling residents to become true surgeon-scientists. This exceptional program is one of the strongest in the country and a significant asset to our residency.

The department's **Robotic Surgery Curriculum** ensures our residents graduate with some of the highest numbers of robotic cases performed in the country. Each resident earns a robotic equivalency certificate and completes an average of more than 100 robotic cases. This comprehensive training program – the first in the nation to offer weekly one-on-one proctored robotic skills training – ensures our graduates are well prepared for the future of surgery.

Another unique aspect of the program's training is the **OR Coaching Program**. Experienced coaches observe PGY-4 and PGY-5 residents during operations, providing feedback on their technique, leadership style and overall performance. This program helps residents develop not only their surgical skills but also their professional and leadership abilities.

Wellness initiatives are a particular point of pride for Dr. Haisley. Initiatives like Resident Appreciation Day, where residents get a day off to spend together (while faculty, fellows and APPs cover their call), and wellness half-days demonstrate our commitment to supporting our residents' well-being. This focus on wellness has been recognized with a 100% satisfaction score on the ACGME survey.

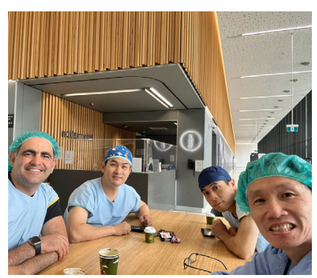
Under Dr. Haisley's guidance, the Ohio State General Surgery Residency Program will continue to flourish, producing exceptional surgeons who are well equipped to meet the challenges of the future and go beyond the generation before them.

Find out more about our General Surgery Residency Program

Discovering what surgery is like on the other side of the world

Patient care and management can be approached in numerous ways across the globe, especially in countries with universal public health care systems. Despite these differences, patients can still receive excellent care and experience comparable health outcomes.

This is what chief residents Rami James Aoun, MD, and Dahlia Kenawy, MD, experienced firsthand during their rotation as part of the Ohio State Department of Surgery Residency's Global Surgery Program. The one-month international elective took them across the world to Westmead Hospital in Sydney, one of Australia's biggest hubs for health, education, research and training.



"In Australia, there are differences in patient management due to the constraints of a publicly funded system," Dr. Kenawy says. "For example, at Ohio State, we typically remove an inflamed gallbladder during the patient's admission. In Australia, they often treat with antibiotics first and schedule surgery for later. Despite these differences, patients still received excellent care. It was eye-opening to see the various approaches to health care."

"This experience made me realize that surgical practices and patient care can differ between health systems, all while achieving comparable outcomes. This realization challenged some of my previously held medical beliefs," Dr. Aoun says. "For instance, during a laparoscopic appendectomy, Australian surgeons typically use a Bovie device for the mesentery and an endoloop for the base of the appendix. In contrast, at Ohio State, we generally prefer staplers for both tasks. This experience has enriched my understanding of new surgical tools and techniques, as well as provided me with a fresh perspective on health care delivery and patient care on the wards."

During their one-month training, the residents worked on the upper GI service, engaging in foregut (both benign and oncology), HPB and elective/emergent general surgeries. This included performing dozens of procedures such as liver resections, Whipple procedures and general surgeries like cholecystectomies and hernia repairs.

Both residents are extremely grateful for the opportunity to learn what it's like to perform surgeries and care for patients on the other side of the world. From meeting and working alongside experienced surgeons to broadening their view on how health care is run in another country, this experience enriched their residency journey and will be invaluable in their careers as surgeons.

> **"In Australia, they often treat with antibiotics first and schedule surgery for later. Despite these differences, patients still received excellent care. It was eye-opening to see the various approaches to health care."**
>
> Dahlia Kenawy, MD
> Chief resident

Learn more about our Global Surgery Program

Want to contribute to our residency program?

Cultivating surgeon-scientists through the research training program

PGY-4 general surgery resident Ruth Ackah, MD, PhD, came into her residency with little experience in basic science and translational research. All that changed after going through the Department of Surgery's Research Training Program (RTP) – an immersive curriculum that's shaping tomorrow's surgeon-scientists and leaders in academic medicine.

"The Research Training Program provides us dedicated time to develop our research repertoire without the stressors of day-to-day clinical responsibilities," Dr. Ackah says. "We get to focus entirely on developing new skill sets and formally training in research methodology. We also have the opportunity to pursue an advanced degree."

Jonathan Wisler, MD, MS, associate professor of Surgery and co-director of the RTP – and a graduate of the program – believes those pursuing academic medicine must have this kind of in-depth research experience before they start their careers.

"Ohio State's general surgery residency is one of the few residencies in the country that has the capacity to train these individuals using personalized research education, mentorship and career development," Dr. Wisler says. "From scientific-method training to communication and grant writing and data analysis to research design and ethics, our trainees learn the skills necessary to ask and answer important questions to push forward the science of surgery."

Both Dr. Ackah and Dr. Wisler emphasize the roles that mentorship and collaboration take in the program – they're the cornerstones of the RTP.

"One of the early lessons we learn in the lab is that science is a team sport," Dr. Ackah says. "It's imperative to build relationships with fellow collaborators and experts. You should lean on one another to get a more well-rounded training experience."

Dr. Wisler says, "Mentorship is the anchor of our program. We've been fortunate to have many good mentors in the Department of Surgery and in other departments, as well. This interdisciplinary collaboration is the basis of team science and one that our residents experience early on in their training."

Every resident is required to dedicate at least one year to the program; many choose to do two or more. During the training program, each resident is given protected time and support to complete three distinct phases:

Preparation for research – Trainees select their mentor, apply to graduate school, submit fellowship and funding applications and choose courses for advanced degree requirements.

Research training – Residents conduct mentored research, participate in research-in-progress presentations, attend quarterly meetings, submit and present abstracts at national meetings, network with members of the research and professional community, receive feedback, self-assess their progress toward individualized training goals and continue to participate in core departmental activities.

Extended development – Trainees can join departmental or institutional committees, take on leadership roles, continue publishing and presenting research, apply for subspecialty fellowships and mentor new surgery residents.

Through those three phases and her entire experience in the program, Dr. Ackah has gained invaluable hands-on experience.

“One of the best parts of the Research Training Program for me was getting practical experience with stem cell technology,” she says. “I learned how to work with special stem cells and improve methods to turn them into specific types of cells. These advancements are crucial for the future of tissue engineering and creating new tissue grafts for medical use.”

“I’ve always wanted to understand why things happen the way they do,” Dr. Wisler says. “What I love about our program is that it trains our residents to do just that using real-world applications.”

The real-world experience gained through the Research Training Program is further underscored by the remarkable scholarly output of our trainees. Since the inception of the program in 2002, our trainees have published more than 1,300 scientific articles, with more than 500 being first-author publications. On top of that, they’ve given more than 900 presentations at regional, national and international regional conferences, showcasing their research and contributing to the global scientific community. Our trainees have received 126 financial awards, including NIH grants.

The ultimate goal of this program is to train the next generation of surgeon-scientists to perform and lead impactful translational, clinical and health services research and surgery education research that will enhance the care of surgical patients.

“We develop intelligent, inquisitive surgeons who go on to be amazing surgeon-scientists and leaders in the academic medical field,” Dr. Wisler says.

Discover more about our Research Training Program

Empowering women in surgery and science

Female representation in medical research has grown significantly, with women comprising more than 55% of medical and life scientists in the United States as of 2022. The Department of Surgery is proud to continue growing our roster of remarkable female researchers. Here are the stories of three distinguished scientists making significant strides: Mona El Refaey, PhD; Anahita Jalilvand, MD, PhD; and Kristin Stanford, PhD.

Dr. Mona El Refaey: A commitment to innovation

Dr. El Refaey's journey into science was profoundly influenced by personal experiences.

"I always hated to see anyone sick," she says.

Her mother's cancer diagnosis during Dr. El Refaey's undergraduate years was a pivotal moment that steered her toward medical research. Her fascination with new therapeutic targets and discoveries led her to find solace and excitement in the lab.

Currently, the assistant professor of Surgery in the Division of Cardiac Surgery is doing her part to help those with cardiac arrhythmias. She was just awarded her first R01 grant to understand and address cardiac arrhythmias regarding a specific regulatory component of the protein phosphatase 2A, known as B56.

"I'm exploring ways to keep the heart's system running smoothly, even when it's challenged by external stressors, like an adrenaline rush that can trigger arrhythmias," Dr. El Refaey says. "I'm hoping my research will pave the way for new treatments that could target this pathway, offering hope for better management of arrhythmias in the future.

"I want to do what I can as a scientist to help stop people from being sick," she says. "I'm excited that I have the opportunity to make a real difference in my lab."

She underscores the significance of female representation in cardiovascular research, noting that many cardiovascular diseases affect men and women differently.

"It's good to have females in the field of science and research because we are always challenged to understand things that impact the mom and the female more."

Dr. Anahita Jalilvand: Bridging surgery and science

The assistant professor of Surgery's path to becoming a surgeon-scientist was shaped by her love of basic science and strong mentorship. It was her surgical residency at Ohio State that exposed Dr. Jalilvand to a dynamic community of translational scientists, sparking her interest in obesity science.

"I fell in love with basic science when I was given the opportunity to explore research during my surgical training in the Department of Surgery," she says.

Her mentors, including Dr. Willa Hsueh, director of the Diabetes and Metabolism Research Center, and Dr. Ginny Bumgardner, associate dean for Physician Scientist Education and Training, played a crucial role in her growth as a translational scientist.

Dr. Jalilvand's current research is funded through her first K08 grant, investigating how obesity affects the behavior of white blood cells in patients with severe infections after surgery. This is only the second K08 grant ever awarded in the Division of Trauma, Critical Care and Burn. She attributes her success as a surgeon-scientist to the incredible mentors and advocates in her life, including Dr. Hsueh, Dr. Bumgardner, Dr. Jonathan Wisler, Dr. Sabrena Noria and Dr. Daniel Eiferman.

Highlighting her experience of being a female surgeon-scientist, Dr. Jalilvand says, "Surgeon-scientists are a rare breed, and female surgeon-scientists are even rarer. It is a long and difficult road to acquire both the technical expertise of your chosen surgical career and the complexity and novelty of scientific exploration. It takes a village to make you successful, and that community has to include strong mentors who are committed to lifting you."

Dr. Kristin Stanford: A passion for exercise physiology

"I have always been interested in how the human body functions," Dr. Stanford says when reflecting on why she chose a career in the world of medical science.

Her interest in exercise physiology, particularly from a human performance perspective, led her to explore why some people excel as endurance athletes while others don't. This curiosity evolved into a compelling desire to investigate how the physiological benefits of exercise could be tailored to mitigate various disease states and enhance overall health.

A professor of Surgery in the Division of General and Gastrointestinal Surgery, Dr. Stanford focuses her research on mechanisms of exercise to improve whole-body metabolic and cardiovascular health. She's currently funded by two R01s and is the director of the American Heart Association's Strategic Focus Research Network Center, looking at the role of exercise to prevent the detrimental effects of psychosocial stress on cardiovascular health.

On the significance of female representation in the academic medical science field, Dr. Stanford emphasizes its significance: "It's incredibly important. I think, even subconsciously, seeing female scientists achieve success serves as a powerful catalyst, inspiring and motivating the next generation of women in science to pursue their own aspirations and break new ground."

We hope the experiences and contributions of Dr. El Refaey, Dr. Jalilvand, Dr. Stanford and all our female scientists in the Department of Surgery inspire the next generation to pursue their passions and make groundbreaking discoveries that will shape the future of health care.

From napkin to lifesaver: revolutionizing vascular care

One evening in 2015, vascular surgeon Bryan Tillman, MD, PhD, was sitting in his family room with his neighbor. They were both inspired to make a difference after witnessing challenges his son and another child in his neighborhood – who were both battling cancer – had during their treatments. On a simple paper napkin, the two started sketching out an idea for retrievable stent-graft technology that could make all the difference for Dr. Tillman's son and his neighbor friend. And little did Dr. Tillman know then that the sketched idea would have the potential to take on many different applications and help a much broader patient population.

Taking that napkin back to his lab, Dr. Tillman developed a dumbbell-shaped stent that's removed after use – leaving nothing behind – and serves as a vehicle to deliver drugs to the vessel wall while at the same time preserving blood flow to tissue that's past the stent.

Dr. Tillman has always had a passion for vascular research. He says the sheer number of critical care needs of his patients inspires him every day to find new and better ways to treat them. As he developed his new drug delivery stent, he found numerous potential applications for vascular patients, including the delivery of drugs to prevent the rupture of aneurysms and to avoid the failure of other vascular procedures due to restenosis.

Restenosis is the formation of scar tissue after most vascular interventions that results in a blockage of a blood vessel. Restenosis is the reason that almost half of all vascular procedures fail in less than five years. Dr. Tillman says after witnessing how this problem threatens up to half of his patients, he wanted to investigate ways to prevent it. He hypothesizes that his novel stent will prevent restenosis more effectively than current approaches.

The National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health also recognizes the potential this stent has in helping the lives of patients, particularly those experiencing restenosis. In June 2024, The NHLBI awarded the associate professor of Surgery in the Ohio State College of Medicine with his second R01 grant – a four-year, $2.7 million grant to study the use of a novel stent to prevent restenosis.

A look at Dr. Tillman's hypothesis

Currently, a drug-coated balloon is used to block scar tissue and prevent restenosis. This approach carries three major limitations. These include the limited amount of drug that sticks to the balloon, drug washing off the balloon and not reaching its target and the balloon only being able to be used briefly because it restricts blood flow.

He and his co-investigator Saami Yazdani, PhD, an associate professor of Engineering at Wake Forest University, theorize the novel stent will remain in place for drug delivery longer than a balloon, prevent loss of the drug reaching the circulation of blood and infuse any type of liquid drug that's currently not possible with a balloon approach.

The grant will allow Dr. Tillman and Dr. Yazdani to further study the novel stent and how effectively it will prevent restenosis. And ultimately, the study may offer a more effective therapy for restenosis and, more broadly, new approaches for focused drug delivery in treating a variety of other conditions.

The future of the novel stent

Dr. Tillman's work doesn't end with preventing restenosis. He says many vascular conditions threaten either life or limb, and innovation offers us the potential to deliver some truly life-changing opportunities.

"What I love most about vascular surgery is that it truly is the conduit to all other parts of the body, which offers lots of exciting horizons," Dr. Tillman says. "It seems that before we are even done with one innovation, a new one pops up."

In July 2024, Dr. Tillman was awarded a Transformational Award from the American Heart Association to explore the drug infusion stent graft to prevent growth of potentially life-threatening aneurysms in the largest blood vessel of the body.

And Dr. Tillman's novel drug delivery stent technology has already been used in his lab to control traumatic hemorrhage, perfuse donor organs for transplant and deliver drugs to blood vessel walls. The team is working on a new stent technology to make the Division of Vascular Surgery's biggest open vascular surgery safer for patients.

Additionally, Dr. Tillman and his team developed an important spinoff to create a gateway in the previously impassable blood-brain barrier that surrounds the brain and spinal cord. The latter offers fascinating opportunities to intervene well outside the vascular system, including drugs to potentially treat spinal cord injury, neurodegenerative disorders and cancers of the brain and spinal cord.

What started on a simple paper napkin is truly making a difference for patients and has the potential to save countless lives.

Ohio State leads trials and testing of new surgical robot

Ohio State surgeons have aided in the development and FDA approval of the most advanced da Vinci surgical robot.

Ten Ohio State surgeons are credited with helping the machine through clinical trials and FDA approval.

“This is the first robotic update for the system in a decade,” says Michael Meara, MD, MBA, clinical associate professor of Surgery in the Department of Surgery and medical director of Robotic Surgery at the Ohio State Wexner Medical Center. “From an under-the-hood standpoint, it’s a massive leap forward.”

Ohio State’s da Vinci 5, made by Intuitive, was the first operational version in the Midwest in spring 2024.

Some of the latest advances are game-changing for both surgeons and patients.

How the da Vinci 5 improves robotic surgery

“There’s improved tactile feedback,” says Robert Merritt, MD, a thoracic surgeon at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James) and division director of Thoracic Surgery.

The latest upgrades include improved tremor controls for the surgeon, which make the system smoother and more precise.

“The system will alert the surgeon when they’re exerting too much force on tissue, which certainly will result in less tissue damage. It will translate to better patient outcomes,” Dr. Merritt says.

Clinical trials conducted with patients showed the da Vinci 5 is safe for patients and performed just as well as previous surgical robots.

Tissue damage to patients is expected to be reduced by 43% compared to the previous model. The more tissue damage is reduced, the faster patients heal.

World-class training and care

“We’re proud that the expertise of our clinical and research teams helped us be selected as one of the clinical trial sites for the latest da Vinci model,” says Heidi Pieper, program director of the Center for Minimally Invasive Surgery and Center for Advanced Robotic Surgery.

Ohio State was the first institution to enroll in the trial and had the most patient participants. The first patients enrolled in December 2022, and the trial lasted for six months.

Better training for surgeons to become skilled at robotic surgery

Surgeons undergo extensive training before they step into their first robotic surgery. The da Vinci 5 can track every movement a surgeon makes while training and stores that information in a database.

It can develop algorithms that show the difference between precise expert surgeons’ movements and those of a novice.

Data shows expert surgeons need far fewer movements to complete a surgery while less-experienced surgeons tend to make more movements to complete the same surgery.

“The tactile feedback integrated into this new technology removes a big barrier to training. It alerts surgeons when there’s too much pressure,” Dr. Meara says.

A robot with a bigger brain

Many of the advances with the da Vinci 5 are ones that aren’t clearly apparent.

“It’s like jumping from an iPhone 6 to an iPhone 15,” Dr. Meara says.

Future updates could include incorporating advanced imaging, highlighting anatomic structures and even physically identifying cancer.

The new model has 10,000 times more computing power compared to the last model.

“It’s faster,” he says. “It’s able to perform tasks it could not do previously. It’s also able to acquire and interpret information on the fly that we couldn’t previously.”

Ohio State’s history of robotic surgery

That innovation is the latest chapter in the Ohio State Wexner Medical Center’s storied robotics program dating back to 1999.

“Ohio State is certainly one of the busiest and highest volume robotic programs in the country,” Dr. Merritt says.

As of October 2024, Ohio State had completed more than 34,350 robotic surgeries in various specialties, including cardiac, transplant, ENT, colorectal, gynecology, urology, general surgery, thoracic surgery and surgical oncology since the program’s inception.

Two out of 16 robots in Ohio State’s surgical arsenal are da Vinci 5s.

Ohio State’s robotics program has 80 surgeons from 14 surgical specialties and trains 168 surgical residents and fellows per year.

Leading the way: the success and goals of the anal cancer screening program

In 2024 – the most recent estimates – the American Cancer Society anticipated about 10,540 new cases of anal cancer, up from 8,590 new cases in 2020. The incidence rate has doubled over the last decade. This alarming trend underscores the urgent need for improved preventive measures, early diagnosis and effective treatment strategies.

Two years ago, surgeon Syed Husain, MBBS, addressed this pressing need by launching a groundbreaking anal cancer screening program, focused on the prevention, early detection and optimal treatment of anal cancer.

This clinic, housed at Ohio State Martha Morehouse Outpatient Care, was established to ensure that those at high risk for anal cancer receive the most appropriate care. Dr. Husain, the clinic's lead physician, has been instrumental in its development and success.

"I think the biggest success for us is the fact that we are providing a service that is critical for our community, and it's the first of its kind in the state and surrounding regions," Dr. Husain says.

In the past year, the program has grown significantly. When the program started, the clinic was open four days a month. Its services are now available Monday through Friday. In addition to Dr. Husain and colorectal surgeon Emily Huang, MD, the team now includes two nurse practitioners – Jessica Walter, APRN-CNP, and Stephanie Mitchem, APRN-CNP – allowing for daily clinics. The screening exams are done in an outpatient setting, taking less than an hour, which is more convenient and less costly for patients.

"The exam itself takes anywhere between 45 minutes to an hour. Patients come in, get it done and go home the same day. Most patients can return to work afterward," Dr. Husain says.

Identifying the need

Over the years, it became evident that many patients referred to The Ohio State University Wexner Medical Center hadn't consistently received the high standard of care they deserved before arriving at our clinic.

"We would see a lot of patients who presented with advanced disease because they did not get appropriate screening or early preventive care, or once they had a diagnosis, they might have gotten lost in the system or did not get appropriate follow-up," says Dr. Husain, a clinical professor of Surgery in the Division of Colon and Rectal Surgery in the Ohio State College of Medicine.

People with HIV and those in the LGBTQIA+ community are among those at highest risk for anal cancer. They also tend to have the worst outcomes, particularly if they belong to racial or ethnic minority groups.

"Some of that has to do with social issues and poor insurance, but some of it has to do with provider bias that, unfortunately, to this day exists," Dr. Husain says. "Our hope is to provide dignified care so that patients will feel comfortable coming to us. We foster a welcoming environment that treats every person, regardless of who they are, where they're coming from or what type of insurance they have, with the same amount of dignity and respect we provide any other patient."

Establishing the next crucial step

Dr. Husain is now gearing up to extend the program's reach to women with HPV. The overwhelming majority of anal cancers are linked to infection with human papillomavirus (HPV), now the most common sexually transmitted infection in the country. While well-established screening protocols exist for cervical cancer, no such guidelines exist for anal cancer.

The clinic is working to figure out who should be screened for anal cancer and when, what screening methods work best and how to monitor those at high risk effectively.

"We hope to catch abnormal cells before they turn into cancer," Dr. Husain says.

One of the main challenges the team has found is educating both patients and physicians about the importance of screening, especially for women with HPV infections.

"Our next big campaign will be to engage with community physicians to make sure that women in our community understand the risks and are getting the care they need," he says.

Moving forward, this essential clinic will continue elevating care for people at risk for anal cancer and those who have the disease, not only at OSUCCC – James but nationwide. Through education, screening and research, Dr. Husain and the team will remain a resource for such a critical need in our community and beyond.

Division of Cardiac Surgery

Collaboration fuels research in the Division of Cardiac Surgery

From bench to bedside, the research being conducted in the Division of Cardiac Surgery is critical. In 2022, more than 700,000 people died from heart disease in the United States. The work of the division's surgeon-scientists and bench scientists is having a tremendous impact on our patients.

Currently, there are numerous studies in progress that are led by 15 division surgeons and scientists. This includes a robust clinical trials portfolio that allows us to take novel technologies directly to the bedside.

"There are multiple avenues of research being conducted in the division, including molecular biology, gene delivery, mechanical circulatory support, novel valves and structural technologies, that really enable us to treat the totality of a patient and their cardiovascular disease burden," says Bryan Whitson, MD, PhD, division director and vice chair for Innovation and Translational Research. "We are uniquely able to see both the medical and surgical possibilities for treatment across the continuum of that disease pathology burden."

Dr. Whitson and his team are working on treatments that target cells to reduce damage from lack of blood flow and help the heart function better as diseases progress or are treated. These treatments include delivering new medicines directly to cells and using devices to support the heart's function.

Hua Zhu, PhD, a leading researcher in the division and vice chair for Basic and Translational Research, explains his passion for bench-to-bedside research.

"Our goal is to bridge the gap between laboratory findings and clinical applications," Dr. Zhu says. "Recently, our team has been exploring the role of small non-coding RNAs in heart development and injuries. We discovered that these RNAs and their regulatory factors are crucial in controlling heart cell function and death. The preliminary results are promising, and we are hopeful that this research will lead to new, lifesaving treatments."

He adds, "I especially like working with surgeon-scientists to tackle different clinical questions at the molecular and cellular levels."

Another outstanding researcher and the newest faculty member in the division is Matthew Gorr, PhD. Dr. Gorr, a biomedical scientist, appreciates the collaborative nature of the division's research efforts and how it has a greater benefit on the patient.

"Working alongside surgeons, scientists and engineers allows us to tackle complex problems from multiple angles," Dr. Gorr says. "Usually, the clinician and the bench scientists are working separately, but in our division, we have the ability to work together on our research, resulting in a clear clinical relevance."

After discovering that the right ventricle of the heart has unique features compared to the left ventricle, Dr. Gorr is using various scientific techniques to study the right ventricle's biology, including analyzing RNA, examining tissues under a microscope, studying molecules, sorting cells and growing cells in the lab. The goal is to understand the right ventricle better and find new treatments for disease that affects the right side of the heart.

The collective efforts of Dr. Whitson, Dr. Zhu, Dr. Gorr and all the surgeon-scientists and researchers in the Division of Cardiac Surgery are proof of the team's steadfast commitment to improving patient outcomes.

"Our ultimate goal is to improve the quality of life for our patients," Dr. Whitson says. "Every study, every experiment and every surgical procedure is driven by that mission."

Learn more about the Division of Cardiac Surgery

BEST HOSPITALS U.S.News WORLD REPORT HEART & VASCULAR 2024-2025

HIGH PERFORMING HOSPITALS U.S.News WORLD REPORT 2024-2025 AORTIC VALVE SURGERY

HIGH PERFORMING HOSPITALS U.S.News WORLD REPORT 2024-2025 ABDOMINAL AORTIC ANEURYSM REPAIR

> **"Our ultimate goal is to improve the quality of life for our patients. Every study, every experiment and every surgical procedure is driven by that mission."**
>
> **Bryan Whitson, MD, PhD**
> Division director and vice chair for
> Innovation and Translational Research

Division of Colon and Rectal Surgery

Specialized programs for colorectal cancer

Although colorectal cancer (CRC) rates in the United States have slowly declined over the last decade, the incidence is alarmingly growing in people under the age of 50. While we don't fully understand the reason for this, the OSUCCC – James Colorectal Cancer Center has established specialized programs to identify these patients, decrease the risk of CRC formation and provide needed services.

About one-third of early onset (less than 50 years of age) CRC arises within some inherited genetic predisposition. Identifying these cases and causes is crucial to patient care and maximizing outcomes.

In 2023, Matthew Kalady, MD, director of the Division of Colon and Rectal Surgery, led the effort to make genetic testing universally available to all patients with CRC at Ohio State. Mutations or variations in specific genes that can be detected in a blood or saliva sample define particular risks. This program, one of only a few dedicated programs in the country, allows identification of those patients with a CRC hereditary condition, and encourages testing of other family members who are at risk.

For people at risk, screening starts earlier and more often to try to prevent CRC and other cancers.

"There are several different hereditary colorectal cancer syndromes, each with a defined genetic cause," Dr. Kalady says. "These patients are at a much higher risk to develop CRC – sometimes 100% – and early and often screening is critical. In addition to CRC, these patients and their families are prone to developing other cancers. Realizing what different screenings need to be done can save a life."

Importantly, it's not always easy to predict which patients have one of these inherited syndromes, so offering testing to all patients can identify those that might otherwise be missed, Dr. Kalady says. "Once diagnosed with a particular syndrome, we then manage these patients and families for life.

"We see about 700 patients with a hereditary CRC syndrome in our clinic each year, with most coming in for yearly surveillances," he says. "We can really impact their overall health, and often end up caring for entire families and developing long-term relationships."

For those people under 50 who don't have a defined hereditary syndrome, Ohio State offers the Early Onset CRC Program, which provides additional services such as fertility preservation and financial counseling.

Beyond the clinics, the team's expertise and research efforts have led to the identification and development of biomarkers associated with CRC detection and prognostic biomarkers related to treatment response and overall survival.

"Because of the high numbers of patients we see, we have the ability to gather data, which speeds up our learning about these relatively rare diseases and can change the way they are managed," Dr. Kalady says.

"We want to give patients the ability to get ahead of this condition," Dr. Kalady says. "We now know enough of the hereditary nature of CRC that we can do this, but we need to make sure the community is aware of this huge and growing problem and how we can help. With all of us onboard with this focus, we hope to make a meaningful impact on early detection in central Ohio and beyond."

Learn more about the Division of Colon and Rectal Surgery

HIGH PERFORMING HOSPITALS U.S.News & WORLD REPORT 2024-2025 COLON CANCER SURGERY

> "Because of the high numbers of patients we see, we have the ability to gather data, which speeds up our learning about these relatively rare diseases and can change the way they are managed."
>
> **Matthew Kalady, MD**
> Director of the Division of Colon and Rectal Surgery

Division of General and Gastrointestinal Surgery

A stronger resolve to improve geriatric patient outcomes

The care of older adults is personal for Courtney Collins, MD, clinical associate professor of Surgery. She watched as her grandfather faced health issues in his 80s and encountered reluctance from health care professionals to operate on him due to his age. Fortunately, her grandfather met a physician who really listened to him and got him the care he needed. He ended up living until he was 101 years old.

Today, Dr. Collins is the driving force behind Ohio State implementing the Geriatric Surgery Verification (GSV) program, created by the American College of Surgeons, in the Department of Surgery. The GSV endows Level 1 and Level 2 certifications to medical centers that meet 30 standards related to improved outcomes for patients and the hospital. Ohio State is aiming to become the largest medical center in the country to achieve a Level 1 certification within the next year.

“With older adults comprising more than 40% of inpatient surgery patients – and having a 28% readmittance rate – it’s more important than ever that we have a specific program to care for this population,” Dr. Collins says. “We try to approach these vulnerable patients using a holistic approach that optimizes the entire care pathway from preoperative evaluation through discharge.”

GSV member hospitals must demonstrate improvement with common issues for elderly surgical patients. This includes reducing falls and other injuries, lowering lengths of hospital stays, lowering risks of delirium and significantly reducing costs overall. A key feature of GSV hospitals is the use of multidisciplinary nursing rounding teams that focus on reducing length-of-stay through strategies like discharge plans and decision-making conferences.

“So much of this patient-centered approach is ensuring everyone is communicating constantly. We may each know what to do individually, but the entire team has to huddle and close the gaps when it comes to shifts, specialties, serial assessments of overall health status and changing issues related to the patient’s family and caregiver,” Dr. Collins says.

She says reducing the risk of delirium alone could save $20,000 per patient on average, not to mention sparing more patients a dangerous and potentially preventable incident.

Dr. Collins was also instrumental in powering a change in Medicare reimbursement that incentivizes better care for all older adults. Led by Dr. Collins and the American College of Surgeons, the Age Friendly Hospital Measure is a combined effort with the American College of Emergency Physicians and the Institute for Healthcare Improvement to place best practices for older patients into a streamlined pathway throughout all areas of the hospital. Hospitals will be required to attest to completing this measure and could be at risk of financial penalties if they’re not compliant.

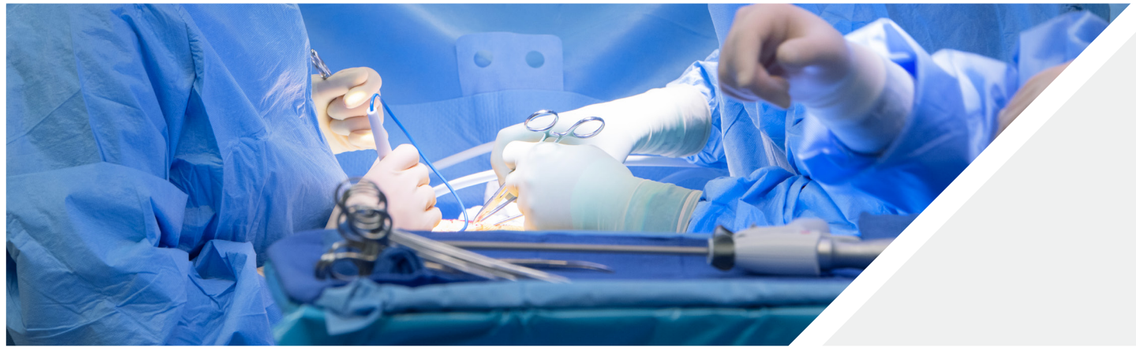
She also cites other improvement projects that have come to fruition in 2024, including building a preoperative screening checklist into Ohio State’s electronic medical record to allow for the identification of geriatric-specific perioperative risk factors. It provides ready access to the list of universal and specialty-related tasks that help lower risks and optimize results.

The Geriatrics team also won a grant to provide supplies like eye masks, activity books and audiovisual aids to make rooms more accommodating for older patients.

“I think overall we have some great foundational pieces and now we’re proactively working to expand on these. The support from the top of the institution down has been amazing,” she says.

Learn more about the Division of General and Gastrointestinal Surgery

HIGH PERFORMING HOSPITALS U.S.News & World Report 2024-2025 GASTROENTEROLOGY & GI SURGERY



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>
> **Courtney Collins, MD**
> Clinical associate professor of surgery

Division of Pediatric Surgery

Dr. Gail Besner: pioneering biofilm research and pediatric surgery

Nearly 5 million people die every year from bacterial infections that resist antimicrobial therapies, with about 80% of these infections involving biofilms. These naturally formed communities of bacteria construct a web-like matrix inside the body, shielding the bacteria from immune cells and medications.

Gail Besner, MD, director of Pediatric Surgery at Nationwide Children's Hospital and director of the Division of Pediatric Surgery with The Ohio State University College of Medicine's Department of Surgery, has taken a new approach to biofilms. Her work focuses on protecting neonatal intestines from injury, particularly the devastating disease known as necrotizing enterocolitis (NEC), with a mortality rate approaching 50%. NEC occurs when the balance of beneficial and pathogenic bacteria in the intestines of premature babies is disrupted. Dr. Besner's research has shown that when beneficial probiotic bacteria, such as *Limosilactobacillus reuteri (L. reuteri)*, form biofilms, the beneficial effects of the probiotic are increased, leading to protection of the intestines from NEC.

"I think I speak for every pediatric surgeon when I say that we would love to never have to operate for NEC in these babies again," Dr. Besner says. "When you talk to physicians and surgeons about biofilms, what immediately comes to mind is that biofilms are our enemy, because when produced by pathogenic bacteria, they prevent treatment of infection. However, when beneficial bacteria are induced to form a biofilm, the effect is spectacular."

Dr. Besner's team has developed a unique probiotic technology that induces *L. reuteri* to form a biofilm, making the bacteria more acid-resistant, better capable of binding to intestinal epithelial cells, more able to combat the immune system of the host and more capable of competing with the pathogenic bacteria around them.

"All of these effects make the probiotic in its biofilm state more capable of exerting its beneficial effects in protecting the intestines from NEC," Dr. Besner says.

This approach has shown promise in reducing NEC. In addition to protecting the intestines from NEC, the therapy also protects the brain from the downstream harmful effects of NEC, improving neurodevelopment in animal models. The team has patented and licensed this technology to Scioto Biosciences, which is exploring its use in various gastrointestinal disorders and even autism spectrum disorder, another disease involving the gut-brain axis.

The contributions Dr. Besner and the team at Nationwide Children's have made to biofilm research, and the pediatric surgeon's innovative approaches to treating NEC, have the potential to transform clinical care for the most vulnerable patients cared for in neonatal intensive care units.

Learn more about the Division of Pediatric Surgery

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>
> **Gail Besner, MD**
> Director of Pediatric Surgery at
> Nationwide Children's Hospital

Division of Surgical Oncology

A new addition to Ohio State's surgical oncology team

Erin Burke, MD, one of the newest surgical oncologists to join the Division of Surgical Oncology, has quickly become an integral part of the team at The James Outpatient Care in the Carmenton district.

Performing the majority of her surgeries there, Dr. Burke has found the ambulatory site to be a huge benefit to joining Ohio State.

"The OR space has allowed for some fantastic advantages," Dr. Burke says. "First, it allows for the natural development of a cohesive team in the OR, which is key for success. It also has unrivaled efficiencies – shorter times between cases, not waiting on equipment, etc. All this leads to better patient care."

Dr. Burke says the site in the Carmenton district on the western edge of The Ohio State University's campus is not only a benefit to her and her clinical team, but also to her patients.

"Having outpatient facilities like this helps keep patients at home during their treatments, which many patients prefer. It also provides a space that is easier to access and navigate. It allows for collaboration between providers, as we are all located in close proximity," she says.

The strengths don't stop there. The technology and equipment found at The James Outpatient Care are crucial to Dr. Burke's practice.

"I wouldn't be able to provide any of the care needed without the equipment they have for us there," she says. "Everything from the tools that help us localize a breast mass, to the radiology services needed to do the injections for sentinel node biopsies, to the pathology to process the specimens – this is all critical to a surgical oncology practice."

Dr. Burke – who knew from a young age that science and helping people was her calling – is thankful she made the decision to bring her surgical experience to the Division of Surgical Oncology in May 2024.

"The resources at Ohio State immediately caught my attention," she says. "I saw firsthand what these resources – from the facilities to the programs to the funding – could do for patients, and it was a major motivator for me. On top of that, the research resources were also important. I knew that I would be able to achieve my goals in clinical research, particularly as it relates to clinical trials."

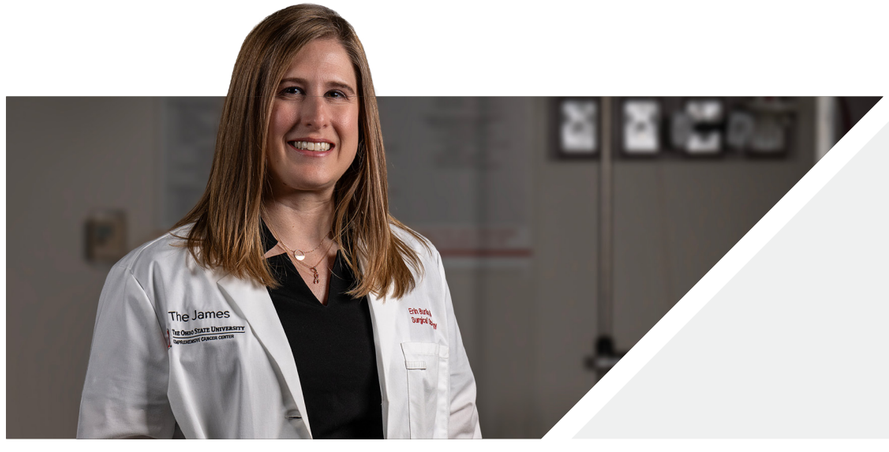
She also emphasizes the importance of the people at Ohio State.

"I've already had the opportunity to work with some amazing people who will be mentors and friends for the rest of my career," Dr. Burke says.

Ohio State and the Division of Surgical Oncology are lucky that Dr. Burke and her clinical experience and dedication to her patients joined the team. Her work at not only The James Outpatient Care but across The Ohio State University Wexner Medical Center will greatly enhance patient care and advance the field of surgical oncology.

Learn more about the Division of Surgical Oncology

BEST HOSPITALS U.S.News & WORLD REPORT CANCER 2024–2025



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>
> **Erin Burke, MD**
> Surgical oncologist

Division of Thoracic Surgery

Meet Dr. Ioana Baiu: Ohio State's newest thoracic surgeon

Growing up in Eastern Europe, Ioana Baiu, MD, MPH, saw firsthand what happens when medical resources are scarce. Her grandparents struggled with illnesses that could have greatly benefited from the expertise of a cardiothoracic surgeon and necessary medical care. This inspired her to become a surgeon and make a difference for patients like her grandparents.

Dr. Baiu is not only the newest surgeon in the Division of Thoracic Surgery, but the only female surgeon. She came to Ohio State from Stanford University where she completed her general surgery and cardiothoracic surgery fellowship – making her one of a very small percentage of female cardiothoracic surgeons in the U.S., according to the American Association for Thoracic Surgery.

Because of this, Dr. Baiu feels a responsibility to pave the way for future generations of female cardiothoracic surgeons, and she chose Ohio State to continue to do just that.

"I am fortunate to have joined an incredible team in which each one of us brings something different to the table," Dr. Baiu says. "We gain strength from our diversity."

She's also thankful to be working at the third-largest cancer hospital in the United States and one affiliated with a university.

"As a cancer and thoracic surgeon, you need the type of support and resources that can only exist in a place such as the Ohio State Wexner Medical Center and The James," Dr. Baiu says. "This is the only way to provide the absolute best care for the sickest patients."

Dr. Baiu obtained her medical degree and master of public health degree at Harvard Medical School before training at Stanford. She says that becoming a cardiothoracic surgeon is one of the most challenging but also rewarding career paths, and she's eternally grateful to have a job where she can wake up in the morning and cure cancer by the end of the day.

"The complexity of the procedures and the ability to use your own hands to drastically improve someone's life is unparalleled," Dr. Baiu says. "Every day, whether I am in the OR, in clinic or the floor, I am energized by being part of a team of dedicated individuals who have one common goal – to help improve the life of a patient."

An avid cyclist and triathlete, Dr. Baiu has lived all over the world and is now enjoying life in Columbus, where she says nothing beats Midwest hospitality. Here, she gets to continue doing what she loves the most: making a difference in the lives of her patients.

"Every day, the moments that I cherish are connecting with a patient and their family and establishing that uniquely profound trust that allows me to take the best care of them," Dr. Baiu says.

Learn more about the Division of Thoracic Surgery

BEST HOSPITALS U.S.News & World Report PULMONOLOGY & LUNG SURGERY 2024-2025

HIGH PERFORMING HOSPITALS U.S.News & World Report 2024-2025 LUNG CANCER SURGERY

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>
> **Ioana Baiu, MD, MPH**
> Surgeon

Division of Transplantation Surgery

Research resulting in tangible innovations

Surgical excellence, high transplantation volume, an in-house transplant biorepository and organ preservation and regeneration put the Division of Transplantation Surgery and the Ohio State Comprehensive Transplant Center at the forefront of translational research.

"Our division's research is uniquely positioned to translate scientific discoveries into clinical advancements," says Sylvester Black, MD, PhD, professor of Surgery and co-director of the COPPER Laboratory. "Our team works at the intersection of cutting-edge basic science and clinical applications, addressing real-world problems in transplantation."

Austin Schenk, MD, PhD, associate professor of Surgery, adds, "Transplantation is one of the most rewarding jobs in surgery. Each operation transforms a life, and each scientific discovery has the potential to touch countless lives. The opportunity to do both as a surgeon-scientist inspires me every day to make scientific contributions that improve outcomes for transplant recipients."

The division's research focuses on tangible innovations that can change transplantation surgery nationally and globally. Currently, three active surgeon-scientists have more than 20 ongoing projects with collaborations throughout the medical center.

Dr. Schenk and his team are developing novel reagents that promote the growth of regulatory T cells. By increasing immune regulation, they can decrease or eliminate traditional immunosuppressive drugs that cause kidney injury, diabetes and cancer, ultimately improving the quality and length of life for transplant recipients.

In health-services research, he partnered with Brittany Hand, PhD, from the School of Health and Rehabilitation Sciences, to study access to kidney transplantation in patients with intellectual and developmental disabilities.

"Equity in access to transplant is one of the most pressing issues in our field and integral to public trust in the transplant system," Dr. Schenk says.

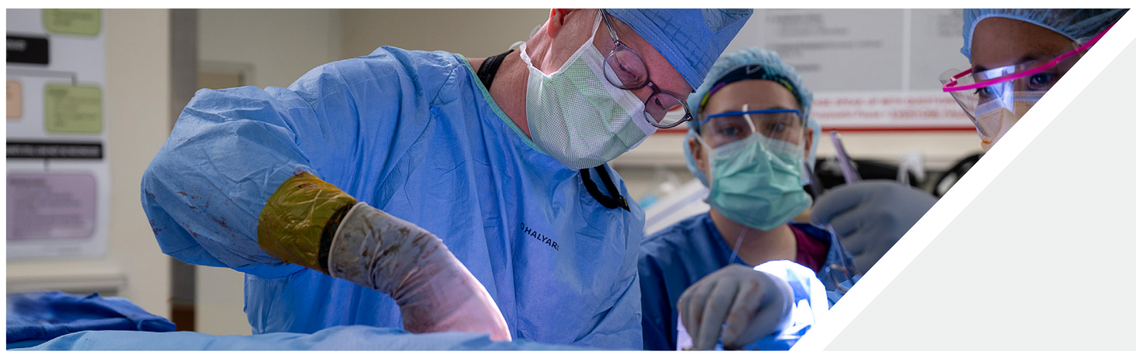
In the COPPER Lab, Dr. Black and his team are pioneering the development of a new class of CD38 inhibitors, a therapy that aims to reduce damage when blood supply returns to donor livers after being cut off, especially in livers from older donors and those donated after circulatory death.

"These novel compounds have shown promising results in preliminary testing, with the potential to significantly improve the viability of donor livers that would otherwise be deemed unusable," Dr. Black says. "This work is part of a broader effort to expand access to liver transplantation by addressing the shortage of suitable organs."

Dr. Black emphasizes how gratifying it is to see firsthand how his research can improve the lives of his patients and their families.

"One of the most rewarding aspects of my career has been seeing the direct impact that scientific innovation can have on patient lives," he says. "As a transplant surgeon, I often work with patients for whom a liver transplant is their last chance at life. Being able to contribute to research that may increase the availability of donor organs is incredibly fulfilling."

Learn more about the Division of Transplantation Surgery



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> **Austin Schenk, MD, PhD**
> Associate professor of Surgery

Division of Trauma, Critical Care and Burn

Growing emergency general surgery at Ohio State

Jennifer Knight Davis, MD, an acute care surgeon in the Division of Trauma, Critical Care and Burn, finds the most rewarding aspect of her work is the ability to provide immediate, lifesaving care to patients in their most critical moments. That's why she's most excited for the division's Emergency General Surgery (EGS) program – a program that continues to set new standards in acute care surgery.

Formally started in 2022, the program provides quaternary care for complex emergency general surgeries, including for patients of the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute and the Richard M. Ross Heart Hospital.

"The James and Ross Heart Hospital, as well as University Hospital, care for such complex patients," Dr. Knight Davis says. "Our acute care surgeons in the EGS program possess the skill and experience to effectively manage unexpected surgical emergencies."

Recently, the program has seen growth, with more than 2,000 emergency general surgeries performed in 2023, with projections indicating the team will perform more than 2,200 surgeries in 2024.

One of the noteworthy advancements in the past two years has been the incorporation of robotics into the EGS program as a tool for managing emergency general surgery cases. In 2023, the program launched 24/7 access to robotic surgery, enabling the provision of innovative surgical options at any time, day or night. This achievement has positioned Ohio State as a national leader in the application of robotic surgery in emergency settings.

"The integration of robotics into our emergency surgery practice has been a game-changer," Dr. Knight Davis says. "It allows us to perform highly precise, minimally invasive procedures even in the most urgent situations, greatly improving patient recovery times and outcomes. Our team is dedicated to pushing the boundaries of what's possible in emergency surgery to ensure the best outcomes for our patients."

The expertise required for handling the unexpected surgical emergencies encountered at Ohio State is unparalleled. The acute care surgeons are specially trained to manage the intricate needs of people with severe health conditions, ensuring high-quality care during critical moments. The program's commitment to excellence is further demonstrated by its robust quality improvement initiatives, which continuously seek to enhance efficiency, patient outcomes and innovative care methods.

Dr. Knight Davis and her team are driven by a shared vision of advancing the field of emergency general surgery through innovative practices and comprehensive care.

"Every day, we strive to set new standards for what can be achieved in acute care surgery," Dr. Knight Davis says. "Our goal is to not only meet but exceed the expectations of our patients and their families."

Learn more about the Division of Trauma, Critical Care and Burn

BEST HOSPITALS U.S.News & WORLD REPORT REHABILITATION 2024-2025

> **"Every day, we strive to set new standards for what can be achieved in acute care surgery. Our goal is to not only meet but exceed the expectations of our patients and their families."**
>
> **Jennifer Knight Davis, MD**
> Acute care surgeon in the Division of Trauma, Critical Care and Burn

Division of Vascular Surgery

Aortic aneurysms: a silent killer and the surgeon fighting back

Whether in a midnight emergency aneurysm surgery or an 18-hour elective procedure, Kristine Orion, MD, brings both passion and purpose to her profession as a vascular surgeon at The Ohio State University Wexner Medical Center.

Vascular surgery requires laser focus, creativity and the ability to pivot. Procedures are as much an art as a science.

"You have to have creative solutions because these are very complex problems, and that's one of the reasons why patients come to Ohio State," Dr. Orion says.

Helping patients overcome impossible odds motivates Dr. Orion to power through hours-long surgeries.

"Cases that go well when I think we're going to face more difficulty are what keep my light on," she says.

Dr. Orion is committed to improving patient care by increasing access and advancing research. She directs Ohio State's Aortic Center, where a multidisciplinary care team collaborates to simplify the patient journey. In one visit, patients can schedule an appointment with a vascular surgeon, a cardiologist and a cardiac surgeon while also getting imaging.

This convenient care model results in better outcomes.

"In some tough surgeries, vascular and cardiac surgeons work side by side. There has to be tremendous collaboration, which we're fortunate to have at Ohio State," says Bryan Tillman, MD, PhD, a vascular surgeon at Ohio State University Wexner Medical Center and an associate professor of Surgery at The Ohio State University College of Medicine.

As the volume of aortic cases at the Aortic Center has increased, so has the complexity.

"Simple aortic cases are hard to come by here. We usually get cases other hospitals deem too high risk," Dr. Tillman says.

The new clinical trials and medical devices available at Ohio State are another reason patients choose the Aortic Center. Of the clinical trials Dr. Orion oversees, most of her focus is on aneurysms.

She's most excited about the stAAAble trial, which may shrink or slow the growth of aneurysms that aren't large enough for surgical intervention.

"This might be a game-changer because we haven't intervened on small- to moderate-size aneurysms since the late eighties, which didn't work," Dr. Orion says.

Another clinical trial that looks promising is the AAA-SHAPE trial. Its goal is to prevent stent leaks that can occur decades after minimally invasive surgery. In this trial, the surgeon places collagen plugs in the aortic sac at the stent site to help the blood clot and the aneurysm shrink.

Dr. Orion's commitment to research, ability to share her passion and breadth of knowledge make her an inspiring teacher and mentor.

"Her biggest asset is that she's an excellent teacher who gets everybody where they need to be to deal with difficult cases," Dr. Tillman says.

Alexandra Gobble, MD chose to do her residency at Ohio State partly because of Dr. Orion's leadership. As chief resident, Dr. Gobble strives to emulate Dr. Orion's teaching, especially during difficult vascular surgeries.

"Besides her amazing surgical skills, I hope to model how she trusts us, commands respect in the operating room and cares so much about the patient. If I could be like any surgeon, it would be Dr. Orion."

Learn more about the Division of Vascular Surgery

HIGH PERFORMING HOSPITALS U.S.News 2024-2025 ABDOMINAL AORTIC ANEURYSM REPAIR

> "You have to have creative solutions because these are very complex problems, and that's one of the reasons why patients come to Ohio State."
>
> Kristine Orion, MD

Philanthropy

The Bondoni sisters' story: turning grief into generosity to fight cancer

"It was a rollercoaster," says Kamryn Bondoni, recalling the period when her dad, Mike, was diagnosed with cancer while she was a high school freshman. As Mike's "good days" of strength and endurance began to diminish, his team of doctors eventually told him that there was nothing more they could do. The family's determination led them to the The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James), where the care Mike received was "exceptional."

"They treated him like family," says Kaitlyn Bondoni, Kamryn's younger sister. "He was treated with dignity and warmth, with personalized touches like blankets and a room set to his preferred temperature. He was not a number. He was not just a patient. He was a person."

Most importantly, the targeted cancer therapy at the OSUCCC – James provided the family with three more precious years with Mike, who passed away in January 2021.

Determined to give back, the Bondoni sisters have made significant donations to Ohio State's cancer program in his honor. Both sisters followed in their family's footsteps by joining 4-H at a young age and raising cattle for the annual county fair auction. At the first fair without their dad in 2021, Kamryn planned to donate half of her auction proceeds. She also prepared a note about her dad to be read when she entered the auction ring. The heartfelt letter about his battle with cancer moved everyone, leading to an unexpected winning bid of $17,000 from a man whose brother had also been treated at OSUCCC – James.

A year later, the scenario repeated with Kaitlyn. Thinking she'd be fortunate to end up with $8 per pound, Kaitlyn had to choke back sobs as the winning bid came in at $50 per pound from a man who'd known her dad.

"These two young ladies have made a substantial donation to our cancer program," says Matthew Kalady, MD, director of the Department of Surgery's Division of Colon and Rectal Surgery. "It's humbling to see what they've accomplished and how they've transformed their own talents into something even bigger."

While they plan to make additional donations in the future, Kamryn and Kaitlyn recently presented Dr. Kalady with a check for $32,000. Some of the donation will be used to study specific genetic mutations, including the one that affected their dad. All of the donation will be used to change the lives of future patients who – just like Mike – want more years with their loved ones.

The Bondoni sisters' story is a testament to their resilience and the profound impact of community support, honoring their father's memory by making a difference in the fight against cancer.

Endowed chairs and professorships are critical to the success of academic medicine. These prestigious positions help attract and retain top-tier faculty while providing financial support for research and education initiatives that align with the holder's work. To continue growing our faculty and research profile, we have placed an emphasis on attracting more of these transformational gifts. We are grateful to those who have invested so generously in the future of the Department of Surgery.

Find out how you can support the Department of Surgery

Endowments created since 2019

- The Dennis E. Clark Memorial Surgical Oncology Research Fund by the Columbus chapters of the National Association of Insurance and Financial Advisors and the Society of Financial Service Professionals
- Olga Jonasson, MD Professorship in Surgery
- Charles G. Orosz, PhD, Post-Doctoral Training Fund in Transplant Sciences
- Ray Mason Lectureship Fund in Colorectal Cancer Surgery
- Philip Barbour Hardymon Professorship in Surgery
- Endowed Surgical Professorship in Health Equity

Division faculty lists

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Director, Division of Cardiac Surgery

Clinical Faculty Adult Cardiac Surgery
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Kukbin Choi, MD
Matthew Henn, MD
Nahush Mokadam, MD

Pediatric and Congenital Cardiac Surgery
Sergio Carrillo Melendez, MD
Director of Adult Congenital Heart Program

Mark Galantowicz, MD
Director of Congenital Cardiac Surgery

Patrick McConnell, MD

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Vice Chair, Basic and Translational Research

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Matthew Gorr, PhD, MS
Loren Wold, PhD
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Director, Division of Colon and Rectal Surgery

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Amber Traugott, MD

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Xin (Kate) Peng, MD
Xiaoyi Teng, MD
Bryan Tillman, MD, PhD

Want to refer a patient to our team of surgeons?

Department of Surgery Fast Facts

The Ohio State University Wexner Medical Center

As one of America's top-ranked academic medical centers, our mission is to improve health in Ohio and across the world through innovations and transformation in research, education, patient care and community engagement.

Clinical Care by the numbers

60,599 patient admissions
3.2 million outpatient visits
136,741 telehealth visits
2,700 patients served in 4,100 free clinic visits
22.8K+ employees

2,767 faculty
2,013 physicians
1,018 residents and fellows
5,139 nursing staff
$5.9B revenue

BEST HOSPITALS U.S.News & WORLD REPORT RANKED IN 8 SPECIALTIES 2024-2025

The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James)

An NCI-designated Comprehensive Cancer Center for nearly 50 years

Third-largest cancer hospital in the country
5.8K+ faculty and staff
270+ volunteers
1.7K+ cancer researchers

Department of Surgery

100+ clinical faculty
70+ APPs
626,477 wRVUs
15,224 OR cases
102,093 outpatient visits

Education by the numbers

3 ACGME-accredited surgical residencies
8 Fellowship specialties
2 assistant professorships

General Surgery Residency Program #8 IN THE NATION on Doximity's 2024-2025 Residency Navigator

General surgery residents: 55

45% male, **53%** female, **2%** non-binary
24% historically underrepresented groups (HUGS)
24 are members of the AOA National Medical Honor Society or graduated from a top 25 *U.S. News & World Report Best Medical School*
47% currently hold advanced degrees, up 5% from FY23
86% went on to do a fellowship

Cardiothoracic surgery residents: 4

4 Vascular surgery residents
30 Fellows

Research by the numbers

$21.2 million total funding
101 active grants
$15.6 million total NIH funding
46 participating investigators
22 total number of FY2024 NIH-funded DP2, K08, K12, P30, R00, R01, R03, R21, T32 and U01 grantss

679 publications
108 clinical trials

Ohio State Surgery #11 in NIH Funding from the Blue Ridge Institute for Medical Research

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