



 Washington
University in St. Louis
SCHOOL OF MEDICINE

Surgery

Department of Surgery

2022 Annual Report

Living Our Legacy





John Olson Jr., MD, PhD

*William K. Bixby Professor and Chair, Department of Surgery
Washington University School of Medicine*

The future of surgery is bright. At Washington University School of Medicine in St. Louis we are training future leaders, investing in groundbreaking research, providing the best in patient care and advancing the diversity and health equity of our specialty.

JOHN OLSON JR., MD, PhD



Joining the Washington University Department of Surgery as chair is something of a homecoming for me. I first arrived at Washington University as a general surgery resident and postdoctoral research fellow in 1992. Then, as now, the department was a magnet for talented surgeons, thoughtful investigators and forward-thinking educators.

Since completing residency training, my journey has taken me to several prominent institutions across the country, but I have never forgotten the mentors who shaped my career and taught me and my fellow residents to always do what's best for the patient, ask challenging questions and show compassion in all that we do.

Much has changed in the last two decades: the Alvin J. Siteman Cancer Center was established and designated a Comprehensive Cancer Center by the National Cancer Institute; new organizational structures—including the Division of Public Health Sciences and Section of Minimally Invasive Surgery—were formed to address the evolving landscape of our field; and more women and people of color have joined our faculty and training programs as Washington University has stepped forward as a leader in improving diversity and health equity.

As much as things change, some things remain the same. We continue to prioritize training the best and the brightest in surgery. This year, I have met residents with astounding passion for their specialty. Their lively stories of organ recoveries, late night trauma calls and basic science discoveries confirm for me that Washington University is

the premier training destination for the most passionate and capable residents. Our simulation programs, flexibility in surgical training and research opportunities are shining examples of all that academic surgery should be.

We have accomplished much, yet there is still significant work to be done. We are doubling down on our research efforts across the board. Investigators in our numerous basic science and translational medicine laboratories are breaking new ground on tomorrow's treatments for cancer and many other diseases. We are actively participating in clinical trials that bring the latest techniques and technologies to our patients. Furthermore, our dedicated faculty of public health scientists are advancing the health of patient populations here in St. Louis and across the globe.

All this work requires strong leadership. Fortunately, Washington University is the place for strong leaders to thrive. In my first year as chair I have been pleased to meet many departmental and institutional leaders with proven track records of thinking big and achieving results. I have also seen the energy and enthusiasm of our faculty—many of them eager to step forward into new leadership roles as we continue to evolve. Together, with partnership and shared vision, we will not only remain at the forefront of academic surgery, but lead the way into the future for our peers across the country and around the world.

WASHU SURGERY NEWS



Keep Up With WashU Surgery News
Some of the incredible stories from the department in local and national headlines.



To view the WashU Surgery News online, scan the QR code or visit surgery.wustl.edu/news/.

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A year in review...



JANUARY

Mackinnon receives Distinguished Service Award

Susan Mackinnon, MD, is honored with the inaugural Distinguished Service Award from the American Society for Peripheral Nerve. She will also receive the American Association of Plastic Surgeons Honorary Award and the Pioneer in Hand Surgery Award from the International Federation of Societies for Surgery of the Hand this year.

Susan Mackinnon, MD.



FEBRUARY

Transplant team makes headlines with incredible story

After a winter storm prevented a Mid-America Transplant flight from getting out of Chicago, the lung transplant team bought a ticket for the lungs on Southwest Airlines, which ferried precious cargo to St. Louis in time for a transplant operation at Barnes-Jewish Hospital.

Cooler containing donor lungs is strapped in for emergency transport on a commercial flight.



MARCH

Residency programs celebrate match day

Medical students match with the General Surgery, Plastic and Reconstructive Surgery, Vascular Surgery and Urology residency programs. The Department of Surgery celebrates and welcomes these new residents.

José Aldana Bastidas, MD, a general surgery resident, on Match Day.



APRIL

Doyle Distinguished Endowed Chair Installation

The Foundation for Barnes-Jewish Hospital and Washington University Surgery community celebrate the establishment of Maria B. Majella Doyle, MD, MBA, as the Mid-America Transplant/Department of Surgery Distinguished Endowed Chair in Abdominal Transplantation.

From left: Dean David H. Perlmutter, MD, William Chapman, MD, Majella B. Doyle, MD, MBA, Angelleen Peters-Lewis, PhD, Timothy Eberlein, MD.



MAY

Faculty, trainees and staff attend various conferences

Members of the Department of Surgery attend and present at several surgical conferences throughout May, including Surgical Education Week, the American Association for Thoracic Surgery, the American Urological Association and the American Society of Colon and Rectal Surgeons annual meetings.

Timothy Eberlein, MD, delivering the ASCRS Humanities in Surgery lecture.



JUNE

Awad named Clinical Teacher of the Year

Michael Awad, MD, PhD, receives the Clinical Teacher of the Year Award from the graduating class of 2022 at the School of Medicine Commencement Ceremony. The award recognizes his dedication, patience and skill in training future physicians.

Michael Awad, MD, PhD.



JULY

Eberlein to Olson transition

After 24 years of leadership, Timothy Eberlein, MD, steps down from his position as chair of the department and John Olson, MD, PhD, begins his leadership. Olson will build on the legacy of Eberlein, who guided the department to its position as a global leader and in academic surgery.

Timothy Eberlein, MD, left, and John Olson Jr., MD, PhD.



AUGUST

Washington University surgeons listed as Top Doctors

One out of every three Castle Connolly Top Doctors in St. Louis is a Washington University Physician. This year, surgeons from each specialty in the Department of Surgery are represented on the list.

Washington University surgeons performing surgery.

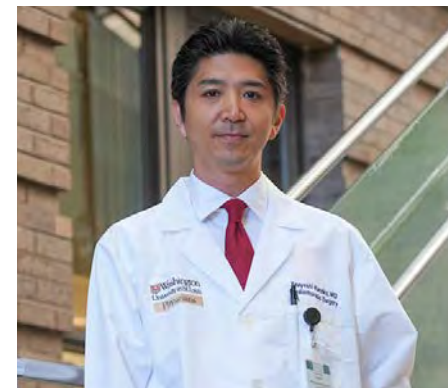


SEPTEMBER

Fields Distinguished Endowed Chair Installation

The Washington University School of Medicine community celebrates the installation of Ryan Fields, MD, as the Kim and Tim Eberlein Distinguished Professor. Chancellor Andrew D. Martin presents Paul and Elke Koch and Kim and Tim Eberlein with medallions recognizing their establishment of the professorship.

Ryan Fields, MD, middle, after installation as the Kim and Tim Eberlein Distinguished Professor.



OCTOBER

Kaneko named Section Chief of Cardiac Surgery

Tsuyoshi Kaneko, MD, a leading cardiac surgeon with expertise in transcatheter therapeutics and minimally invasive surgery, joins the Department of Surgery as the new section chief of cardiac surgery.

Tsuyoshi Kaneko, MD.



NOVEMBER

Rubin receives Lifetime Achievement Award

Professor of Surgery and Radiology Brian Rubin, MD, receives the Lifetime Achievement Award from the Barnes-Jewish Medical Staff Association. The award recognizes Rubin's surgical prowess, clinical research and commitment to training residents over a 30-year career.

Brian Rubin, MD.



DECEMBER

WISE reaccreditation

Following a five-year reaccreditation site visit from the American College of Surgeons, the Washington University Institute for Surgical Education once again receives certification as a Level 1 Accredited Education Institute for surgical education.

From left: Arnub Majumder, MD, Kevin Yin, MD, MPH, Shaleen Sathie, MD and Horacio Carvajal Dominguez, MD.



Department at a Glance

The Department of Surgery at Washington University School of Medicine is a multidisciplinary organization with a rich history of innovation and collaboration. Faculty and trainees from various specialties work with staff to achieve excellence in patient care, research, education, diversity and health equity.

The department's wide range of specialties is represented by its divisions and sections.

As clinicians, Washington University surgeons provide care within five divisions: Cardiothoracic Surgery, General Surgery, Pediatric Surgery, Plastic and Reconstructive Surgery and Urologic Surgery.

Within the Division of Cardiothoracic Surgery, there are three sections: Cardiac Surgery, Thoracic Surgery and Pediatric Cardiothoracic Surgery.

The Division of General Surgery has seven sections: Acute and Critical Care Surgery, Colon and Rectal Surgery, Hepatobiliary-Pancreatic & GI Surgery, Minimally Invasive Surgery, Surgical Oncology, Transplant Surgery and Vascular Surgery.

These divisions also serve as referral centers for their respective specialties. Surgeons treat patients at five Barnes-Jewish Hospital locations: St. Louis Children's Hospital, five Siteman Cancer Center locations, Christian Hospital, Memorial Hospital East, Progress West Hospital, Alton

Memorial Hospital and other locations across Missouri and Illinois.* Clinicians within the department are dedicated to serving the St. Louis community and beyond.

Another division, dedicated to Public Health Sciences, contributes to research, education and outreach in its field with the goals of preventing disease, promoting health equity and improving clinical care and outcomes.

Faculty members train residents and fellows in every surgical specialty represented in the department. In research, the department consistently ranks among the top academic surgery departments in annual NIH, non-federal and corporate-supported grants.

The department is led by **John Olson Jr., MD, PhD**, Chair and William K. Bixby Professor of Surgery. Following the nearly quarter century of outstanding leadership from Timothy Eberlein, MD, Olson builds on the legacy of excellence within the department – a legacy that was established by a long line of renowned surgeons and is continued through its high standards today.

Washington University Surgery provides comprehensive surgical and medical care. Patients receive the expertise and personalized treatment to achieve their best outcomes, and residents and fellows receive world-class training that prepares them for successful careers in surgery.

*Clinical services in Illinois provided by Washington University Physicians in Illinois Inc.

DEPARTMENT OF SURGERY

DIVISION OF CARDIOTHORACIC SURGERY

SECTION OF CARDIAC SURGERY

SECTION OF THORACIC SURGERY

SECTION OF PEDIATRIC CARDIOTHORACIC SURGERY

DIVISION OF GENERAL SURGERY

SECTION OF ACUTE AND CRITICAL CARE SURGERY

SECTION OF COLON AND RECTAL SURGERY

SECTION OF HEPATOBILIARY-PANCREATIC & GI SURGERY

SECTION OF MINIMALLY INVASIVE SURGERY

SECTION OF SURGICAL ONCOLOGY

SECTION OF TRANSPLANT SURGERY

SECTION OF VASCULAR SURGERY

DIVISION OF PEDIATRIC SURGERY

DIVISION OF PLASTIC & RECONSTRUCTIVE SURGERY

DIVISION OF PUBLIC HEALTH SCIENCES

DIVISION OF UROLOGIC SURGERY

Section of CARDIAC SURGERY



Amit Pawale, MD.

Washington University cardiac surgeons are widely recognized as national surgical leaders. As part of the highest-ranked heart program in Missouri by U.S. News & World Report, they have a long history of performing adult cardiac surgeries and fostering innovation in the field of cardiac medicine. Working with cardiologists, vascular surgeons, anesthesiologists, intensivists and a highly qualified, experienced nursing staff, cardiac surgeons offer the latest advances in technology and innovative therapies. They employ practices supported by scientific evidence to achieve the best possible outcomes for patients and strive to further advance the field through a longstanding dedication to quality research and education.



OUR YEAR IN NUMBERS

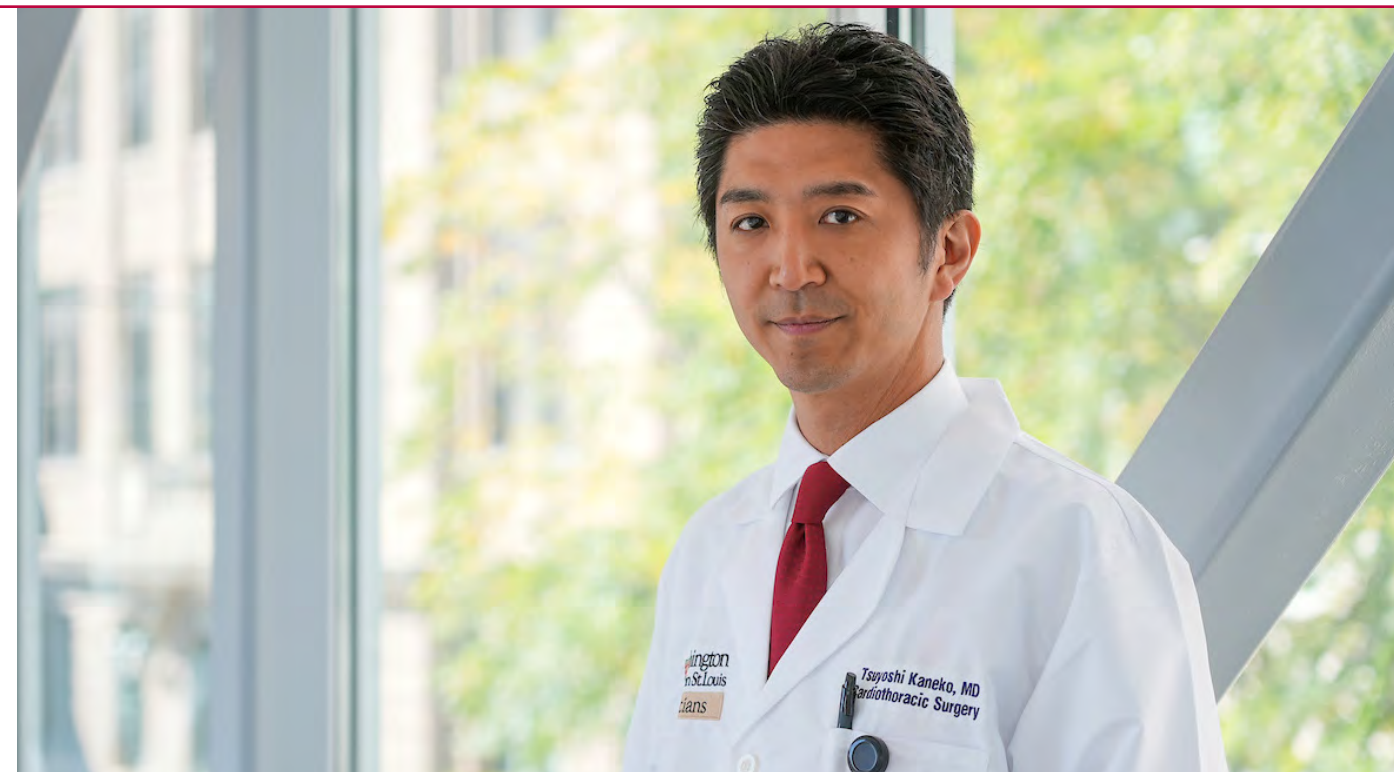
2,995
operating room cases

5,037
visits

11
faculty

107
clinical research studies

\$1,089,386
research funding



Tsuyoshi Kaneko, MD.

Building on a Legacy in Cardiac Surgery

Tsuyoshi Kaneko, MD, a leading cardiac surgeon with expertise in transcatheter therapeutics and minimally invasive surgery, has joined the Department of Surgery as new section chief of cardiac surgery.

“It is very exciting to join an institution with such a rich tradition and history, and to be part of the legacy,” says Kaneko. “There are multiple exciting innovations that are occurring in the field of cardiac surgery. My goal is for WashU to lead these innovations in cardiac surgery.”

Kaneko specializes in transcatheter and endovascular approaches to cardiac surgery, including transcatheter aortic valve repair (TAVR), transcatheter mitral and tricuspid valve repair and replacement, and endovascular thoracic aortic aneurysm repair. Moreover, he specializes in minimally invasive and complex valvular and aortic surgery.

“Dr. Kaneko has proven himself to be a world-renowned leader in the field of cardiac surgery,” says Department of Surgery Chair John Olson Jr., MD, PhD. “His clinical

skill in complex valvular heart disease, his commitment to patient outcomes, and his dedication to training future cardiothoracic surgeons align with the core mission of the Department of Surgery at Washington University.”

Kaneko earned his medical degree and trained in general and cardiac surgery programs at Keio University School of Medicine in Tokyo, Japan. Kaneko finished his general surgery training at the University of Texas Health Science Center in Houston and his cardiothoracic surgery residency at Brigham and Women’s Hospital. He then spent one year in the Brigham catheterization laboratory to gain expertise in transcatheter valve therapies.

Kaneko led the largest structural heart program in New England through numerous clinical innovations. He initiated several new techniques in valve and cardiovascular surgery and the first enhanced recovery after surgery programs for cardiac surgery at Brigham. Kaneko spent eight years at Brigham as well as Harvard Medical School, where he held multiple director positions. Kaneko’s primary research interest

focuses on clinical outcomes of surgical and transcatheter valvular and aortic disease. He has been a site PI or sub-PI on over 20 clinical trials, has over 200 peer reviewed publications and book chapters and has held leadership roles in many national organizations for cardiothoracic surgery.

As an educator, Kaneko has demonstrated a high level of commitment to training future leaders in cardiothoracic surgery. He has served as program director for multiple fellowships and associate program director for the cardiothoracic surgery residency at Brigham. His trainees have gone on to take positions at leading academic medical centers across the country and internationally.

“Dr. Kaneko will bring his superb clinical, research and leadership skills to Washington University/ Barnes-Jewish Hospital and build on our legacy as one of the top academic units in the world,” says Division Chief of Cardiothoracic Surgery **Ralph Damiano Jr., MD.**

CARDIAC SURGERY *Highlights*

CLINICAL



For the second consecutive year, Washington University cardiac surgeons at Barnes-Jewish Hospital received the Mitral Valve Repair Reference Center Award from the American Heart Association and Mitral Foundation. Barnes-Jewish Hospital is the only center in the state of Missouri and one of a select few in the Midwest to receive the award, which recognizes high volume of procedures, availability of resources and clinical performance measures. **Ralph Damiano Jr., MD**, division chief of cardiothoracic surgery and Everts A. Graham Professor of Surgery, was selected as a mitral reference surgeon. Damiano notes that the expertise in minimally invasive procedures offered at Washington University and Barnes-Jewish Hospital contributes significantly to the success of the mitral program.

Ralph Damiano Jr., MD.

RESEARCH



The Cox-Maze procedure for atrial fibrillation was first developed and performed at Washington University in 1987. The less invasive Cox-Maze IV was later pioneered by chief of cardiothoracic surgery **Ralph Damiano Jr., MD**. A recent study, published in the *Journal of Thoracic and Cardiovascular Surgery*, reported long-term outcomes and durability of the Cox-Maze IV. The investigators demonstrated the effectiveness of the procedure in patients with life-threatening heart arrhythmia by studying long-term rhythm and survival outcomes in patients who underwent the concomitant Cox-Maze IV procedure for atrial fibrillation. These findings were presented by postdoctoral research scholar **Tari-Ann Yates, MD**, at the 2022 Nicholas T. Kouchoukos Research Day, an event that celebrates research accomplishments within the division.

From left: Tari-Ann Yates, MD, Martha McGilvray, MD, MSt, Nicholas Kouchoukos, MD, Hailey Shepherd, MD, Yuhei Yokohama, MD and Khashayar Farahnak, MD.

EDUCATION



Washington University cardiothoracic trainees benefit from experience with the nation's leading surgeons in complex cardiac procedures. **Puja Kachroo, MD**, surgical director of aortic surgery, serves as a mentor to trainees in the repair of challenging thoracoabdominal aortic aneurysms. At the 102nd Annual Meeting of the American Association for Thoracic Surgery, Kachroo presented her strategy for teaching these procedures, from preoperative planning to operative experience and review after each case. Trainees, including **Lauren Barron, MD**, who completed her cardiothoracic surgery fellowship this year, and current fellow **Linda Schulte, MD**, finish the program prepared for careers at the forefront of cardiothoracic surgery.

Puja Kachroo, MD.

Pulling Together: Scott's Story

The Washington University and Barnes-Jewish Heart and Vascular Center is home to a team of world-renowned specialists dedicated to saving the lives of patients with the most severe cardiovascular diseases.

"The heart team at Washington University has a great collaborative spirit," says Chief of Cardiothoracic Surgery **Ralph Damiano Jr., MD**. "We work together, we communicate, we collaborate. That's the way to get the best care: having a team where everyone is invested in doing the best thing for the patient."

When Scott Pulley was diagnosed with severe coronary heart disease far from home in a Chicago hospital, he was told his only option was a heart transplant. His wife reached out to a friend of the family and cardiac specialist at Washington University, and was assured that the heart team would try everything at their disposal to find an alternative to transplantation.

Scott arrived at Barnes-Jewish Hospital late at night in seemingly stable condition. Only a few hours later, Scott suddenly arrested and went into ventricular fibrillation, but the heart team was prepared.

Matthew Schill, MD, performed CPR on Scott for over 30 minutes. A fellow at the time, Schill now serves as an instructor of surgery in the Division of Cardiothoracic Surgery. The heart team prepared Scott for ECMO treatment, which would give them time to develop and implement a treatment plan while Scott's heart rested.

Amit Pawale, MD, surgical director of the Heart Transplant, VAD and ECMO Program, led Scott's ECMO care. **Jasvinder Signh, MD**, an interventional

cardiologist and associate professor of medicine in the Cardiovascular Division at Washington University, inserted an impella pump to decompress the left ventricle and placed stents to revascularize Scott's heart. The entire team worked tirelessly to stabilize Scott and restored his heart to healthy function – both in a moment of emergency and without the need for a transplant.

"ECMO serves a critical bridge therapy for a patient like Scott, whose heart needs time to recover before we provide a more lasting solution," says Pawale. "When it comes to ECMO, experience counts. We lead the highest volume ECMO program in the region and have the expertise to judge the most appropriate course of treatment for patients with heart failure, when every second counts."

Thanks to the efforts and expertise of Schill, Pawale, Signh and the rest of the multidisciplinary heart team and nursing staff at Barnes-Jewish Hospital, Scott made an impressive recovery and continues to live a healthy and active life.

“

It really is a testament to a whole team coming together not only to provide the emergency care, but all the steps afterward. Everyone was ready and willing and right there, and Scott Pulley is alive today because of that.

-Tsuyoshi Kaneko, MD



Scott Pulley, and his wife, Jill Pulley.

Section of THORACIC SURGERY



Shuddhadeb Ray, MD, MPH.

The board-certified, internationally recognized thoracic surgeons at Washington University provide leading-edge respiratory medical and critical care, research and training. They offer a multitude of comprehensive treatments including airway surgery, procedures for benign esophageal disease, esophageal and lung cancer surgery, and lung transplantation. Many procedures are performed through minimally invasive techniques, including robotically assisted thoracic surgery. Since 1988, the lung transplant program at Barnes-Jewish Hospital has consistently led the country in the advancement of transplant science and remains as one of the most active transplant centers in the world. These surgeons also foster ongoing excellence in the next generation of thoracic surgeons through advanced fellowship training.



OUR YEAR IN NUMBERS

1,534

operating room cases

6,340

visits

9

faculty

98

office procedures

40

clinical research studies

\$4,768,906

research funding



G. Alexander Patterson, MD and Daniel Kreisel, MD, PhD.

Leadership in Lung Transplantation

In 1988, Joel Cooper, MD, a surgical innovator in the development of single- and double-lung transplants, arrived at Washington University School of Medicine to lead the Section of Thoracic Surgery. Three years later, Cooper recruited one of his frequent collaborators and trusted colleagues, **G. Alexander Patterson, MD**, Joseph Bancroft Professor of Surgery, to direct Barnes-Jewish Hospital's new lung transplantation program, marking the dawn of a new age of thoracic surgery excellence in our institution. Since Patterson's arrival and the program's inception, it has become one of the nation's most recognized programs—both for successful patient outcomes and lower wait times—and has surpassed 1,900 lung transplants.

“WashU was one of the early centers of pioneering lung transplantations when Dr. Patterson and Dr. Cooper began performing transplants here in the late 1980s and early 1990s,” says Thoracic Surgery Section Chief and Patrick and Joy Williamson Professor of Surgery **Bryan Meyers, MD, MPH**.

With the section's history of surgical innovation in the areas of lung transplantation at its core, the current thoracic surgery faculty are hard at work in maintaining its reputation for success and making new breakthroughs in the world of clinical and translational lung transplantation research.

Acquiring quality donor grafts has been a struggle for nearly all transplant centers across the world. **Varun Puri, MD, MSCI**, professor of surgery, is hard at work

producing and validating predictive models that may help clinicians assess for quality lungs in brain dead donors. Additionally, Puri will also aggregate databases featuring the impact of donor factors on early outcomes in lung transplant recipients with the predictive models to allow clinicians to easily determine if donor lungs can be accepted and if they will function adequately after transplant.

Daniel Kreisel, MD, PhD, the current surgical director of the lung transplant program at Barnes-Jewish, **Andrew Gelman, PhD**, and Pulmonary & Critical Care Professor Ramsey Hachem, MD, are working to meet an unmet need to improve patient survival after lung transplant. In a pharmacological clinical trial, the trio will study a novel anti-inflammatory and immunosuppressive therapy called clazakizumab, and they predict it will help improve patient survival outcomes and reduce morbidity after transplantation.

Kreisel, Gelman and Research Associate Professor **WenJun Li, MD**, continue their ongoing PO1 research study into immune factors that affect graft survival in lung transplants.

“This project at the pathways regulating lung transplant tolerance, which is the opposite of resistance,” says Meyers. “From their collective research, they hope to determine how to ‘trick’ a host into accepting a transplant organ that the body sees as the same as itself so it doesn't reject.”

THORACIC SURGERY *Highlights*

CLINICAL



During two consecutive cycles, Washington University thoracic surgeons at Barnes-Jewish Hospital have received the highest overall rating in esophagectomy from the Society of Thoracic Surgeons. This score, which measures both absence of operative mortality and major morbidity, recognizes Washington University thoracic surgeons for their excellent performance in this rare procedure. Patients from across the region travel to Barnes-Jewish Hospital for this specialized treatment. “There are not many surgeons in Missouri or southern Illinois who can care for these patients because of the complexity of the problem,” says **Bryan Meyers, MD, MPH**, chief of thoracic surgery. “This grade is a clear validation of our success as a team.”

Bryan Meyers, MD, MPH.

RESEARCH



Thoracic surgeons **Varun Puri, MD, MSCI**, and **Benjamin Kozower, MD, MPH**, are leading studies to improve treatment strategies for patients with lung cancer. Puri is PI of a study examining retrospective and prospective Veterans Health Administration data to describe and define the hallmarks of high-quality operations and outcomes in lung cancer care. Additionally, Kozower, Puri and a team of radiation oncologists and public health experts lead a multicenter trial comparing surgery and radiation therapy for stage I lung cancer. This NCI R01 project aims to develop and compare prediction models for lung cancer treatment outcomes and create a benchmark for personalized treatment through multidisciplinary collaboration.

Benjamin Kozower, MD, MPH.

EDUCATION



A study within the expanding portfolio of Thoracic Research Fellow **Hailey Shepherd, MD**, earned the Nicholas T. Kouchoukos Research Award following the second annual Kouchoukos Research Day presentations. The project, “Mechanisms Contributing to the Development of Pleural Fibrosis Following Pulmonary Transplantation,” was conducted alongside her mentor, **Daniel Kreisel, MD, PhD**, who is the G. Alexander Patterson, MD/Mid-America Transplant Endowed Distinguished Chair in Lung Transplantation. The project’s findings illustrated that hyaluronic acid accumulates in grafts quickly after transplantation, which may lead to notable fibrotic remodeling and irreversible injury to the lung. By identifying these mechanisms, research teams like Shepherd and Kreisel can explore potential treatments that inhibit them from damaging lung allografts after transplantation.

Hailey Shepherd, MD.

Robot Ready

On Dec. 1, 2021, thoracic surgeons **Varun Puri, MD, MSCI**, **Nabil Munfakh, MD**, and their operative staff carried out the 500th robotic thoracic surgery at Christian Hospital in north St. Louis. This marked a major milestone for the Washington University thoracic robotic surgery program, which has continued to grow significantly in both clinical volume and training practices since its establishment.

From the program’s early success at Christian Hospital, **Benjamin Kozower, MD, MPH**, professor of surgery, has helped to establish a successful robotic practice at Barnes-Jewish Hospital.

“What we’ve seen is a significant growth in our robotic practice in recent years,” says **Bryan Meyers, MD, PMH**, Patrick and Joy Williamson Professor of Surgery. “Dr. Puri and Dr. Kozower lead the way in building this practice. In more recent years, Dr. Ray and I have also become active in robotic surgery.”

Shuddhadeb Ray, MD, MPHS, a former trainee of the robotic surgery program, is now a key member of the team at Christian Hospital. His expertise in minimally invasive procedures has contributed greatly to the growth of the program and the quality of training offered.

Minimally invasive robotic surgery has potential to become the gold standard of care when it comes to many thoracic procedures. In offering future surgeons opportunities to train alongside experts in this practice, the program has major influence on the next generation of leaders in thoracic surgery. “This area of our practice has reached a critical mass so that we see our trainees leave with a very firm grounding in robotic skills,” says Meyers. “They are ready to hit the ground running with robotic pulmonary resections and robotic benign esophageal surgery.”

The number of robotic cases at Christian Hospital and Barnes-Jewish Hospital has only been growing over the past several years, and that trend is projected to continue its growth in coming years.

“Our recent trainees have all completed the program ‘robot-ready,’” says Meyers. The trainees undergoing this invaluable experience with minimally invasive robotic technology and techniques early on in their careers have the opportunity to change the very face of thoracic surgery.

DaVinci surgical robot.



Thoracic surgery team at Christian Hospital.

Section of PEDIATRIC CARDIOTHORACIC SURGERY



Pirooz Eghtesady, MD, PhD, center, and his surgical team during a procedure.

Washington University pediatric cardiothoracic surgeons treat children with congenital cardiac disorders. Washington University specialists treat a wide range of conditions, from atrial septal defects to complex single ventricle anomalies, neonatal surgery, surgery for congenital heart disease and tracheal reconstruction. The lung transplant program at St. Louis Children's Hospital is among the most active of its kind in the world, attracting patients with cystic fibrosis and other lethal lung diseases from around the globe. The pediatric heart transplant program is considered a national leader in the specialty. The section also offers advanced training through an ACGME-accredited congenital cardiothoracic surgery fellowship.



OUR YEAR IN NUMBERS

1,027
operating room cases

1,420
visits

4
faculty

30
clinical research studies

\$215,473
research funding



Audrey Wallach holding hands with her mother and father on her first birthday.

A Beautiful New Heart: Audrey's Story

This March, Audrey celebrated her first birthday at home with her family. Audrey's mother, Molly Wallach, as an assistant nurse manager at the St. Louis Children's and Washington University Heart Center, knew there was a chance Audrey would spend her first birthday in a hospital room.

Audrey was diagnosed with a congenital left ventricular aneurysm before she was born and dilated cardiomyopathy at three weeks old. This combination of rare heart conditions required multiple operations, including a heart transplant at only six months old. Thanks to an organ donor and the team of specialists at the Heart Center, Audrey is now a happy, healthy one-year-old girl.

Audrey's Heart Center team included **Pirooz Eghtesady, MD, PhD**, Cardiothoracic Surgeon-in-Chief at St. Louis Children's Hospital, as well as Washington University congenital cardiac surgeons **Jacob Miller, MD**, and **Dilip Nath, MD**.

"Dr. Eghtesady has such a calm confidence," Wallach says. "I

remember him coming up to me on the night of Audrey's first surgery, putting his hand on my shoulder and saying, 'I'm going to take care of your daughter.' I was so scared, but then I felt this rush of relief. I knew that Dr. Eghtesady would go to the ends of the earth for Audrey."

At three months old, Audrey underwent VAD placement. She spent just over three months awaiting a transplant in the hospital, supported by her VAD, her care team and the love of her family.

The Heart Center is a nationally recognized Mechanical Assist Device program. Placing a VAD in a left ventricular aneurysm is an exceptionally rare procedure, but Wallach knew her child was in good hands with Eghtesady, who is also chief of pediatric cardiothoracic surgery at Washington University.

"As a practitioner, it was anxiety provoking that I was caring for one of our own," says Eghtesady. "At the same time, the trust and privilege the Wallach's provided us by trusting Audrey's care in our hands was a testament to the relationship as well as a precious

vote of confidence in our team. I am grateful they would trust Audrey's surgery to us and that we were able to provide her with a great outcome."

After an unusual first year, Audrey is now back home with her family, vibrant and healthy. "We want Audrey to experience life," Wallach says. "Drs. Eghtesady, Miller and Nath always remind me that, at the Heart Center, we choose transplant because we want kids to live. Now that Audrey has a beautiful new heart beating in her chest, we're going to let her live a normal life."



Sam and Molly Wallach with daughters Audrey and Caroline.

PEDIATRIC CARDIOTHORACIC SURGERY *Highlights*

CLINICAL



Washington University pediatric cardiothoracic surgeons provide the highest quality care to patients with congenital heart defects. To ensure the program's continued excellence, the team engages in several rigorous practices to regularly review performance and outcomes. During monthly performance improvement rounds, the team reviews each patient's hospital course from admission to discharge, comparing their findings to a national database and determining what lessons can be learned to continuously improve. This practice seeks to enhance dialogue across disciplines by recognizing both areas for improvement and the team's successes. Surgeons from the section also follow up with patients and caregivers to examine long-term outcomes and evaluate the durability and effectiveness of treatments.

St. Louis Children's Hospital.

RESEARCH



Tetralogy of Fallot is a congenital heart defect that affects normal blood flow through the heart. **Pirooz Eghtesady, MD, PhD**, and his research team are developing a novel surgical technique using heart tissue to treat Tetralogy of Fallot. In 2022, the team presented a 14-year evolution of management of the pulmonary valve using living right atrial appendage tissue, concluding that this method of repair is a safe operation with excellent outcomes. A second study describes a technique for complete repair of Tetralogy of Fallot with other defects using right atrial appendage tissue. This technique provides advantages of right heart protection and the use of living tissue capable of growth with the patient.

Pirooz Eghtesady, MD, PhD.

EDUCATION



In 2020, the Section of Pediatric Cardiothoracic Surgery introduced an ACGME-accredited Congenital Cardiac Surgery Fellowship, one of only 11 congenital cardiac fellowships in the country. This program now accepts one distinguished fellow every other year. Training through this program provides opportunities for cardiothoracic surgeons to develop the expertise necessary for subspecialization in congenital cardiac surgery. Inaugural fellow **Jacob Miller, MD**, joined the Section of Pediatric Cardiothoracic Surgery at Washington University School of Medicine in St. Louis in 2021 as an instructor of surgery. The most recent fellow, **Vinod Sebastian, MD**, finished his pediatric cardiothoracic fellowship and now works as a pediatric cardiac surgeon with University of California, San Francisco.

Vinod Sebastian, MD.

A Hands-On Approach to Training

After gaining valuable experience during an in-depth, hands-on training experience, Washington University pediatric cardiothoracic surgeons and fellows can utilize new tools to diagnose and plan treatment strategies for patients with rare and complex heart defects.

This year, pediatric cardiothoracic surgeons joined a specialized training program tailored around treating congenital heart defects. The HOST (Hands-On Surgical Training) program, led by cardiovascular surgeons from the Hospital for Sick Children in Toronto, Canada, guides surgeons from around the world through the repair of complex heart defects utilizing realistic simulation models. The team from Washington University were the only surgeons from the U.S. that participated in the session.

Though the Section of Pediatric Cardiothoracic Surgery currently utilizes 3D models in preoperative planning, trainee education and patient education at St. Louis Children's Hospital, the HOST program gives the surgeons a new perspective in treating congenital heart conditions.

"We were astounded by the level of detail shown in the specially prepared silicone models used in this program," says Pediatric Cardiothoracic Surgery Section Chief **Pirooz Eghtesady, MD, PhD**. "The models, designed in accordance with real defects captured by CT or MRI imaging, were 3D-printed, assembled and shipped to our team."

Following an introductory preparatory course, trainees and faculty members practiced simulated procedures, such as extended end-to-end coarctation aorta repairs and Norwood procedures, on the complex models with guided instructions.

"In patients with complex disease, these models provide a great resource and allow for one to really visualize pathology. The models are the closest thing to mimic actual surgery that I've ever seen," says **Jacob Miller, MD**, an instructor of pediatric cardiothoracic surgery. "They also act as a great reference to facilitate discussion with the faculty and discuss tips and tricks used to optimize the repair."

"Since the session was conducted in a virtual environment with a webcam spotlighting the surgical area and model, surgeons received real-time feedback from the course proctors during their procedures and received a final review of their approaches and anatomic results," says Eghtesady, cardiothoracic surgeon-in-chief at St. Louis Children's Hospital. "We are happy to report the patients did well under the hands of our surgeons."

Following the success of the initial training program, the division conducts ongoing simulation training monthly as part of its comprehensive surgical training curriculum.

3D-printed silicone simulation model utilized by the HOST program.



Jacob Miller, MD, practicing surgery on a realistic model during the HOST training session.

Section of ACUTE AND CRITICAL CARE SURGERY



Middle: John Kirby, MD, leading a surgical training lab.

Washington University acute and critical care surgeons specialize in traumatic injuries, emergency surgeries, geriatric trauma, general surgeries, burn and wound care, and critical care. They provide top-quality care to a high volume of diverse cases at Barnes-Jewish Hospital, a regional referral center for critically ill patients and designated Level I Trauma Center by the State of Missouri. These surgeons collaborate with intensivists from the Washington University Department of Anesthesiology and Division of Emergency Medicine. Trainees are exposed to a large, diverse patient population and receive mentorship from nationally recognized surgical leaders while treating complicated cases on several intensive care units.



OUR YEAR IN NUMBERS

6,851
operating room cases

47,057
visits

37
faculty

2,267
office procedures

86
clinical research studies

\$922,747
research funding



From left: Brandon Wojcik MD, Thoi Ngo, MD, and Karthik Sugumaran, MD.

Unparalleled Experience

For patients with traumatic injuries or acute illness, every second counts. The Washington University surgical care surgery fellowship prepares surgeons to recognize and address the myriad needs of this patient population through immersive clinical experience and simulation training.

Led by Program Director **Sara Buckman, MD, PharmD**, the surgical critical care fellowship offers multidisciplinary training at Barnes-Jewish Hospital, the #1 hospital in St. Louis and Missouri and #11 in the nation, according to U.S. News & World Report. The trauma center at Barnes-Jewish Hospital was the first in Missouri to receive Level I verification from the American College of Surgeons (ACS) and remains the busiest trauma center in the state.

Fellows train in the multidisciplinary surgical/burn/trauma and cardiothoracic intensive care units with elective opportunities in numerous other disciplines tailored to meet the fellow's goals. Early in his fellowship, **Karthik Sugumaran, MD** trained in critical care, trauma, cardiac intensive care and critical care ultrasound.

“The resources available at Washington University are truly unmatched,” says Buckman. “During your fellowship, you will work closely with experts in the field of critical care, distinguished research investigators and leaders who are defining the future of surgical critical care on a national and international level.”

Outside the clinical setting, fellows gain valuable experience through simulation training at the Washington University Institute for Surgical Education (WISE), an ACS Level I Accredited Education Institute. WISE offers a variety of trainings and certifications,

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Washington University by far offers the best educational experience for critical care fellows. Hands-on experience, knowledgeable faculty and versatile learning opportunities set this program apart.

-Karthik Sugumaran, MD

including robotic and laparoscopic labs, for learners ranging from residents and fellows to allied health professionals and practicing physicians.

“In the simulated environment, a fellow can practice trauma exposure maneuvers and become familiar with aspects of a procedure with no impact on patient care,” says **Thoi Ngo, MD**, an assistant professor of surgery. “We can prepare fellows in a non-emergent setting. Then, when an acute patient presents, the fellow is ready to respond quickly and capably.”

In addition to sharpening their surgical skills, fellows gain valuable experience as educators. Sugumaran recently led a training session for attending pediatric physicians. “The opportunity to step into the role of the educator prepares you for a career in academic medicine. It also allows you to apply what you’ve learned during your own training,” Sugumaran says. “The fellowship truly offers an unparalleled experience in critical care.”

ACUTE AND CRITICAL CARE SURGERY *Highlights*

CLINICAL



The Washington University limb preservation program consists of a multidisciplinary team of physicians who utilize cutting-edge techniques and a collaborative approach to provide emergency and ongoing care in preserving the form and function of limbs. This June, podiatrist **Neil Ermitano, DPM**, joined the Section of Acute and Critical Care Surgery as an assistant professor, with a clinical focus on detecting and treating limb-threatening conditions, diabetic foot and wound care, and treating trauma and infections. “This section is special in that it provides a very team-based approach to patient care and treatment,” Ermitano says. “I look forward to contributing to its already vast fund of knowledge and expertise to help serve the St. Louis area.”

Neil Ermitano, DPM.

RESEARCH



Faculty in the Section of Acute and Critical Care Surgery lead multiple Department of Defense-funded research projects, including a recent clinical trial of the drug tranexamic acid (TXA), which is routinely given to critically injured patients experiencing severe blood loss. The TAMPITI trial, led by **Grant Bochicchio, MD**, chief of acute and critical care surgery, suggests the drug may have only minimal effects on blood clotting when use to treat a recent, massive injury. A subsequent study published in the journal *Transfusion* found a dose-dependent increase in the risk of thromboembolism due to TXA in patients with severe traumatic injury, underscoring the need for thromboembolism screening in appropriate patients receiving TXA.

Grant Bochicchio, MD.

EDUCATION



The Section of Acute and Critical Care Surgery plays an integral role in surgical education at the School of Medicine. General surgery residents rotate through the critical care service, gaining valuable experience treating traumatic injuries and critically ill patients. Residents are also trained in simple to complex minimally invasive surgery in the OR, including procedures like video assisted thoroscopic surgery. While rotating on the critical care service, current resident **Katharine Caldwell, MD**, said of the residency: “We have an incredible program. I couldn’t have been happier to spend the last seven years here.”

Katharine Caldwell, MD.

Life Outside of Violence

The impacts of violence-related trauma go beyond the emergency room—the physical injuries are only one part of the cycles of perpetuated violence within communities. Some estimates report nearly 60% of people who experience violence-related trauma in the U.S. will later return to the hospital for similar reasons.

Launched in 2018 by Washington University’s Institute for Public Health, the Life Outside of Violence (LOV) program is promoting an individualized approach to disrupting cycles of violence and working to support victims of violent trauma. LOV offers comprehensive support to those who have experienced violence with the goal to reduce retaliation, re-injury and death. LOV offers services to provide participants with mental health services, resources for education and employment, and medical and housing assistance.

Trauma surgeon **Douglas J. E. Schuerer, MD**, is the director of trauma at Barnes-Jewish Hospital and a founding board member of the LOV program. “It has been very important to us as providers because we’re finally starting to affect injury prevention in and around the area of interpersonal violence,” says Schuerer. “That’s been one of the hardest areas to address.”

Participants in the LOV program are connected to a case manager who functions as a point of contact for comprehensive support. LOV provides participants with resources that bolster their journey toward recovery, which heals both individual and community alike. “It’s important for us to demonstrate the benefits

of the program to the community, to foster more trust toward the medical system,” Schuerer says.

LOV is the first city-wide, hospital-based violence intervention program in the United States, and it is collaborative between institutions. Four trauma centers, including Barnes-Jewish Hospital and St. Louis Children’s Hospital, collaborate with three research universities: Washington University, Saint Louis University and University of Missouri-St. Louis. The collaborative effort has broadened the program’s reach and has allowed it to get a better perspective on how violence and its impacts on the city.

“By collaborating among hospitals citywide, we have a more robust program, and we’re able to track and understand the patients and outcomes a lot better than any single institution,” says Schuerer. Program data includes the number of people citywide subjected to violence and the amount of recidivism after the first encounter with violence, information which is valuable to decreasing these cycles.

Over four years, LOV has already seen dramatically lower rates of recidivism for patients who have enrolled in the program’s support system, achieving its goal of less than 10% recidivism within its first three years of operation. Even more impressive, there have been no incidents of retaliation or mortality among the enrolled participants. These results are further telling of LOV’s effectiveness at providing mental health care and breaking cycles of violence.



Douglas J. E. Schuerer, MD.

Section of COLON AND RECTAL SURGERY



Left: Sean Glasgow, MD.

Building on a successful history, this section continues its role as a leader in research and treatment in all aspects of colorectal surgery. Surgeons provide collaborative and comprehensive care to patients with diseases of the colon, rectum and anus. Faculty are leaders in their field and have special expertise in laparoscopic colon surgery, offering this treatment for colon and rectal cancer, diverticulitis, ulcerative colitis, Crohn's disease, colon polyps, rectal prolapse and chronic constipation. Surgeons apply basic science research to the clinical realm, offer several colorectal cancer clinical trials and train the next generation of surgical innovators through a one-year colorectal surgery fellowship.



OUR YEAR IN NUMBERS

2,719
operating room cases

16,263
visits

7
faculty

1,032
office procedures

27
clinical research studies

\$237,616
research funding



Matthew Mutch, MD, left,
and Steven Hunt, MD.

Paradigm Shift in Treating Rectal Cancer

The Section of Colon and Rectal Surgery is one of the few centers in the country that is using short-course radiation therapy for rectal cancer.

This treatment administers five days of short course radiotherapy, delivering the same biologic dose of radiation as the current standard of treatment in the United States in a shorter time. Systemic chemotherapy is then administered preoperatively. This complete treatment plan is now referred to as total neoadjuvant therapy.

First chief and founder of the section **Ira Kodner, MD**, pioneered the use of short-course radiation in the 1980s, which then allowed surgeons to perform less radical surgical procedures for patients with rectal cancer. Section Chief **Matthew Mutch, MD**, and surgeon **Steven Hunt, MD**, are now leading the efforts at the School of Medicine to build on Kodner's early success with the treatment.

"This legacy was built with Ira Kodner decades ago, and our institution has carried it forward with what we now term total neoadjuvant therapy," says Mutch, who is the Solon and Bettie Gershman Professor of Surgery.

This strategy is used more frequently in European countries and has not been widely adopted by many centers in the United States. The section is making an impact on practice patterns within the region, however, as more radiation oncologists are utilizing short course therapy.

This year, **William Chapman Jr., MD, MPH**, 2021-2022 Walter F. Ballinger II Administrative Chief Resident, led a multidisciplinary study that supports short-course radiation for rectal cancer.

This project was built on previous research performed at the School of Medicine, in which results of the RAPIDO (Rectal Cancer And Pre-operative Induction Therapy Followed by Dedicated Operation) clinical trial demonstrated the efficacy of this as a new standard for treating rectal cancer.

Researchers compared clinical performance and oncologic outcomes of two rectal cancer neoadjuvant treatment standards: short-course total neoadjuvant therapy versus standard chemoradiation. They found that the short-course total neoadjuvant therapy regimen correlated with improved tumor downstaging and similar progression-free survival

*Ira Kodner, MD, first chief and founder of
Colon and Rectal Surgery at Washington
University School of Medicine in St. Louis.*

of patients with rectal cancer when compared to other forms of chemoradiation.

The major benefit of total neoadjuvant therapy for patients are several. First, the radiation therapy consists of five days of treatment instead of five weeks of treatment. Second, by administering the chemotherapy before surgery, patients are more likely to begin and receive more doses of chemotherapy. Finally, this strategy appears to improve survival in patients with rectal cancer.

"What we have shown has been equivalent results to traditional long course radiation therapy with opportunity to improve the overall outcome for rectal cancer patients," says Mutch. "This practice is becoming a major paradigm shift in how we are treating rectal cancer."

The team presented their findings at the 2022 American Society of Colorectal Surgery annual meeting and is currently discussing joining a national research collaborative for further investigations to advance this treatment for rectal cancer.

COLON AND RECTAL SURGERY *Highlights*

CLINICAL



Sean Glasgow, MD, and Radhika Smith, MD, are part of the multidisciplinary team that provides diagnosis and treatment for benign anorectal and pelvic floor disorders at the Washington University Center for Colorectal and Pelvic Floor Disorders (COPE Center). Common ailments treated include urinary incontinence, bowel obstruction, hemorrhoids, perirectal abscesses, prolapse and pelvic pain. The center, located in Barnes-Jewish West County Hospital, was the first of its type in the Greater St. Louis area to bring together colorectal surgeons, urologists, urogynecologists and support staff to care for patients with these conditions and has recently seen significant clinical growth.

Radhika Smith, MD.

RESEARCH



Rectal surgery is often a major concern for patients because of its impact on quality of life and self-perception. The Section of Colon and Rectal Surgery participated in a multicenter three-year trial that found that the “watch-and-wait” method, in which physicians treat the patient with intensive radiation and chemotherapy to shrink or eliminate the tumor then closely monitor for recurrence, is a potentially rectum-preserving treatment approach for locally advanced rectal cancer. Steven Hunt, MD, is an author on a study’s findings, published in the Journal of Clinical Oncology. Washington University colorectal surgeons and residents are now developing a research project to study the decision-making process for patients considering organ preservation.

Steven Hunt, MD.

EDUCATION



Paul Wise, MD, who serves as the General Surgery Residency Program Director, was selected as an at-large member of the Association of Program Directors in Surgery’s (APDS) executive committee. The APDS is an organization that provides a forum for the exchange of information on subjects related to post-graduate surgical education. During this three-year appointment, Wise will assist in the management of the affairs of the Association and appointment of agents. The section also offers a one-year colorectal fellowship program, led by Program Director Matthew Silveira, MD, MS, and Associate Program Director Radhika Smith, MD. The program accepts three fellows each year.

Paul Wise, MD, left, leading a robotics lab.

Young-onset Colorectal Cancer Program Growth

Washington University colorectal surgeons, medical and radiation oncologists, and other specialists have partnered with Barnes-Jewish Hospital and Siteman Cancer Center to address the unique needs of young-onset colorectal cancer patients through a new program.

Colorectal cancer patients are considered young-onset if they are diagnosed before they turn 50 years old. Young-onset colorectal cancer is a growing problem. The rate of colorectal cancer in patients 49 and younger has increased by more than 50% in recent years. The rising incidence of young-onset colorectal cancer led the American Cancer Society and the U.S. Preventative Services Task Force to revise its colorectal cancer screening guidelines in 2021 to start earlier at age 45 instead of 50 for individuals at average risk.

“It is a population that has unique needs compared to your typical older cancer patient. They are working, they have young children,” says Chief of Colon and Rectal Surgery Matthew Mutch, MD. “You often envision a colon cancer patient as an older individual being accompanied by their adult children. Because of this significant shift toward earlier onset, a lot of the patients today are those kids.”

The Washington University young-onset cancer program offers a personalized treatment plan based on the patient’s needs. This multidisciplinary team-based approach allows physicians to work together to find the best solutions for patients, and often reduces the number of appointments a patient needs to schedule. The colon and rectal surgery team also includes skilled staff nurses, ostomy nurses, physicians’ assistants, and medical assistants. They work closely with leading experts in medical oncology, radiation oncology, pathology, and radiology to provide state of the art care with a focus on curing cancer the safest way possible.

This team is leading the region in the non-operative management of rectal cancer, minimizing the need for surgery unless necessary.

In addition to the team of experienced physicians, the young-onset colorectal cancer program includes access to the Living Well Center, which offers holistic care to patients including acupuncture, physical therapy, medical massage, nutritional counseling, fitness classes and more. Other services available in the young onset cancer center include social services, genetic counseling, reproductive and sexual health, financial services, and rehabilitation.

“This is such a unique opportunity to provide patients who are newly diagnosed with cancer not only access to cutting edge therapy, clinical trials, and advanced surgical options, but also a more holistic approach to a devastating diagnosis. We are really focused on treating the whole patient and addressing all of the issues unique to the younger population.”

-Radhika Smith, MD

The program has seen significant success and growth, doubling the number of patients treated since its start in early 2022.

“The young-onset cancer program has taken off,” says Mutch. “We have much more formalized care paths for patients in this program and have developed multidisciplinary workflows with medical oncology and radiation oncology.”

The program also partners with researchers in the Division of Public Health Sciences, who are leading efforts to discover the genomic landscape of young-onset colorectal cancers and the underlying lifestyle factors that may drive the rising incidence.



Matthew Mutch, MD, left, and Radhika Smith, MD.

Section of HEPATOBILIARY-PANCREATIC & GI SURGERY



Varintra Krisnawan, left, and David DeNardo, PhD.

Washington University HPB-GI surgeons have established a legacy of pioneering treatment for disorders of the liver, pancreas and biliary tract. This section is a high-volume national referral center for open and laparoscopic surgical procedures to treat patients with benign and malignant disorders of the liver, biliary tree, pancreas, stomach, small intestine and retroperitoneum. Faculty are at the forefront of research on new and improved therapies for HPB-GI disorders with active research laboratories, pre-clinical studies and clinical trials. This section also offers a one-year HPB-GI surgery fellowship to train the next generation of leaders in HPB-GI surgery.



OUR YEAR IN NUMBERS

349

operating room cases

5,628

visits

6

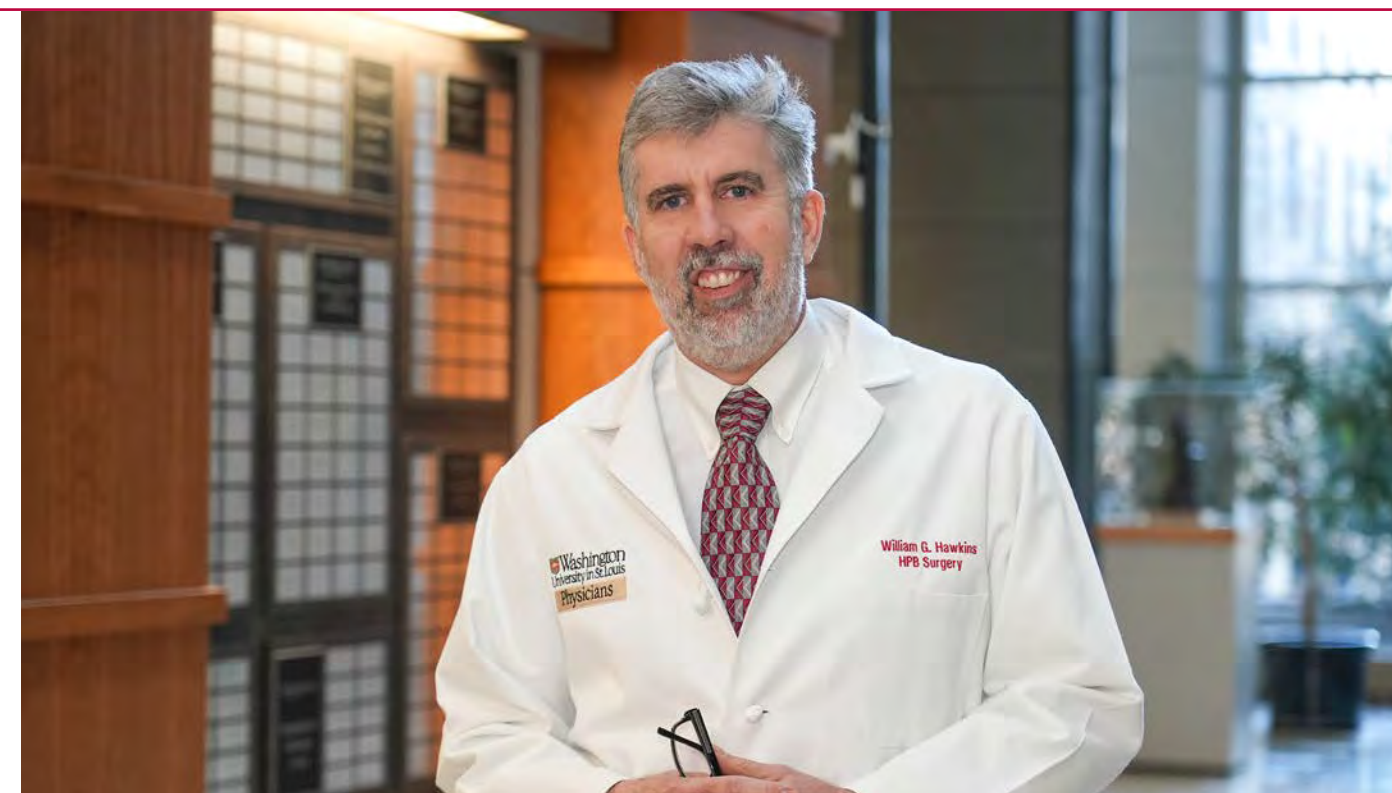
faculty

27

clinical research studies

\$613,012

research funding



William Hawkins, MD.

Personalizing Pancreas Cancer Care

An ongoing clinical trial lead by Washington University HPB-GI investigators is studying the use of personalized vaccines to treat pancreas cancer. This trial seeks to evaluate the safety of an optimized neoantigen synthetic long peptide (SLP) vaccine in patients following chemotherapy but prior to surgery.

In its first phase, the trial will involve an estimated 30 participants with newly diagnosed cases of pancreatic cancer. The vaccines will be provided on a patient-specific basis after chemotherapy but before undergoing surgery. Any adverse events will be recorded over the course of the trial to measure the safety of the SLP vaccines, and the immunogenicity of the vaccines will be measured by recording the number of neoantigen-specific T-cells present over a period of 2 years and 78 days.

Prior studies, including the cancer vaccine work of Vice-Chair for Research William Gillanders, MD, have investigated the possibility of vaccines that utilize the patient's unique genetic makeup and the genetics of the tumor to craft a personalized treatment targeting

cancer cells. This trial will also complement the R01 grant-funded research of Washington University Assistant Professor of Surgery Dirk Spitzer, PhD, which seeks to develop of a drug that causes tumor-selective cell death.

This study, part of the Specialized Programs of Research Excellence (SPORE) in pancreatic cancer at Siteman Cancer Center, is projected to be completed in the fall of 2027.

"We are studying these vaccines in a new space," says Chief of Hepatobiliary-Pancreatic and

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The prognosis for pancreatic cancer, even with a very successful surgery, is only about 30%. Any difference we can make immunologically could truly change the face of pancreas cancer.

-William Hawkins, MD

Gastrointestinal Surgery William Hawkins, MD, who is director of the Pancreas SPORE. "We are using vaccines before surgery, giving the immune system a chance to see the tumor and a chance to try out its newfound T cells against the existing tumor. Then, when we remove the tumor during surgery, we can do a deeper scientific look into what makes an effective immune response against tumors."

The trial, funded by a grant through NCI and industry partnership with biomedical research company Leidos, expands upon promising results from past trials. Gillanders, the William K. Bixby Professor of surgery, serves as principal investigator for the trial, partnered with sub-investigators including Hawkins, the Neidorff Family and Robert C. Packman Professor of Surgery. Felicia Zhang, MD, a general surgery resident, will contribute to the basic science behind the trial during her two years of research in the Hawkins laboratory. Collectively, the investigators seek to create new, personalized therapies for pancreatic cancer.

HEPATOBIILIARY-PANCREATIC & GI SURGERY *Highlights*

CLINICAL



Natasha Leigh, MD, joins the HPB-GI faculty as an assistant professor of surgery. Leigh earned her bachelor of medicine and surgery at the University of Birmingham School of Medicine in England, then completed general surgery residency at Mount Sinai St. Luke's Roosevelt Hospital. Before joining the faculty, Leigh completed HPB fellowship training at Washington University. Leigh has served as a clinical research fellow, has been widely published throughout her career and has extensive experience in minimally invasive and robotic HPB surgery. In a specialty known for complex, demanding procedures, Leigh is a skilled surgeon committed to her patients. She also serves as a role model whose mentorship will help develop a new generation of HPB surgeons.

Natasha Leigh, MD.

RESEARCH



A novel combination of drugs—including a molecule first designed and synthesized at Washington University—could revolutionize the treatment of pancreatic cancer and other cancers. Research from the laboratory of Section Chief of HPB-GI Surgery **William Hawkins, MD**, the Neidorff Family and Robert C. Packman Professor, suggests the molecule ACxT and the drug Trametinib can cause metabolic collapse of cancer cells, even in low doses. General surgery resident **Kenneth Newcomer, MD**, received the Basic and Translational Research Award for his presentation of these critical findings at this year's Samuel A. Wells Jr. Research Day Competition. Newcomer and Hawkins aim to introduce a clinical trial for this treatment regimen.

Kenneth Newcomer, MD.

EDUCATION



In 2006, the section established a one-year clinical fellowship for graduates of accredited general surgery training programs. The fellowship has since attracted fellows from around the world, demonstrating the level of expertise and international reputation of Washington University HPB surgery. Current fellow **Brittany Greene, MD, MSc**, came to Washington University from University of Toronto, where she completed general surgery residency training. Past trainees have come from England, Mexico, New Zealand, Ireland and other countries. "Our section publishes widely and presents research at national and international meetings; as such, we continue to attract some of the best fellows from around the world in an environment where fellows can thrive," says section chief **William Hawkins, MD**.

Brittany Greene, MD, MSc.

Optimizing Outcomes Before Surgery

The population of sick and elderly patients in the United States is rapidly growing. Studies show patients over the age of 65 account for a third of the surgical patient population, and this number is expected to rise. A majority of Americans over 65 have at least one chronic comorbidity, and many of them have multiple of these conditions. When an elderly patient requires major surgery, these comorbidities pose a significant barrier to quality outcomes.

A recent study found the Surgical Prehabilitation and Readiness (SPAR) program at Washington University School of Medicine in St. Louis has led to a reduction in postoperative length of stay and improved outcomes for such elderly patients. Rather than focusing on recovery and rehabilitation after a procedure, "prehabilitation" targets the preoperative period to offer patients functional capacity and optimize them for surgery.

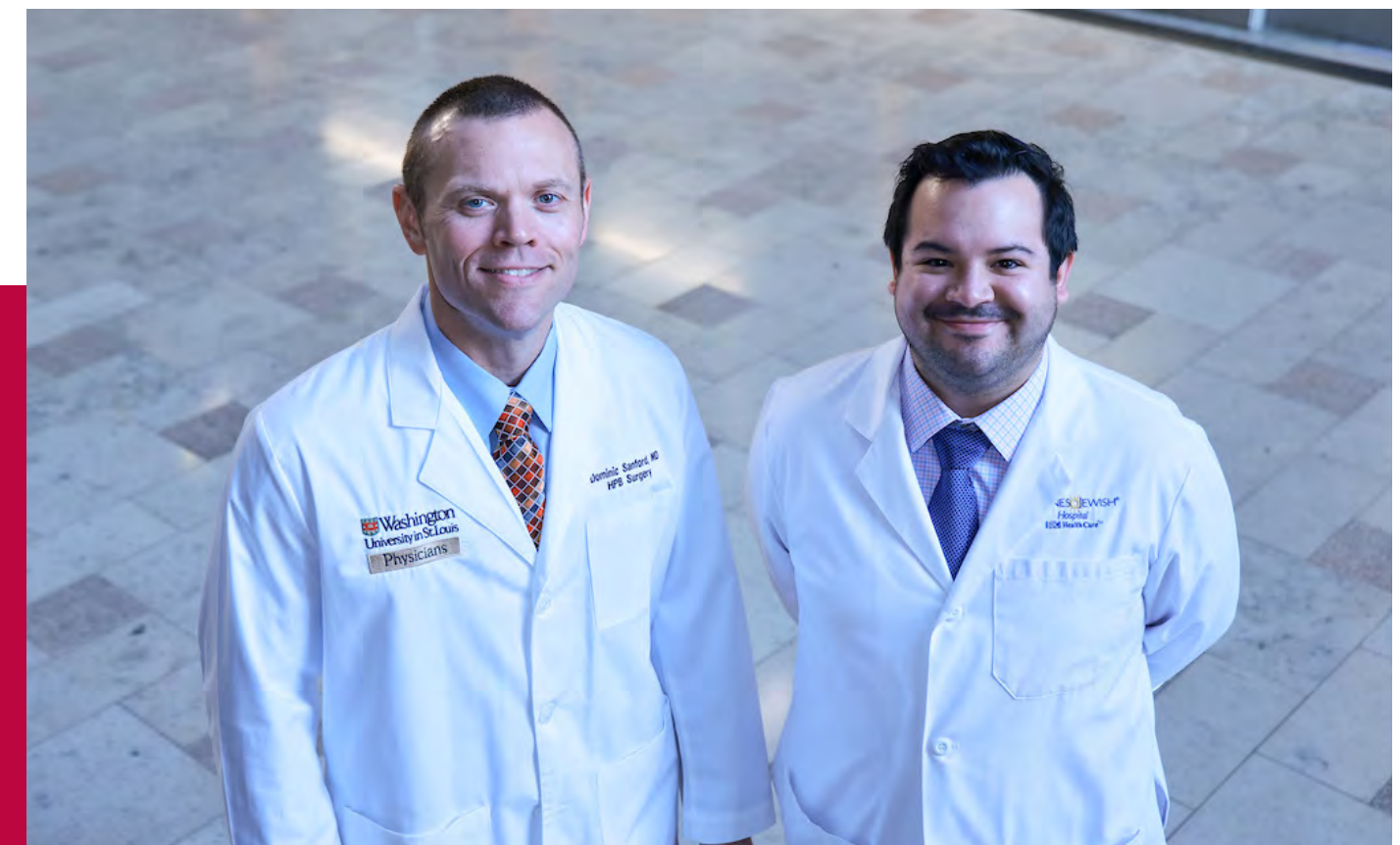
Led by Washington University HPB-GI surgeon **Dominic Sanford, MD, MPH**, the recent SPAR study focused on patients over 70 who were scheduled for inpatient surgery. For two weeks, the patients underwent holistic prehabilitation including physical activity, lung strengthening, healthy diet and mental health practices. Sanford and team found that preoperative interventions can improve patient outcomes, especially in complex HPB and oncologic surgery procedures. SPAR was rolled out to specialties across the department over the past year,

and physicians have already seen improvements for participating patients.

"With increased age comes decreased functional status, and this translates into increased postoperative morbidity and mortality," says **Heidy Cos, MD**, a general surgery resident involved in the SPAR study. "Preoperative physical assessment, fitness, physical activity, nutritional status, anxiety and depression have been identified as predicting factors for surgical outcomes that are potentially modifiable."

The study compared postoperative results of SPAR patients to data from the American College of Surgeons National Surgical Quality Improvement Program database. When implemented among a group of 100 patients with high frailty risks, participation in and compliance with the SPAR program led to a decreased median of hospital stays and a decrease in discharges to further rehabilitation facilities postoperatively. These results open doors for further study and implementation of the SPAR program to ease the process of surgery and recovery for high-risk patients across the department.

"The SPAR program has unlimited potential. We think it will improve almost every measurable outcome we can consider," says **Ryan Fields, MD**, the Kim and Tim Eberlein Distinguished Professor, who has implemented SPAR in the Section of Surgical Oncology.



Dominic Sanford, MD, MPH, left, and Jorge Zárate, MD.

Section of MINIMALLY INVASIVE SURGERY



Michael Brunt, MD.

This section is dedicated to furthering innovations and utilizing the technological and research advancements on outcomes, techniques and biomaterials. Washington University minimally invasive surgeons specialize in laparoscopic and open treatment of upper gastrointestinal conditions, abdominal wall hernias and bariatric surgery. Their goal is to increase patient benefit by decreasing the size of surgical incisions, resulting in less pain and faster recovery. This section is active on the frontiers of clinical research as well as surgical education, and offers a one-year fellowship.



OUR YEAR IN
NUMBERS

2,400
operating room cases

12,785
visits

9
faculty

252
office procedures

49
clinical research studies

\$30,450
research funding



Jeffrey Blatnik, MD, left, and Arnab Majumder, MD.

Comprehensive Hernia Care

A hernia occurs when the intestines bulge through a weak spot in the abdominal wall. For a person with a hernia, hernia repair typically provides a long-lasting solution. Successful surgery can be life changing. The Washington University Hernia Center provides patients with comprehensive hernia care, from diagnosis and prehabilitation to decision making, treatment and postoperative recovery.

Washington University hernia surgeons **Jeffrey Blatnik, MD**, **Arnab Majumder, MD**, and **Sara Holden, MD**, specialize in all forms of hernia repair, including traditional open surgery, minimally invasive and robotic procedures, and complex abdominal wall reconstruction.

“At the Hernia Center, our focus is on providing the best repair for each individual patient,” says Blatnik, who leads the center. “We engage our patients in important conversations about their health, their treatment options and their goals for after surgery.”

For patients like Vojin Bozovich, who struggled with recurrent hernias for decades before coming to the Hernia Center, finding a durable solution is life-changing. Previous surgeries had provided temporary relief, but Bozovich’s hernias inevitably recurred. Using a minimally invasive approach and surgical mesh, Blatnik was able to provide Bozovich with lasting relief.

The Hernia Center aims to make it easier for patients with challenging hernias to find the care they need. Blatnik, Majumder and Holden are leading initiatives to inform patients about their options, address common surgical concerns and implement a patient-centered scheduling platform.

“One key aspect of the Washington University Hernia Center is that every surgeon on our team has completed advanced fellowship training in the latest techniques, giving us a large toolkit to address different types of hernias,” says Majumder, an assistant professor of surgery.

This toolkit includes techniques like transversus abdominis release, which the hernia team reviewed in a retrospective case study published in the journal *Surgery*. The study examined the charts of more than 130 patients who underwent recurrent ventral hernia repair using the technique at Washington University, finding that the procedure tends to provide durable and long-lasting results.

“With these various techniques, we offer personalized hernia care,” says Holden, an assistant professor of surgery. “Not every hernia that we see is treated the same in all patients. From the preoperative care to postoperative follow-up, we see our patients as individuals. We know that they may have different goals for surgery. We help them prepare for surgery, discuss different surgical techniques and carefully manage their postoperative course to ensure the smoothest recovery with the best results.”

MINIMALLY INVASIVE SURGERY *Highlights*

CLINICAL



Patients undergoing bariatric surgery, hernia repair and other operations offered by Washington University surgeons now have a dedicated team to help them achieve their preoperative weight loss goals. A new medical weight management program, led by **Shaina Eckhouse, MD**, and advanced nurse practitioner Michelle Cusumano, NP-C, assesses patients who may need to lose weight and helps them meet any mandated weight loss requirements prior to their surgery. The first of its kind within the Department of Surgery, this program helps make medical weight management accessible to a broad demographic of patients and benefits those who may require weight loss support prior to their procedures.

Michelle Cusumano, NP-C.

RESEARCH



The Geriatric Assessment and Medical Preoperative Screening (GrAMPS) Program, which studies age-associated risk factors in older patients undergoing hernia surgery, is working towards individualized patient care and shared decision-making in geriatric hernia surgery. Older patients are disproportionately affected by age-related risk factors, which are often under-recognized and can adversely affect surgical outcomes. Focused on frailty and prehabilitation before hernia surgery, GrAMPS intends to prepare older patients who are less mobile and active for complex abdominal wall reconstruction. The program is led by **Sara Holden, MD** in collaboration with Timothy Holden, MD, a geriatric primary care physician also at Washington University.

Elderly patients in waiting room.

EDUCATION



With new knowledge comes new techniques for teaching and learning. Washington University's Gateway Curriculum was developed to adjust to such innovation, renewing the way that physicians are educated in medicine. **Bethany Sacks, MD, MEd**, aided in developing the Gateway Curriculum, which entered Phase II in January 2022. "The medical school is focusing on the integration of knowledge into surgical practice," Sacks says of the updated curriculum. This curriculum is enriched by a culture that supports diversity, inclusion, critical thinking and creativity. Through the training program, students learn to become more than physicians – they also learn to be scientists, educators and advocates who will reimagine the medical field towards advancing high quality healthcare.

Bethany Sacks, MD, MEd.

A Commitment to Surgical Excellence

The Section of Minimally Invasive Surgery has a long-standing history of leadership and excellence in surgical training. This legacy began in 1993 with the establishment of the Washington University Institute for Minimally Invasive Surgery (WUIMIS) and grew once again one decade later with the creation of the Washington University Fellowship in Minimally Invasive Surgery.

Bringing minimally invasive techniques to the learners in WUIMIS was critical to the development of their educational programming, says Minimally Invasive Surgery Section Chief **Michael Brunt, MD**.

"The first skills labs that came into being were around laparoscopic surgery," says Brunt. "It was such a change in surgical technique, and our trainees really needed to gain baseline skills outside the operating room before the practices were brought into patient care."

The work and training within WUMIS laid the groundwork for the development of the Washington University Institute for Surgical Education (WISE). This formal skills lab, now led by **Michael Awad, MD, PhD**, was founded by Mary Klingensmith, MD, an emeritus member of the section who now serves as the Accreditation Council for Graduate Medical Education's senior vice president of accreditation.

Awad was named Clinical Teacher of the Year by the 2022 graduating class of medical students. He also directs the ACS-AEI Education Fellowship program

at Washington University, which has now trained four fellows: **Eileen Smith, MD**, **Britta Han, MD, MEd**, **Julie Clanahan, MD**, and most recently **Tiffany Brocke, MD**.

Shaina Eckhouse, MD, has also been recognized for her outstanding mentorship by the 2022 class of general surgery residents. She received the 2022 Jeffrey F. Moley Mentorship Award, which has previously been awarded to MIS faculty including **J. Chris Eagon, MD**, and **Jeffrey Blatnik, MD**.

The Department of Surgery fosters an environment that allows its faculty to grow into outstanding leaders in the institution and wider surgical education community. Brunt serves as the current president of the Fellowship Council, which oversees 183 advanced gastrointestinal surgical training programs across the country. In addition to being president-elect of the Association for Surgical Education, Awad is also a member of the American College of Surgeons Academy of Master Surgeon Educators. Eckhouse leads a peer advocate program for health care workers and initiatives to develop a culture of patient safety in surgery. Additionally, she partners with residents including Smith to publish research such as a recent chapter in the SAGES Manual of Quality, Outcomes, and Patient Safety.

"Our group of surgeons are very committed to education and training across the board and are willing to invest the time to do it well," says Brunt.



From left: Francesca Dimou, MD, MS, J. Chris Eagon, MD, and Shaina Eckhouse, MD.

Section of SURGICAL ONCOLOGY



Julie Margenthaler, MD.

Surgeons in this section provide the most up-to-date care for breast and endocrine system disease, melanoma and sarcoma, and other cancers at the Alvin J. Siteman Cancer Center, the only Comprehensive Cancer Center in Missouri. Faculty consists of nationally recognized leaders in research seeking to advance treatment and constantly improve the quality of care. With one of the largest endocrine surgery practices in the country, surgeons also offer expertise in thyroid cancer, adrenal tumors and hyperparathyroidism. This section offers clinical trials that evaluate new therapies, supports clinical and research opportunities for general surgery residents and offers a breast disease fellowship.



OUR YEAR IN NUMBERS

2,080
operating room cases

16,504
visits

10
faculty

188
office procedures

49

clinical research studies

\$3,646,853
research funding



Ryan Fields, MD.

Mapping Pancreatic Cancer Development

A detailed analysis by Washington University researchers has uncovered a breakthrough in the understanding of pancreatic cancer development. A recent study, published in *Nature Genetics*, revealed two key transition points in cells—from normal to precancerous and precancerous to cancerous—and uncovered indications of how tumors adapt to survive chemotherapy and become resistant to treatment over time. The study is part of the Human Tumor Atlas Network, funded by the National Cancer Institute's Cancer Moonshot program, all part of the National Institutes of Health (NIH).

Pancreatic cancer is notorious for becoming chemo-resistant. For this reason and others, the five-year survival rate is under ten percent, making this cancer particularly deadly and difficult to manage. The researchers in this study conducted a deep analysis of the genetics and protein manufacturing of 83 pancreatic tumor samples donated by 31 patients who participated in the study. They noted how the tumors differed across the volume

of the tumor and at various times as the patients underwent treatment. Understanding the ways pancreas cells change and cancer cells adapt opens up possibilities for novel treatment methods and new research strategies.

“We have a lot of snapshots of these tumors, but what we really need is a movie,” said co-senior author **Ryan Fields, MD**, the Kim and Tim Eberlein Distinguished Professor. “It’s very hard to study these tumors in patients across the spectrum of treatment. The point of the Human Tumor Atlas Network is to document the tumors across space and time so we have more of a continuous movie rather than distinct snapshots.”

As part of an ongoing phase 1 immunotherapy clinical trial at Siteman Cancer Center—based at Barnes-Jewish Hospital and Washington University School of Medicine—the researchers are also conducting the same detailed analyses performed in the current study to see how tumors from patients respond to two investigational drugs that prime

the immune system to attack the cancer.

Future studies will look into how tumors, once cancerous, shift into metastatic disease and spread to other parts of the body. Li Ding, PhD, a professor of genetics, and colleagues Fields, and professor of medicine David G. DeNardo, PhD, now shift their focus to preclinical animal models to determine which are most promising to investigate in future human clinical trials.

SURGICAL ONCOLOGY *Highlights*

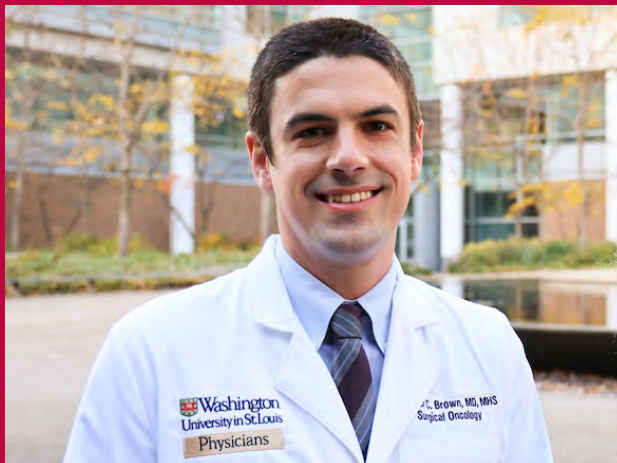
CLINICAL



For patients with rare endocrine disorders, having an experienced surgeon is critical to ensuring a safe, effective, and positive treatment outcome. Washington University endocrine surgeons operate at a major regional referral center for these complex conditions. Endocrine surgeon T.K. Pandian, MD, MPH, is a leading figure in the Section of Surgical Oncology's clinical programs, where he works with other experienced endocrine surgeons to amplify the reach of their specialized surgical techniques and expertise. "The history of endocrine surgery is engrained in our legacy at Washington University," says Pandian. "We have comprehensive experience in our very focused surgical niche. We are going to do whatever it takes for the needs of our patients."

T.K. Pandian, MD.

RESEARCH



Washington University endocrine surgeon **Taylor Brown, MD, MHS**, was awarded the American Association of Endocrine Surgeons Foundation's Paul LoGerfo Research Award for further investigation into understanding and developing new therapies for aggressive thyroid cancer. Brown's project will investigate how DNA repair pathways can be targeted in thyroid cancer to reveal new therapeutic opportunities for patients. This work can also augment current thyroid cancer treatments to potentially make them more effective and durable. The support from the award helps Brown continue researching anaplastic thyroid carcinoma, the deadliest form of thyroid cancer, and work to determine new therapeutic pathways for treating this rare and extremely aggressive disease.

Taylor Brown, MD.

EDUCATION



Washington University was recently awarded an R38 NIH grant to fund the Stimulating Access to Research in Residency (StARR) program, which will help recruit and retain post-doctoral health professionals and provide them with research opportunities early in their career. This program seeks to address the growing need for clinician-researchers in the medical field. "By identifying, recruiting, training, retaining and advancing MD research during residency years, we can encourage new projects that cross department and program lines and may be innovative and impactful," says Section Chief of Surgical Oncology **Ryan Fields, MD**, who is principal investigator of the StARR program.

Ryan Fields, MD.

Addressing Disparities in Our Communities

Comprehensive breast cancer treatment requires a collaborative, multidisciplinary approach. Washington University physicians work together across several disciplines to provide comprehensive quality care for their patients. The breast cancer surgery program at Siteman Cancer Center is a national leader in breast cancer research and treatment, offering individualized care plans to provide the best possible care to each patient. When a patient is diagnosed, they have the opportunity to develop a treatment plan in partnership with a team of physicians, including a cancer surgeon, a plastic and reconstructive surgeon if they desire reconstruction, a medical oncologist, and a radiation oncologist.

Breast cancer specialists at Christian Hospital focus not only on providing the highest-quality cancer care, but also on expanding access to that care where patients need it the most. Washington University investigators, public health experts and surgeon-scientists join their expertise to address the health disparities in the north St. Louis County area, a community afflicted by the presentation of late-stage breast cancer in underserved populations. In collaboration with public health researchers and a multitude of multidisciplinary experts, the breast cancer program seeks to investigate and remedy the issues of health disparities within the St. Louis community.

Katherine Glover-Collins, MD, PhD, an assistant professor of surgery, is dedicated to delivering breast cancer care to those at greatest risk of late-stage presentation. She works diligently to eliminate these

local health disparities by promoting mammography screening and providing comprehensive care to the community.

"We are addressing these disparities in the north county area on two fronts," says Glover-Collins. "We are engaging the community in educational programs and partnering with local organizations to reach more people. By building a Siteman Cancer Center facility in north St. Louis, we can bring the access that is sorely needed."

Through conducting community outreach efforts, organizing screening events and providing funding for underinsured patients, the breast cancer surgery program at Siteman Cancer Center and Christian Hospital has made great strides in developing trust and increasing health equity within the north St. Louis community. The program has seen significant growth in clinical volume over recent years, allowing for much-needed access to top-of-the-line cancer care. Washington University researchers continue to conduct specialized research to further the understanding of cancers among understudied and disproportionately affected populations.

The dedicated team of surgeons and researchers at Siteman Cancer Center and Christian Hospital, in collaboration with the community they serve, have taken vital steps toward serving more patients, detecting cancers sooner and providing care to the patients who need it most.



Katherine Glover-Collins, MD, PhD.

Section of TRANSPLANT SURGERY



Jason Wellen, MD.

This section has a long, successful history of pioneering new clinical techniques and continues to lead advancements in the field. In liver transplantation, the program offers living-related and living-unrelated donor, reduced-size liver, split liver and dual-organ transplantation. Faculty offer both laparoscopic and “mininephrectomy” kidney donor procedures as well as robotic kidney transplantation. Transplant surgeons are at the forefront of research and development in islet cell transplantation and have the largest pancreas transplant program in the region. Along with their clinical expertise, faculty are leaders in the field of transplantation research and train fellows in a nationally recognized, two-year certified program.



OUR YEAR IN NUMBERS

1,322
operating room cases

9,627
visits

9
faculty

57
clinical research studies

\$1,263,138
research funding



Maria B. Majella Doyle, MD, MBA.

Partners in Progress

Washington University has a long history of making great strides in the field of transplant surgery. In 1963, the first kidney transplant in the Midwest was performed by Dr. William Newton at Barnes-Jewish Hospital. Today, this groundbreaking legacy is carried by the dedicated surgeons and investigators in the transplant program. In the last two decades, the total number of organ donors in the St. Louis region has increased by more than 140%. The partnership founded between Washington University School of Medicine, Barnes-Jewish Hospital and Mid-America Transplant has dramatically increased the volume of transplants. Together, they are addressing some of the most critical problems in transplantation today.

Leaders in the department, including Professor of Surgery **Jae-Sung Kim, PhD**, and Chief of Transplant Surgery **William Chapman, MD**, are investigating and developing solutions for the unique problems facing transplant surgery. Kim’s research investigates the roles of mitochondria and autophagy in ischemic liver injury and develops therapeutic strategies

to reduce ischemia reperfusion injury in fatty livers. Chapman, the Eugene M. Bricker Professor of Surgery, leads the groundbreaking RESTORE trial.

The trial, which utilizes normothermic machine perfusion (NMP) technology on donated livers destined to be discarded by other facilities due to lack of confidence in organ quality, recently completed its second phase. These perfused livers have achieved successful results similar to those in cases with typically accepted donor livers. “We have transplanted 15 patients on this protocol in the last year and a half,” says Chapman. “Our goal is to get more people transplanted safely and effectively.”

Director of liver transplant at both Barnes-Jewish Hospital and St. Louis Children’s Hospital, **Maria B. Majella Doyle, MD, MBA**, exemplifies the leadership and clinical excellence of the department. Doyle, Mid-America Transplant/Department of Surgery Distinguished Endowed Chair in Abdominal Transplantation, is a renowned surgeon; the transplants and other procedures she performs

transform the lives of some of the sickest patients, putting them on the path to recovery and giving them the chance to live a normal healthy life. Doyle’s leadership and contributions to the field were recognized at a chair installation ceremony hosted by the Foundation for Barnes-Jewish Hospital earlier this year, where she received the Mid-America Transplant/Department of Surgery Distinguished Endowed Chair in Abdominal Transplantation.

The leadership of dedicated faculty, alongside clinical partnerships, advanced surgical training and groundbreaking research in the transplant program, has advanced the field as a whole and delivered the highest quality of care to an ever-expanding volume of transplant patients.

“

We truly have the most amazing job in the world, and thanks to the organ donors and their families, we can pass on this gift of life.

-Maria B. Majella Doyle, MD, MBA

TRANSPLANT SURGERY *Highlights*

CLINICAL



Historically, liver cancer has been considered a contraindication for transplantation. A new national effort focuses on developing transplant strategies for liver cancer when other treatments are not feasible. The Washington University transplant program is one of the leading sites in this effort. The department has published data on ten-year outcomes of liver transplant and downstaging for hepatocellular carcinoma, and other research in cholangiocarcinoma, intrahepatic cholangiocarcinoma and metastatic colorectal cancer have led to successful treatment in otherwise untreatable cancer patients. Transplant faculty including **William Chapman, MD**, and **Maria B. Majella Doyle, MD, MBA** work to “downgrade” the stage of liver cancer before transplant and implement neoadjuvant treatment strategies in different cancers to increase patient survival.

William Chapman, MD.

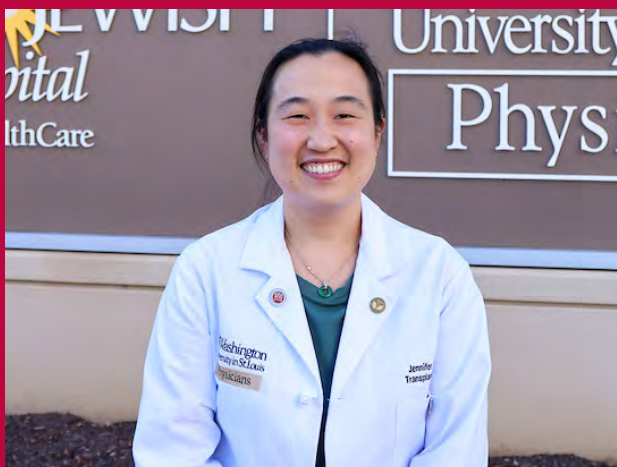
RESEARCH



Jae-Sung Kim, PhD, is conducting pioneering research on the causes of and mitigation strategies for ischemic reperfusion injury. His recent publications describe factors that worsen injuries in the liver during ischemia/reperfusion, as some livers cannot tolerate ischemia reperfusion injury and are thus not eligible for transplant. Kim has many years of research experience in this space using cell and animal models, and his major research emphasis is to understand the molecular and cellular mechanisms underlying liver injury. Kim’s research ultimately seeks to develop novel therapeutic strategies to improve liver function after ischemia/reperfusion so more livers will be eligible for transplant.

Jae-Sung Kim, PhD.

EDUCATION



Jennifer Yu, MD, MPH, joins the section as an assistant professor of surgery associate program director for the general surgery residency. Yu has earned her undergraduate, medical and master of population health sciences degrees at Washington University, where she also completed the T32 Surgical Oncology Clinical Research Fellowship, general surgery residency and an abdominal transplant fellowship under **Maria B. Majella Doyle, MD**, and **Jason Wellen, MD, MBA**. Among many other awards, Yu received the 2020-2021 Gregario A. Sicard Teaching Fellow Award from the general surgery residents as well as the 2020-2021 Clinical Educator of the Year Award from students at the School of Medicine.

Jennifer Yu, MD, MPH.

Full-spectrum Robotic Kidney Transplant

Over the last five years, Washington University surgeons have built one of the world’s largest programs for robotic kidney transplantation and HPB-GI surgery. These fields have historically been associated with large incisions. Technological advances, institutional investments and world-class surgical skill have empowered Washington University surgeons to offer patients the latest minimally invasive options for these major operations.

The robotic kidney and HPB-GI program encompasses the full spectrum of these fields, from donor nephrectomy and kidney transplant to liver, pancreas, bile duct and stomach cancer, as well as nonmalignant conditions such as acute and chronic pancreatitis, liver cysts, bile duct injuries, gallbladder problems and pancreatic cysts. The program is led by **Adeel Khan, MD, MPH**, who is director of robotic transplantation in the Department of Surgery.

“We are one of very few centers to provide comprehensive experience in both HPB and transplant surgery,” says Khan. Many programs perform some robotic surgery—such as donor nephrectomies or a limited range of HPB-GI procedures—cover the breadth of both specialties.

Establishing a robotic program takes time and a team with dedication and expertise. The team includes **Meranda Scherer, MSN, CRNFA**, transplant surgery resource nurse and robotic first assist, as well as transplant surgeons **Jason Wellen, MD, MBA**, and **Maria B. Majella Doyle, MD, MBA**. A robotic program also requires access ORs equipped with surgical robots.

Infrastructure investments of institutional leadership, including **Jackie Martin Jr., MD, MBA**, vice president of perioperative services at Barnes-Jewish Hospital, were critical.

The program performs approximately 150 robotic cases per year. The team also trains abdominal organ transplant fellows. Graduates have joined teams at major hospitals and medical schools across the country, where they will grow or establish robotic programs to serve more patients nationwide. **Jennifer Yu, MD**, who joined the faculty in August 2022, completed her transplant fellowship at Washington University.

New technology and high clinical volume are about providing the best experience and outcomes to patients. Washington University surgeons aim to expand that quality of care to as many patients as possible. Washington University surgeons have led training sessions for transplant programs from across the country.

About 20 programs have come to Washington University for guidance in growing their own robotic practice. These teams are drawn to the program’s high clinical volume and surgical success, as well as the fact that Washington University Medical Center is the first center in the country to be named an official Intuitive Surgical Training Center.

“Our vision is to continue the growth of our robotic transplant program and be the national leaders in this field,” says Khan.



Adeel Khan, MD, MPH.

Section of VASCULAR SURGERY



From left: Luis Sanchez, MD, Brian Rubin, MD and Patrick Geraghty, MD.

Washington University vascular surgeons have been providing leading-edge quality patient care since the establishment of the service in 1983. This section offers open and endovascular treatment for patients with vascular disease and participates in clinical trials of stent graft devices to treat thoracic aneurysms using endovascular techniques. Faculty provide innovative clinical training in residency and fellowship programs accredited by the Accreditation Council for Graduate Medical Education. Members of the section lead basic science, translational research, clinical outcomes and novel device trials, and they support the education of the numerous general surgery residents in rotation on the service.



OUR YEAR IN NUMBERS

3,082
operating room cases

15,203
visits

12
faculty

159
office procedures

47
clinical research studies

\$1,699,539
research funding



Right: Mohamed Zayed, MD, PhD.

A Foundation of Innovation

The Washington University CardioVascular Research Innovation in Surgery and Engineering (CVISE) Center is a program combining the training, knowledge and skill sets of post-doctoral surgeon-scientists and pre-doctoral engineering students to foster the growth of cardiovascular research innovators. The program provides strong foundations in cardiovascular pathophysiology, basic and translational research, applicable engineering principles, entrepreneurship, and an understanding of responsible partnerships with industry and pathways for commercialization.

The program, established in 2022, offers trainees foundational experiences to encourage collaboration and inspire independence as investigators. It serves as a pipeline for cardiovascular research innovators to make lasting impacts on the future of surgical technology and practice. Trainees are provided access to mentorship across a wide span of surgical specialties in addition to career advisors and an entrepreneurial and commercialization committee. These opportunities offer trainees not only a space to innovate, but also a team committed to helping

them navigate the process of creating and implementing their innovations in the field.

CVISE is home to a multidisciplinary team of expert faculty serving as collaborators and mentors. Program Director **Mohamed Zayed, MD, PhD**, is an associate professor of surgery and radiology and a mentor within the program. His research laboratory studies a wide range of vascular pathologies, including peripheral arterial atherosclerosis, arterial aneurysmal disease and deep venous thrombosis. His team combines bioengineering principles to discover translational research solutions to complex cardiovascular problems. Associate program directors include Christian Zemlin, PhD, who leads the Cardiac Surgery Research Laboratory, and Plastic and Reconstructive Surgery Residency Program Director Alison Snyder-Warwick, MD.

“What’s exciting about the CVISE training program moves beyond traditional examples of individual collaboration and innovation. Instead, this program aims to build on existing infrastructure, and a track-record of successful collaboration between surgery and engineering to develop new

thought leaders in the field of cardiovascular surgery,” says Zayed. “Side-by-side, surgeons and engineers, primary mentors and trainees, will collaborate and synergize on projects that will accelerate the advancement of their research topics, help them develop new important skillsets, build a community of innovators and problem-solvers, and support trainee future professional research careers in academia and/or industry.”

Inaugural CVISE fellow **Sophia Roberts, MD**, a PGY-2 general surgery resident, is currently evaluating a suite of devices being repurposed for cell-based and drug-based therapy to cure a wide-range of cardiovascular diseases. Under the mentorship of Zayed and Chief of Cardiothoracic Surgery **Ralph Daminao, MD**, Roberts will further develop and hone her research interests in cardiovascular surgery, with special interests in transplantation, mechanical circulatory support and aortic surgery.

VASCULAR SURGERY Highlights

CLINICAL



Washington University vascular surgeons are pioneering aortic surgical techniques through clinical trials of novel devices. Some devices recently studied at Washington University are now approved for patient care, while other devices being tested today have had significant early successes in clinical trials. “These devices have the potential to completely change the management of patients with complex thoracoabdominal disease,” says Section Chief of Vascular Surgery **Luis Sanchez, MD**. Sanchez and cardiac surgeon, **Puja Kachroo, MD**, are collaborating to develop a multidisciplinary aortic surgery program, consolidating the expertise of these surgical specialties to streamline long-term patient care.

Luis Sanchez, MD.

RESEARCH



Katherine Holzem, MD, PhD, joins the division with a focus on basic science and translational research in peripheral vascular disease. Holzem has extensive background as both a surgeon and investigator. She earned her medical degree and doctorate from the School of Medicine in 2015 and completed her vascular surgery residency at Washington University this year. “Dr. Holzem will bring together research and clinical expertise to advance patient care and embody the mission of the medical school,” says **Luis Sanchez, MD**, who is the Gregorio A. Sicard Distinguished Professor of Vascular Surgery. “Her passion for cardiovascular disease research will enable us to bring new discoveries from bench to bedside for a growing patient population.”

Katherine Holzem, MD, PhD.

EDUCATION



The vascular surgery fellowship program has grown to train two fellows every year. With a high clinical volume of vascular surgery at Washington University allowing for more hands-on experience, this expansion will increase the mentorship of more trainees in vascular surgery. Faculty including **Luis Sanchez, MD**, and **J. Westley Ohman, MD**, are committed to training and mentorship, which benefits all surgeons in the section. “Our fellows bring added training opportunities for junior residents,” says Sanchez. Fellows, including **Gayan De Silva, MD**, who received the Gregorio A. Sicard Fellow Teaching Award this year and the Eugene M. Bricker Teaching Award last year, also contribute to the mentorship of residents across the department.

Gayan De Silva, MD.

Collaborative Limb Preservation

Diabetes and peripheral arterial disease are limb-threatening conditions that contribute significantly to rising amputation rates in the United States. For many individuals, limb loss is associated with depression, increased lifetime health care costs and increased risk of further amputations.

Washington University vascular surgeons, in partnership with a multidisciplinary team of specialists, are helping a growing number of patients avoid amputations through a comprehensive limb preservation program. A major sign of this program’s success is the addition of faculty members focused on the treatment and research of limb-threatening conditions.

Genevieve Hayek, MD, whose clinical focus is on limb preservation, joins the section as an assistant professor. Hayek recently completed her vascular and endovascular fellowship at Washington University School of Medicine. She earned her medical degree from the University of Queensland School of Medicine in Queensland, Australia in 2014 and completed her general surgery residency at Ochsner Clinic Foundation at Ochsner Medical Center in New Orleans, Louisiana in 2020.

“The great thing about a limb preservation program like the one at Washington University is that we work in close collaboration with podiatry, plastic surgery, acute care surgery and wound care to provide our patients with the best possible chance of preserving their limbs,” says Hayek. “We are able to utilize the talents and resources of many different groups to fully and creatively tackle these often difficult and complex

problems. As a surgeon, it is immensely rewarding to see our patients benefit from our efforts.”

This clinical mission is further supported by the research programs of **Mohamed Zayed, MD, PhD**, whose laboratory aims to understand what makes certain patient populations more at risk of developing major artery blockages in the extremities, and **Katherine Holzem, MD, PhD**, a surgeon-scientist with a research focus on limb-threatening conditions.

The addition of these skilled physicians will support the expertise and reach of the limb preservation program as it provides testing, diagnosis, treatment and recovery to its patients with conditions like diabetic foot ulcers, chronic limb-threatening ischemia, peripheral arterial disease and venous disorders. The program is further strengthened by the input of multidisciplinary experts and physicians. The limb preservation program combines expertise in podiatry, acute and critical care surgery, plastic and reconstructive surgery, orthopedics and vascular surgery to meet the needs of patients. **Patrick Geraghty, MD**, leads the program as co-director alongside **John Felder, MD**, from plastic and reconstructive surgery and **John Kirby, MD**, from acute and critical care surgery.

Physicians from all of these disciplines are nationally and internationally recognized for their involvement in innovative clinical trials to improve treatment options, and their contribution to the limb preservation program helps set a new standard of excellence through patient care, research and education initiatives.



From left: Luis Sanchez, MD, Patrick Geraghty, MD, John Felder, MD, John Kirby, MD, Grant Bochicchio, MD and Justin Sacks, MD, MBA.

Division of PEDIATRIC SURGERY



From left: Baddr Shaksheer, MD, Andrew Yeh, MD, Jesse Vrecenak, MD, and Brad Warner, MD.

Washington University pediatric surgeons offer comprehensive treatment for a broad spectrum of pediatric and congenital conditions, burns and trauma. Board-certified pediatric surgeons offer compassionate, advanced care in a child-friendly environment at St. Louis Children’s Hospital, which has ranked in the top 10% of children’s hospitals nationwide by U.S. News & World Report for 14 consecutive years. The division is a regional center for open fetal surgery, minimally invasive surgeries and treatment for many types of tumors. Faculty are actively involved in many areas of research and are leaders in education, offering a pediatric surgery fellowship approved by the Accreditation Council for Graduate Medical Education.



Andrew Yeh, MD.

Trauma Care and Community Outreach

Pediatric surgeons at Washington University School of Medicine are part of a multidisciplinary team of experts who provide the highest level of care at the St. Louis Children’s Hospital Emergency and Trauma Center. In addition to treating critical injuries, the pediatric trauma team is making strides to reduce the amount of gun violence within the community.

St. Louis Children’s Hospital is nationally recognized by the American College of Surgeons (ACS) as a Level 1 Pediatric Trauma Center, the highest classification of trauma care. The hospital, which was re-verified this year, is one of about 50 ACS verified pediatric Level 1 trauma centers in the United States and is the only pediatric hospital within a 200-mile radius of St. Louis to receive the Level 1 designation.

“Parents have a choice of where they take their children, and we hope they will recognize the importance of choosing a hospital that offers services in every pediatric medical and surgical specialty,” says program manager Michele Herndon, RN. “We rely heavily on our EMS colleagues and the vital role they perform at the scene, which then allows us to do our part to achieve the best outcome possible for that child.”

Firearm injuries in children are rising at an alarming rate, and the physicians and staff within the program have been conducting studies to lower gunshot recidivism.

In one study, which was presented at the Pediatric Trauma Society annual meeting, they found

a significant increase in both intentional and accidental firearm injuries over the course of the last decade, underscoring the need for both legislative interventions surrounding gun ownership and interventions promoting safe firearm storage practices respectively. The program thus allowed for the distribution and usage of free gun locks to families, demonstrating improvements in safe-storage methods.

“The program has really grown substantially in terms of not just volume, but also quality,” says Chief of Pediatric Surgery Brad Warner, MD. “We have constant quality improvement projects, process improvement, morbidity and mortality conferences and trauma outreach to community. All of that I think is really important.”

Andrew Yeh, MD, who began his role as faculty after completing the section’s pediatric surgery fellowship this year, is the new medical director of trauma services at St. Louis Children’s Hospital.

“It is a privilege to lead our trauma program which provides a vital service not only to our local community but large parts of several states,” says Yeh. “From minor to life-threatening injuries, our multi-disciplinary team works together to provide the best care possible. I hope we can continue to improve on our program’s excellence, whether that is through our community outreach, injury prevention initiatives, or the development and adoption of the most up-to-date evidence-based practices.”

PEDIATRIC SURGERY *Highlights*

CLINICAL



St. Louis Children's Hospital chief of surgery, **Brad Warner, MD**, dedicates part of his practice each month to performing surgeries and clinic visits at CoxHealth in Springfield, Missouri. By providing expert care in a region without dedicated pediatric surgery services, he helps improve the overall care for local children, building a bridge to better care. Warner notes that these visits help create a foundation of trust, allowing patients who require complex care and their families to feel more comfortable traveling to St. Louis for surgeries, having already formed a relationship with their surgeon closer to home.

Brad Warner, MD.

RESEARCH



The Midwest Pediatric Surgery Consortium unites the research efforts of 11 of the top children's hospitals in the region—including St. Louis Children's Hospital region to optimize pediatric surgical care. **Jacqueline Saito, MD, MSCI**, and **Patrick Dillion, MD**, are authors of over 20 consortium publications. Recent studies include research on the accuracy of chest computed tomography, characteristics associated with the failure of nonoperative management of uncomplicated appendicitis, and risk of peri-umbilical hernia after gastroschisis closure. **Brad Warner, MD**, leads an NIH-funded basic science program seeking to understand mechanisms of liver injury and fibrosis associated with massive intestinal resection. Dr. Maria Tecos, a University of Nebraska resident working in Warner's lab, was awarded the Rosenkrantz Basic Science Research Award from the Surgical Section of the American Academy of Pediatrics.

Jacqueline Saito, MD, MSCI.

EDUCATION



Since its establishment, the pediatric surgery fellowship at Washington University and St. Louis Children's Hospital has continuously trained the very best pediatric surgeons. The program, which accepts one fellow each year, features a breadth of clinical experience including major disease process, gastrointestinal problems, pediatric oncology, pediatric trauma and burn trauma. Previous fellows have gone on to practice across the country, with many achieving leadership positions in academic pediatric surgery. **Andrew Yeh, MD**, who completed the fellowship in 2022, joins the division as director of trauma at St. Louis Children's.

St. Louis Children's Hospital.

Standardizing Pediatric Colorectal Care

The Pediatric Colorectal Center at Washington University provides high-quality care to children with complex colorectal issues, utilizing multi-disciplinary expertise and state-of-the-art technology to provide personalized solutions to improve quality of life for children and their families.

The center is dedicated to delivering top patient care through four core focuses: multidisciplinary care, top expertise, technology and judgment, and goal setting. Pediatric care facilities at Saint Louis Children's Hospital have the most up-to-date equipment in the field, and the center has created a standardized approach to treating colorectal conditions including Hirschsprung disease, anorectal malformations and severe chronic constipation. Pediatric colorectal physicians implement specialized bowel management techniques to provide an individualized optimal solution.

The Pediatric Colorectal Center team has grown to include pediatric gastroenterologists, radiologists, psychologists, rehabilitation experts and nursing specialists. The team provides comprehensive colorectal care, from testing and diagnosis to behavioral therapy and surgical care. The center is led by **Baddr Shakhshsheer, MD**, a Washington University pediatric surgeon specializing in colorectal and neonatal surgery, and pediatric gastroenterologists Elizabeth Utterson, MD, and Shannon Joerger, MD.

Shakhshsheer specializes in managing complex colorectal issues. He completed residency training in general surgery at the University of Chicago and a fellowship

in pediatric surgery at Washington University and St. Louis Children's Hospital. Shakhshsheer is well-versed in both traditional and minimally invasive approaches to colorectal surgery.

“We provide personalized care at the Pediatric Colorectal Center. Each child is unique, and each family is unique. Patient-centered and family-centered care are at the heart of everything we do. What is best for the patient and what is best for the family are the same thing. By working with the family and bringing together our expertise, we are able to provide the best care for children with complex issues.

-Baddr Shakhshsheer, MD

The center provides diagnosis and treatment for colorectal conditions in infants, children and adolescents. These conditions often affect more than one system, so the multidisciplinary team of specialists at St. Louis Children's Hospital work together to deliver the right care for each child. The Pediatric Colorectal Center makes finding the right solution convenient by providing comprehensive care in a single clinical location where families can feel comfortable and familiar with their clinicians.

“These are serious problems that have lifelong implications,” Shakhshsheer recognizes. “In pediatric colorectal care, you're entering a long-term relationship with the family. You see them not only for the surgical procedure, but through the postoperative management as well.”



Baddr Shakhshsheer, MD.

Division of PLASTIC AND RECONSTRUCTIVE SURGERY



From left: Mitchell Pet, MD, Justin Sacks, MD, MBA, Kelly Currie, MD, and Joani Christensen, MD.

Plastic and reconstructive surgeons are experts in craniofacial, aesthetic, breast and general reconstructive, gender affirming, hand, limb preservation, lymphedema, nerve and pediatric plastic surgeries. The division is an international center for nerve injury and pioneer of peripheral nerve transfers. Faculty are leaders in basic, translational and clinical research, including clinical outcomes research and bench-to bedside discoveries in nerve research and tissue engineering. Building on a legacy of training leaders and innovators, the division's residency and fellowship programs offer comprehensive training, outstanding mentorship and exposure to advanced surgical technology.



OUR YEAR IN NUMBERS

3,894
operating room cases

35,166
visits

21
faculty

5,575
office procedures

153
clinical research studies

\$459,796
research funding



Kelly Currie, MD.

The Innovation Effect

Plastic and reconstructive surgery, a specialty that encompasses complex head-to-toe procedures, grows and thrives on innovation. Since his arrival in 2020, Division Chief of Plastic and Reconstructive Surgery **Justin Sacks, MD, MBA**, has made innovation a focus within the division, bringing with this initiative a multitude of new programs, expertise and surgical techniques.

Kelly Currie, MD, has introduced a new program of simulation training for residents in the division. The training, which takes place at the Washington University Institute for Surgical Education (WISE) is used to teach and practice what is otherwise difficult, unsafe or expensive to do by other means. It provides a low stress environment where trainees can acquire and practice surgical skills without the risk of patient harm.

Monthly simulation sessions focus on microsurgical techniques, approaches to the craniofacial skeleton, flap dissection and fixation of hand fractures. In addition to technical skills and medical knowledge, simulated scenarios help residents learn and cultivate

non-technical skills, such as obtaining informed consent. Currie has witnessed the positive outcomes of this training model firsthand. "Overall, there has been overwhelming positive feedback from the residents, fellows, and medical students," she reports. "This is our inaugural year of the Washington University Plastic Surgery Simulation Lab. The goal is to develop a Plastic Surgery Simulation Center of Excellence with national and international recognition."

Other advanced training techniques include the use of VR headsets in training and preoperative planning for microvascular breast surgeons, an initiative led by **Rachel Anolik, MD**, **Joani Christensen, MD**, and **Sacks**. The division is pilot testing a new technology that uses virtual reality to create 3D versions of CT scans before procedures like DIEP flap surgery.

"We are able to color code different types of tissue in this 3D visualization," says Anolik, who uses the technology to train residents and fellows in the preoperative setting. "This technology allows us to shade those things in

different colors and make them semitransparent, so we can see the path of blood vessels through the muscle."

Alongside training and planning initiatives, new technology plays a key role in patient care. Clinical trials of new devices, such as a pressure sore monitor invented by **Sacks** with clinical trials lead by **Amanda Westman, PhD**, and a tissue perfusion device developed by **Mitchell Pet, MD**, are technological innovations being implemented in the division. The division has hired a clinical trials manager, **Kelly Koogler**, to support these programs, providing critical infrastructure for continued innovation.

“**Innovation is about more than doing a surgery faster. Innovation means a complete shift in thinking, a shift in how you approach a surgery.**

-Justin Sacks, MD, MBA

PLASTIC AND RECONSTRUCTIVE SURGERY *Highlights*

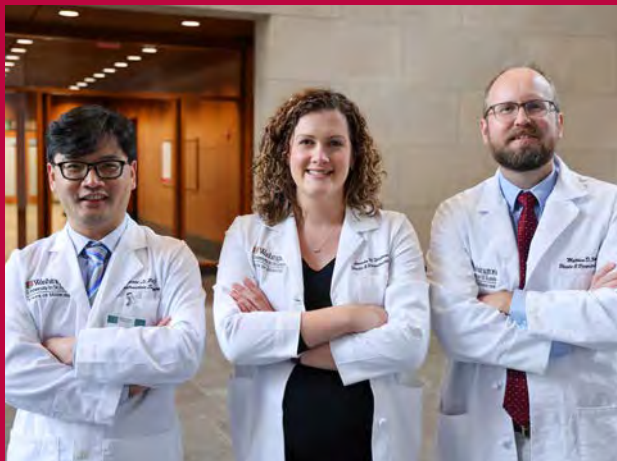
CLINICAL



The Washington University Transgender Center offers multidisciplinary care programs and teams for transgender, non-binary and gender queer individuals in a comfortable, respectful environment. All transitioning and care is comprehensive and personalized, addressing the unique needs of each individual with a range of available services. Plastic and Reconstructive Surgery faculty **Alison Snyder-Warwick, MD, Joani Christensen, MD, Justin Sacks, MD, MBA, and Marissa Tenenbaum, MD**, provide top surgery, while Snyder-Warwick provides the full spectrum of gender affirming bottom surgery.

Alison Snyder-Warwick, MD, left, and Marissa Tenenbaum, MD.

RESEARCH



The Plastic and Reconstructive Surgery Research Laboratories—a consortium of research faculty from the division—has initiated a multitude of pioneering investigative programs. These programs include expert research in peripheral nervesurgery, tissue engineering, vascular reconstruction, lymphatic reconstruction, breast implant associated fibrosis and novel devices for use in plastic surgery procedures. Acquiring funding for preclinical research projects in the past academic year was highly successful for initiating and augmenting these new research programs. Funding was awarded to **Mitchell Pet, MD, Xiaowei Li, PhD, Justin Sacks, MD, MBA, FACS, Alison Snyder-Warwick, MD, Amanda Westman, PhD, and Matt Wood, PhD**, from multiple accredited organizations that support promising research in plastic and reconstructive surgery.

From left: Xiaowei Li, PhD, Amanda Westman, PhD, and Matt Wood, PhD.

EDUCATION



Trainees in the division benefit from exposure to innovative research programs across the specialty. At the 26th annual James Barrett Brown Visiting Professor and Research Day, trainees exhibited presentations from their research in the Plastic Surgery Research Laboratories. The event represented the breadth of basic science, translational, clinical, educational and innovations research in the division. Presentations from over 20 researchers highlighted the diverse interests of trainees and faculty at the medical school. Plastic surgery resident **Ema Zubovic, MD**, was awarded for her work developing a simulation tool for teaching alveolar bone grafting, while residents **Andrew Linkugel, MD, and Amelia Van Handel, MD**, received awards for their projects on magnetic resonance cranial imaging and geo-demographics of ballistic injuries.

From left: Andrew Linkugel, MD, Ema Zubovic, MD, and Amelia Van Handel, MD.

A New Direction in Hand Surgery

Hand surgery has long been an area of excellence within the Division of Plastic and Reconstructive Surgery. From pioneering nerve transfer techniques to restore function after peripheral nerve injuries, to offering innovative treatments for carpal tunnel syndrome and other hand conditions, the division continues to advance the field of hand surgery through dedicated clinical, research and education programs.

Mitchell Pet, MD, was named director of the hand and upper extremity surgery program in 2022. Pet earned his medical degree at Washington University, then completed plastic and reconstructive surgery residency training at University of Washington School of Medicine, and then a hand and microsurgery fellowship at The Curtis National Hand Center in Baltimore before joining the faculty at Washington University in 2018.

His clinical practice focuses on adult and pediatric hand and upper extremity surgery and microvascular reconstruction, and he offers care for all manner of hand and wrist complaints, including degenerative, traumatic, congenital and oncologic concerns. In particular, he enjoys the opportunity to perform complex and interdisciplinary reconstructive procedures and frequently collaborates with surgeons in other fields to solve challenging problems that cross boundaries between specialties.

“It is very rewarding when we can find a solution for a patient in a difficult situation,” says Pet, who also serves as associate director of the Hand Surgery Fellowship

in the division. “I hope to continue to build the hand program at Washington University so we can meet the needs of more patients, innovate for the advancement of the field and train future leaders in our specialty.”

In addition to his clinical and education roles, Pet is a successful investigator with a focus on developing novel wireless biosensors for tissue perfusion assessment. This collaborative effort has generated external grant funding, industrial support, an active human clinical device trial and a pending US patent.

The division performs hand surgery at Barnes-Jewish Hospital as well as multiple sites across the BJC HealthCare system. Notably, **Kelly Currie, MD**, an assistant professor of surgery, has built a successful practice offering “wide awake local anesthesia no tourniquet,” or WALANT, hand surgery at Christian Hospital in north St. Louis County. Surgeons also work alongside colleagues in the Department of Orthopedics by taking call for emergency and traumatic hand injuries, which has led to a significant increase in clinical activity.

“With our growing hand practice, structured leadership for clinical, education, research and innovation is required,” says Chief of Plastic and Reconstructive Surgery **Justin Sacks, MD, MBA**. “It is one of the joys of academic medicine to see colleagues take on leadership roles in areas they truly enjoy and thrive in. Dr. Pet will work with our faculty, clinical operations team and partners in orthopedics to optimize the delivery of hand surgery at Washington University.”




Mitchell Pet, MD and patient.

Division of PUBLIC HEALTH SCIENCES



From left: Dante Chao, MA, Hannah Brenton, Adetunji Toriola, MD, PhD, Suleepon Uttamapinan, MD, MSc, Sally Gacheru, and Alena Ahrens, PhD.

The Division of Public Health Sciences opens doors for investigators across disciplines to connect and collaborate on projects affecting clinical care and outcomes. Faculty are dedicated epidemiologists, statisticians, behavioral scientists, economists, health communication scientists and more who address a range of current and future population health challenges. Their aim is to prevent cancer and other diseases, promote population health and improve quality and access to health care in the region. The division offers a competitive Master of Population Health Sciences degree program for training in population-based clinical outcomes research in order to educate the next generation of leaders in this field.



OUR YEAR IN NUMBERS

18
MPHS graduates

14
MPHS students

29
faculty

305
publications

142
clinical research studies

\$8,867,562
research funding



Mary Politi, PhD.

Engaging Patients through Collaborative Care

The Center for Collaborative Care Decisions is a newly established team of researchers and community collaborators with an admirable clinical mission: to improve the quality of health decisions and health equity. The Center promotes this cause by engaging patients and the public using clear communication, quality evidence and patient-centered goals of care.

Mary Politi, PhD, is the Director of the Center for Collaborative Care Decisions as well as a health psychologist and behavioral scientist. Her primary research interests include health communication and shared decision making. Politi's work helps patients and the public understand health information, explore what is important to them when making health decisions and collaborate to make evidence-informed decisions that meet their needs.

Ashley Houston, OTD, MSCI, OTR/L, serves as co-director of the center and specializes in occupational therapist training. Houston's research focuses on the

dissemination and implementation of decision support tools to improve health behaviors and outcomes, particularly among populations that experience health-related inequity.

Clinical and Research Advisors also make up part of the team at the center. The Community Advisory Board further contributes to decisions and administration.

Stakeholder engagement is a core principle of the center's work. Including end users such as patients and clinicians when designing, testing, implementing and disseminating work ensures that the tools and resources meet the needs of all involved. Collaborators at the center include stakeholders of broad representation and diverse backgrounds. They also work to compensate stakeholder communities for their time and engagement in way that is fair, equitable and consistent across people.

Collaborative projects are at the crux of the learning and knowledge-making at the center.

Current projects include decision making about stage I lung cancer treatment, implementing shared decision making for breast cancer using a coproduction learning collaborative and financial burden among Black men making prostate cancer treatment choices. These research endeavors seek to improve the way that patient-clinician decisions are made and thus increase the positive outcomes of medicine over a range of clinical specialties.

The center has multiple resources for training, development and implementation that are valuable to both clinicians and patients. It offers training programs and external resources for providers seeking to better understand or implement the process of shared decision making into their practice. The center also provides research guidance for those looking to develop their own projects on the impact of shared decision making, patient decision aids or other measures of patient-centered care intervention and education.

PUBLIC HEALTH SCIENCES *Highlights*

CLINICAL



The Division of Public Health Sciences has implemented a clinical trial to reduce disparities in lung cancer screening. I-STEP (Increasing Screening Through Engaging Primary Care Providers) is a joint research endeavor between BJC Collaborative and Washington University investigators focused on increasing referrals for and improving the quality of lung cancer screening. From 2019-2021, the I-STEP clinical trial helped clinicians identify eligible patients and refer them for lung screening. A second I-STEP study – led by **Aimee James, PhD, MPH**, **Michelle Silver, PhD, ScM**, **Graham Colditz, MD, DrPH** – is now underway to understand barriers and facilitators to increasing lung screening, inequities in awareness and screening, and how different types of lung nodules can be most effectively managed.

Graham Colditz, MD, DrPH.

RESEARCH



In the Fall 2022 semester, **Erika Waters, PhD, MPH**, and **Bettina Drake, PhD, MPH** introduced a new course to benefit students in the MPHS program. “Health Disparities and the Structural and Social Determinants of Health” prepares students and physicians in training to address health care disparities through the exploration of how structural and social determinants of health (SSDoH) produce and maintain health disparities in patient populations. Students learn from experts and guest lecturers whose work focuses on how SSDoHs impact disparities across each phase of disease. The course culminates in a research proposal demonstrating the student’s ability to identify strategies for assessing and addressing health disparities in their own research and apply this learning to real clinical situations.

Erika Waters, PhD, MPH, left, and Bettina Drake, PhD, MPH.

EDUCATION



The Master of Population Health Sciences (MPHS), offered by the division, is a degree program for clinicians seeking training in clinical research methods. Its quantitative curriculum emphasizes the role of epidemiology and biostatistics in clinical effectiveness and outcomes research. This year, three surgical residents - **Sydney Beache, MD, MPHS**, **Martha McGilvray, MD, MSt, MPHS**, and **Keenan Robbins, MBBS, MPHS** – graduated from the MPHS program. The MPHS program helps surgical residents find a research project or lab that fits their interests, providing opportunities for clinical research methods training during their lab years. The program encourages clinicians to develop strong research careers and boost their research quality and productivity.

Sydney Beache, MD, MPHS.

Demystifying Cancer Genomic Sequencing

Reducing health disparities is a key focus of the Division of Public Health Sciences. The Washington University Participant Engagement and Cancer Genome Sequencing (PE-CGS) Center, part of the NIH Cancer Moonshot initiative, aims to develop strategies to engage participants and communicate genomic sequencing information and subsequent cancer treatment options to patients and their families.

The project hopes to not only gather data on specific cancers affecting certain demographics, but to help patients make informed healthcare decisions based off their individual genomic data. Public Health Sciences faculty hope that this project can begin to address disparities in cancer genomic studies. Historically, most participants in such studies have been white male patients, resulting in little available data applicable to women and people of color. Collecting genomic sequencing data on these underrepresented groups can help both physicians and patients make treatment decisions based on more specific and accurate data.

Graham Colditz, MD, DrPH, the Niess-Gain Professor of Surgery and Division Chief of Public Health Sciences, serves as Principal Investigator for the project. Key figures in outreach efforts include **Erin Linnenbringer, PhD, MS**, and **Bettina Drake, PhD**. Linnenbringer, an associate professor in the division, focuses on returning information to patients and families to help them understand their genetics and specific cancers. Drake, a professor of surgery, focuses on a community-based approach to engagement.

Rather than simply educate patients about the study and ask them to participate, Drake’s team will seek to understand the patients’ concerns, values and the sort of information they would like to receive after having their tumors sequenced.

“We hope to learn from the patients about what’s important to them in their decision-making. We will conduct interviews with patients to understand their concerns and to find out what they’re interested in surrounding genomic testing and whether it’s something they would consider participating in.”

-Bettina Drake, PhD

Ryan Fields, MD, Kim and Tim Eberlein Distinguished Professor and Chief of Surgical Oncology, leads participant engagement by identifying patients with targeted cancer types and determining which patients may be interested in participating.

Demystifying the results of genomic sequencing can help physicians determine what lead to the formation of tumors and help patients better understand their options for treatment. “The take-home message is that we have built on over a decade of experience through PECaD and engaging our community partners to establish the center and continue to learn more about genomic testing and return of results for our partners,” says Colditz.



Bettina Drake, PhD, MPH.

Division of UROLOGIC SURGERY



Sam Bhayani, MD, MS.

Faculty in this division are leaders and pioneers in their field. The long history of innovations and cutting-edge treatments within this division has contributed to its consistent ranking as one of the top urologic surgery centers in the country by U.S. News & World Report. Washington University urologists offer a range of treatment options, both surgical and nonsurgical, for conditions of the urogenital tract. The division is also nationally recognized for its research on detection and risk stratification of prostate cancer. The residency and fellowship programs train outstanding physicians through the expertise of faculty, high volume, diversity of cases and spirit of inquiry.

OUR YEAR IN NUMBERS

- 7,329 operating room cases
- 48,385 visits
- 31 faculty
- 14,517 office procedures
- 62 clinical research studies
- \$2,332,551 research funding



Michael Johnson, MD.

Expanding Access to Exceptional Urologic Care

As Washington University Urology continues to add several new surgeons to its faculty, patients throughout the St. Louis metropolitan area and beyond are now able to benefit from the expert care provided by the growing team of urologists closer to their own homes.

The expanding faculty list, combined with the wide list of facilities maintained by the BJC HealthCare organizations throughout the region, provides patients with the full spectrum of care they may have only been able to receive if they traveled broad distances to visit the division's major clinical site on the medical campus.

Michael Johnson, MD, an alumnus of the division's urologic surgery residency program, has returned to the institution to provide care for patients at both Missouri Baptist Medical Center and Progress West Hospital. Kimberly Berni, MD, and Jeffrey Glaser, MD, see patients at Progress West Hospital (O'Fallon, MO) and Barnes-Jewish St. Peters Hospital. Kenneth Sands, DO, MBA, and Zeynep Gul, MD, join urologists such as Arnold Bullock, MD, to provide care to patients at Christian Hospital in north St. Louis County.

Across the river in Illinois, Paul Kogan, MD, sees patients for a variety of general urology services, including care for kidney stones, disorders of the bladder, male fertility and incontinence at Memorial Hospital Belleville*.

The Alvin J. Siteman Cancer Center has also expanded its presence throughout the region, giving patients who have been diagnosed with urologic cancers of the kidneys, prostate or bladder access to nationally recognized cancer treatments and clinical trials closer to home. Urologists see patients at six Siteman locations in the St. Louis area and Illinois, including the Washington University Medical Campus, Barnes-Jewish West County Hospital, Barnes-Jewish St. Peters Hospital, Siteman's standalone facilities in North and South St. Louis Counties, and in Illinois at Memorial Hospital Shiloh.

*Clinical services in Illinois provided by Washington University Physicians in Illinois Inc.

“Our mission is to reach far beyond the main academic and medical campus here in St. Louis City to bring high-level Washington University Urology and Siteman Cancer Center care to places that are the most convenient to our patients.”

-Sam Bhayani, MD, MS

UROLOGIC SURGERY *Highlights*

CLINICAL



Urologic surgeon **Erica Traxel, MD**, and Vicky Peck, RN, Patient Safety and Quality Coordinator, were recognized as institutional leaders in the area of quality improvement and honored with the Barnes-Jewish Hospital Team Award for Quality Improvement at the 12th Annual BJC Patient Safety & Quality Symposium. In their project, “iTRUST: Identifying and Tracking Retained Ureteral Stents,” the duo worked to track every patient who had stents implanted by a urologist in an online system. Tracking stents enabled the team to determine whether patients returned to have their stents removed or changed, which reduced adverse patient safety events associated with retained ureteral stents.

Erica Traxel, MD.

RESEARCH



Nupam Mahajan, PhD, and **Kiran Mahajan, PhD**, are leading the fight against castration-resistant prostate cancer through translational research projects funded by the National Cancer Institutes, Prostate Cancer Foundation, and other sources. In one study, published this year in Science Translational Medicine, the team discovered a mechanism by which prostate cancer cells become resistant through molecular modification of the androgen receptor protein and identified a potential therapy that could overcome this resistance. In another project, published in Cancer Research, a journal of the American Association for Cancer Research, the investigators identified a tumor-suppressive RNA sequence that downregulates androgen receptors, making way for new therapeutic options.

Nupam Mahajan, PhD, left, and Kiran Mahajan, PhD.

EDUCATION



Washington University Urology faculty are consistently recognized for their excellence in surgical education. This year, urologic surgery residents honored **Lewis Thomas IV, MD**, with the 2022 Charles B. Manley Teaching Award. **Jason Frankel, MD**, associate director of the Urologic Surgery Residency program, participated in the Program Director Bootcamp Certificate Program, sponsored by the Academy of Educators at the School of Medicine. Frankel described the program as an opportunity to connect with others passionate about education as he continues to learn from program director, **Erica Traxel, MD**. Chief Resident **Laura Lee, MD**, is also involved in advancing medical education and serves as a representative of the Graduate Medical Education Committees on campus.

Middle: Lewis Thomas IV, MD.

Fostering a Legacy of Excellence

Sam Bhayani, MD, MS, who has a long history of leadership at Washington University and BJC HealthCare, is now chief of the Division of Urologic Surgery. As Bhayani stepped into this role, he promised to continue to build on the division’s long tradition of excellence and innovation in urologic surgery, research and training.

Bhayani, the Holekamp Family Endowed Chair in Urology, also serves as Chief Medical Officer of the Faculty Practice Plan at Washington University School of Medicine. He maintains an active clinical practice focused on the treatment of kidney and prostate cancer with laparoscopic, percutaneous and robotic approaches. His research has focused on patient safety and quality improvement, screening and detection for urologic cancers, and developing new surgical techniques to treat kidney and prostate cancer. Bhayani and his colleagues within the Division established robotic partial nephrectomy as the standard of care for patients with renal cell carcinoma at the institution.

This legacy of excellence in the division is evident through numerous investigations into the use of prostate-specific antigen testing, laparoscopic nephrectomy procedures, urinary diversion via the ileal conduit, minimally-invasive urologic treatments and advancing care for kidney stones.

“Our team of urologists at Washington University has made a decades-long commitment to advancing care through minimally invasive strategies,” says Bhayani.

“We want to perform surgery through smaller incisions or even noninvasively so patients are cured of their problem with minimum downtime.”

Much like Bhayani, **R. Sherburne Figenshau, MD**, and **Eric Kim, MD**, have become divisional leaders who perform minimally invasive procedures utilizing surgical robot systems to treat prostate and kidney cancers and research to support the efficacy and outcomes of these treatment methods. **Zachary Smith, MD**, and **Arjun Sivaraman, MD, MBBS, MS, MCH**, have focused their research and clinical practices on targeted prostate and kidney cancer care, which will allow surgeons and oncologists alike to further personalize a patient’s urologic cancer treatments exactly to their needs.

An outstanding surgeon-scientist who is at the forefront of research and management of benign lower urinary tract disorders, the division was honored to name **H. Henry Lai, MD**, as the Gerald L. Andriole Professor in Urologic Surgery.

“For over 15 years, Dr. Lai has been committed to advancing our understanding of benign urologic conditions and has garnered multiple grants that led to key research discoveries,” says Bhayani. “He has served as a mentor to countless urologists, many of whom are now national leaders in caring for people with these conditions. His impact in the field is felt far and wide beyond our institution, and this endowed professorship recognizes his essential contributions to urologic care.”



Eric Kim, MD, R. Sherburne Figenshau, MD.

“Diversity in healthcare providers inspires a sense of comfort and pride in the patients we take care of. To be able to recognize and be cared for by providers look like them and may come from similar backgrounds does a lot to increase the quality of healthcare we are providing, but it also helps dismantle the distrust unrepresented minorities have with the health care system.”
 – Nicholas Pickersgill, MD, urology resident

“The Department of Surgery addresses disparities in healthcare in the North County area... By building the Siteman Cancer Center in North County, we can bring the access that is sorely needed.”
 – Katherine L. Glover-Collins, MD, PhD, assistant professor of surgical oncology



From left: Helen Li, MD, Meredith Freeman, MD, MS, and Varun Dalmia, MD.



From left: Graham Colditz, MD, DrPH, Li Ding, PhD, Bettina Drake, PhD, MPH and Ryan Fields, MD.



Muhammad Faraz Masood, MD.



From left: Arnab Majumder, MD, Horacio Carvajal Dominguez, MD, Shaleen Sathe, MD, and Kevin Yin, MD, MPH.



From left: Tari-Ann Yates, MD, Martha McGilvray, MD, Nicholas Kouchoukos, MD, Hailey Shepherd, MD, Yuhei Yokohama, MD, and Khashayar Farahnak, MD.



2022 Zayed research laboratory team.



From left: Robert Teixeira, MD, Kashyap (Kash) Tadisina, MD, Giorgio Giatsidis, MD, PhD, and Farwaz Alotaibi, MD.

“Diversity is necessary in every walk of life. We all do better when we have the influences from all areas and cultures.”
 –Maria B. Majella Doyle, MD, MBA, Mid-America Transplant/Department of Surgery Distinguished Endowed Chair in Abdominal Transplantation

“Addressing disparities in research and in healthcare is just the right thing to do...Promoting health equity is really one of the things we can all do. Whether you are focused on policy or you are a surgeon or a basic scientist, it’s one of the things that each and everyone one of us can contribute in the fields we currently work in.”
 –Bettina Drake, PhD, MPH, professor of surgery



Kelly Currie, MD, left, and Damini Tandon, MD.

Diversity, Equity and Inclusion



From left: Timothy Eberlein, MD, John Olson Jr., MD, PhD, and Samuel Wells Jr., MD.

A Legacy of Leadership

The Department of Surgery at Washington University School of Medicine in St. Louis is led by **John Olson Jr.**, MD, PhD, a renowned surgeon-scientist whose groundbreaking, NIH-funded work has focused on endocrine tumor formation and novel endocrine therapies. Olson, who is the William K. Bixby Professor and Chair of the Mary Culver Department of Surgery, leads this historical department into a new era of clinical advances, scientific discovery, surgical training and improved health equity.

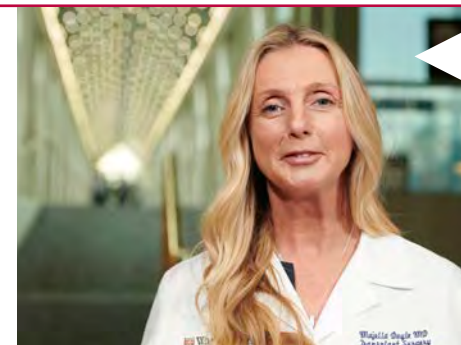
“For over a century, Washington University has been at the forefront of academic surgery,” says Olson. “From the first successful pneumonectomy to advances in cancer detection and prevention, our department has been a standard bearer. Looking ahead, we have opportunities to achieve many more firsts, train the next generation of surgical leaders, find answers to the most difficult questions and deliver world-class care to more patients. We are honoring our legacy by carrying it forward for years to come.”

Past department chairs, including Samuel Wells Jr., MD, and Timothy Eberlein, MD, whose combined experience as department chairs totals over 40 years of leadership, have helped shaped the department as an international leader in academic surgery.

During his time as chair from 1981-1997, Wells recruited a world-class faculty, prioritized basic and translational research, and placed great emphasis on educating academic leaders in surgery. In 1998, Eberlein succeeded Wells as chair, with a mission to cement the department’s legacy as the best surgical program in the country.

Under Eberlein’s leadership from 1998-2022, the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine was established in 1999, then designated a Comprehensive Cancer Center by the National Cancer Institute in 2005. In 2010, the Division of Public Health Sciences was founded to prevent disease, promote health and improve quality and access to health care. Eberlein was also instrumental in transforming surgical education at Washington University to include simulation training and opportunities for flexibility in surgical training and early specialization. Eberlein remains director of Siteman Cancer Center and Spencer T. and Ann W. Olin Distinguished Professor.

Today, Department of Surgery faculty are shaping tomorrow’s advances and laying the groundwork for the future of academic surgery.



Bridging the Transplant Gap

Transplant surgeons William Chapman, MD, and Maria B. Majella Doyle, MD, MBA, are investigating ways to increase the number of donor organs and the utilization rate of recovered livers. (More on page 43)

“The great science of medical discovery can only be accomplished by great vision.”

-Maria B. Majella Doyle, MD, MBA

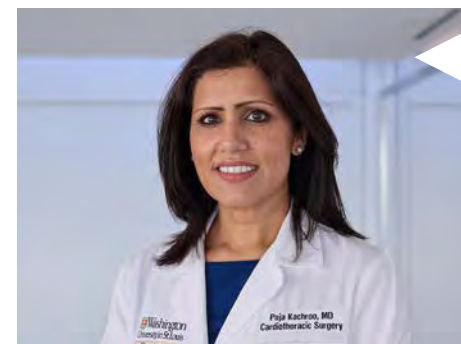


Reducing Cancer Disparities

The Washington University Participant Engagement and Cancer Genomic Sequencing Center, funded through the National Cancer Institute’s Cancer Moonshot program, aims to address cancer disparities by engaging patients from underrepresented groups. (More on page 61)

“We hope to learn from the patients about what’s important to them in their decision-making.”

-Bettina Drake, PhD



Partnering in Heart and Vascular Care

Cardiac surgeon Puja Kachroo, MD, vascular surgeon Luis Sanchez, MD, cardiologist Alan Braverman, MD, and radiologist Sanjeev Bhalla, MD, are joining forces to deliver world-leading care at the Washington University Aortic Center. (More on page 12)

“We are the first aortic center in the St. Louis area to offer our patients a truly multidisciplinary approach, with robust surgical experience and access to the latest in clinical trials.”

-Puja Kachroo, MD



Attacking Prostate Cancer

Investigators in the Department of Surgery are studying new treatments for patients whose tumors do not respond to standard immunotherapy, including prostate cancer. (More on page 64)

“We need to develop better therapies for prostate cancer patients, because most of these tumors develop resistance to hormone-based therapies doctors rely on to treat these cancers.”

-Nupam Mahajan, PhD



Training Leaders in Head-to-Toe Aesthetic and Reconstructive Surgery

Washington University plastic and reconstructive surgeons are internationally recognized experts in head-to-toe aesthetic and reconstructive surgery, with residency and fellowship programs training future leaders in the field. (More on page 55)

“It is an exciting time to be part of the Division of Plastic and Reconstructive Surgery. We are developing simulation training programs to help our trainees cultivate technical skills, cognitive skills and professionalism, while offering diverse experiences in our world-renowned, head-to-toe plastic and reconstructive surgical program.”

-Kelly Currie, MD

Top: Maria B. Majella Doyle, MD, MBA.
Second: Bettina Drake, PhD.
Third: Puja Kachroo, MD.
Fourth: Nupam Mahajan, PhD, left, and Kiran Mahajan, PhD.
Bottom: Kelly Currie, MD.

Department of Surgery Research

The department's research enterprise is among the largest of its peers in the United States. A leader in National Institutes of Health funding among its peers nationwide, it encompasses a full spectrum of robust basic science, clinical and public health sciences research.

Breakthroughs made by our department investigators, many of which serve as full-time operating surgeons, are critical to the clinical development in fields such as oncology, immunology, pancreas and breast cancer research, among many others.

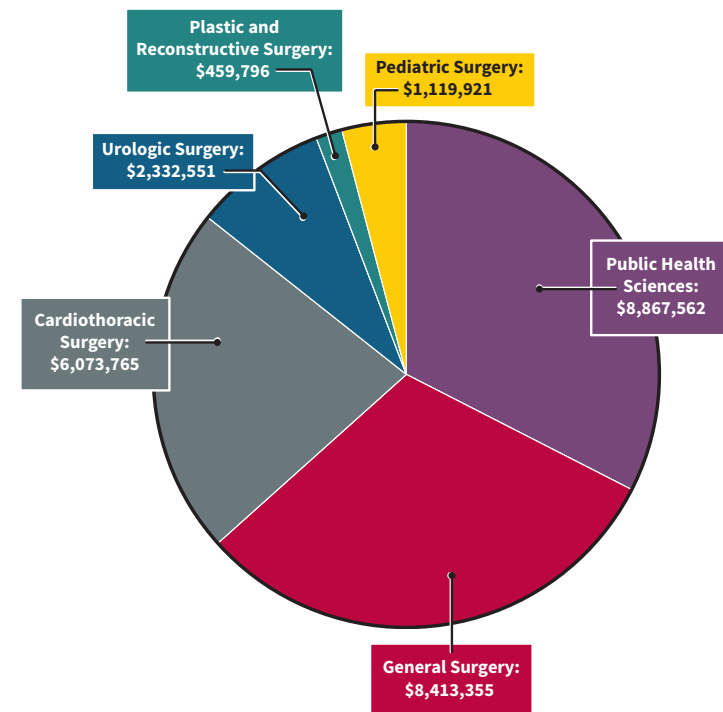
140
active grants

\$27,266,949
research grant funding

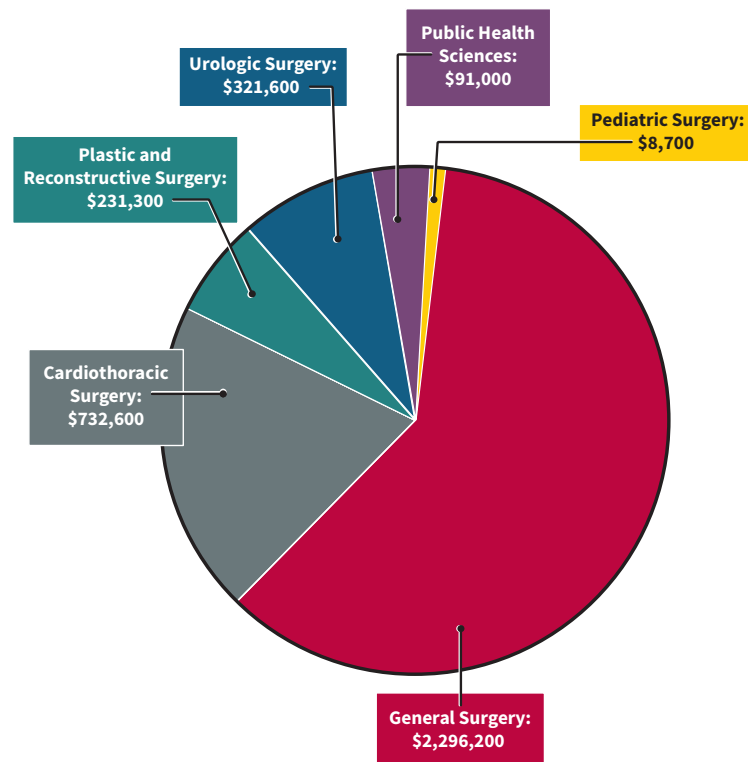
602
clinical research studies

\$3,681,400
clinical trial contract income funding

RESEARCH GRANTS BY DIVISION



CLINICAL STUDY CONTRACT INCOME BY DIVISION



FUNDING ABOVE \$1,000,000

Division of Cardiothoracic Surgery

Section of Thoracic Surgery

Benjamin Kozower, MD
NIH R01 / Comparative Effectiveness of Surgery vs Stereotactic Radiation Therapy for Stage I Lung Cancer
02/24/22-01/31/27: \$3,249,373

Division of General Surgery

Section of Surgical Oncology

Rebecca Aft, MD, PhD
NIH R01 / Synergized Immune and Tumor Cell Bone Marrow Biomarkers to Predict Recurrence in Triple Negative Breast Cancer
09/21/21-08/31/26: \$3,244,253

Division of Pediatric Surgery

Brad Warner, MD
NIH R01 / Intestinal Resection Associated Liver Injury and Fibrosis
09/30/21-08/31/25: \$2,338,202

Division of Public Health Sciences

Graham Colditz, MD, DrPH
NIH U2C / Washington University Participant Engagement and Cancer Genomic Sequencing Center (WU-PE-CGS)
09/01/21-08/31/26: \$17,718,302

Su-Hsin Chang, PhD
NIH U01 / Comparative modeling of multiple myeloma across myeloma control continuum: prevention, treatment, and disparity reduction
09/20/21-08/31/26: \$3,227,447

Eric Kim, MD
NIH R01 / Diffusion Histology Imaging: A Clinical Tool to Non-Invasively Diagnose and Manage Prostate Cancer
01/01/22-12/31/26: \$2,693,654

Ying Liu, MD, PhD
NIH R01 / Healthcare Access Dimensions and Racial Disparities in Lung Cancer
09/02/21-05/31/25: \$1,575,000

Shu (Joy) Jiang, PhD
NIH R37 / Dynamic prediction incorporating time-varying covariates for the onset of breast cancer
07/01/21-06/30/25: \$1,455,987

Division of Urologic Surgery

Henry Lai, MD
NIH U01 / Extension of Urinary Stone Disease Research Network (USDRN) at Washington University
09/22/22-08/31/25: \$1,854,445

FUNDING ABOVE \$100,000

Division of General Surgery

Section of Acute and Critical Care Surgery

Jennifer Leonard, MD, PhD
NIH K08 / Netosis in Trauma mediated Acute Lung Injury
09/14/21-08/31/25: \$720,513

Division of Cardiothoracic Surgery

Section of Cardiac Surgery

Christian Zemlin, MD, MSc
NIH R21 / Cardiac Sonogenetics: Noninvasive Stimulation of the Heart With Low-Intensity Focused Ultrasound
04/01/22-03/31/24: \$433,125

Section of Thoracic Surgery

Varun Puri, MD, MSCI
Mid America Transplant Foundation / Understanding Venous Thromboembolism in Organ Donors
08/01/21-07/31/23: \$208,152

Division of Pediatric Surgery

Jesse Vrecenak, MD
Americal Surgical Association Foundation / Gut-Directed In Utero Cellular Therapy for Cystic Fibrosis
07/01/21-06/30/23: \$150,000

Division of Public Health Sciences

Mary Politi, PhD
The Foundation for Barnes-Jewish Hospital / Center for Patient-Centered Healthcare Delivery: BJHF Project Award Proposal
10/01/21-09/30/23: \$256,797

Kia Davis, ScD, MPH
Robert Wood Johnson Foundation / The impact of community benefits agreements on neighborhood SEP and health
12/01/21-11/30/23: \$249,866

Kia Davis, ScD, MPH
Robert Wood Johnson Foundation / Undoing Structural Racism and Promoting Community Wellbeing Through Economic Justice
05/15/22-10/31/24: \$125,000

Washington University Department of Surgery is the second highest ranking department in NIH funding according to the Blue Ridge Institute for Medical Research in 2021.





Department of Surgery Education Overview

Residents and fellows training within the Department of Surgery’s leading educational programs gain knowledge from internationally recognized academic surgeons. Shaped by leaders who are experts in developing surgical curriculum, the programs within the department offer early specialization options, participation in academic research and hands-on clinical and simulation training.



Oluseye Oduyale, MD, with high school student.



Thai H. Ngo, MD, left, and Leah Conant, MD.

BY THE NUMBERS

5th

in the United States general surgery residency program*

4

residency programs

19

fellowship programs

Top left: Helen Li, MD, left, and Allie Steinberger, MD, MPH.

Top right from left: Sam Grinberg, MD, Paul Kepper, MD, MS, and Omolade Sogade, MD.

Bottom right from left: Usman Panni, MD, Corbin Frye, MD, Paul Wise, MD, William Chapman, Jr., MD.



From left: Jeffrey A. Blatnik, MD, FACS, Peggy Frisella, BSN, Karen Schubert, BS, Angie DeClue, CST, Michael M. Awad, MD, PhD, FACS.

Washington University Institute for Surgical Education

The Washington University Institute for Surgical Education (WISE) is a 3,400-square foot educational space offering a variety of surgical skills labs and simulation trainings. Founded in 2001, WISE began as one of the first surgical skills labs in the country. In 2013, WISE was certified by the American College of Surgeons as a Level 1 Accredited Education Institute (ACS-AEI) for surgical education. Today, WISE hosts close to 1,000 educational events per year for a diverse group of learners from within the medical school, across the region and programs nationwide. Visit wise.wustl.edu to learn more.



Da Vinci Xi robot.

WISE Offerings

- Fundamentals of Laparoscopic Surgery (FLS)
- Fundamentals of Endoscopic Surgery (FES)
- Fundamental Use of Surgical Energy (FUSE)
- Foundational, intermediate and advanced skills labs
- Simulation training ranging from low-tech suturing models to the latest virtual reality simulators
- Official training center for Intuitive Surgical

Our Fellows



Tiffany Brocke, MD
2022-present



Julie Clanahan, MD
2021-present



Britta Han, MD, MSED
2020-2022



Eileen Smith, MD
2019-2021

Our Mission

- Promote the education of health care professionals and learners
- Advance the field of surgical education through educational research
- Improve the welfare of the greater patient community



High school students visit WISE.

Community Engagement

In addition to training residents and other health care learners, WISE partners with community programs to offer high school students interested in medical careers firsthand experience.

General surgery residents accompanied WISE administrator Peggy Frisella, BSN, on a surgical mission trip to El Salvador through Surgical Outreach for the Americas (SoFA).



2022 SoFA trip team.

ACS-AEI Fellowship

WISE offers a two-year education fellowship to develop future leaders and scholars in surgical education, simulation and training. WISE fellows have developed advanced simulation labs, implemented training programs for learners and published research on surgical education.

Our Residency Programs

The Department of Surgery at Washington University School of Medicine in St. Louis is home to four nationally recognized surgical residency programs. The general surgery, vascular surgery, urology, and plastic and reconstructive surgery residencies train future leaders in each surgical specialty. Trainees benefit from innovative simulation training at the Washington University Institute for Surgical Education, a high clinical volume of diverse cases, and world-class research programs.



GENERAL SURGERY

Since 1919, the general surgery residency has been consistently recognized as one of the top programs in the United States. This program pioneered new methods of teaching upon its establishment and continues to advance the leading edge of surgical education. Flexibility in Surgical Training (FIST) and Early Specialization Pathways (ESP) allow residents to tailor their training to the specialty of their choice and fast-track into subspecialties and fellowships. The residency includes five years of clinical experience, plus two to three years of dedicated research time. Paul Wise, MD, serves as the program's director.



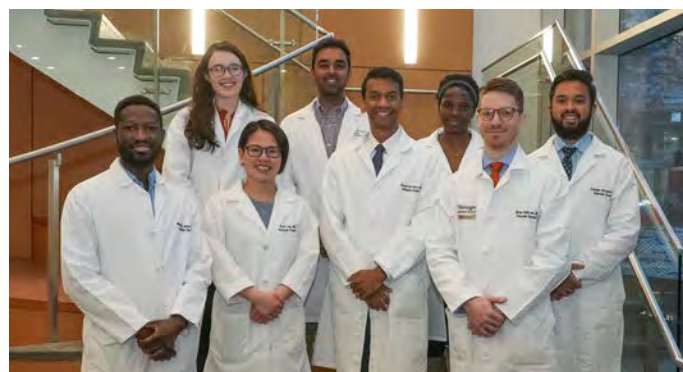
PLASTIC AND RECONSTRUCTIVE SURGERY

The six-year integrated plastic surgery residency was established in the early 20th century by Vilray Blair, MD, one of the founders of the specialty. This program includes training in breast, craniofacial, pediatrics, head/neck trauma, hand, microsurgery, cosmetic and peripheral nerve surgery. Residents also complete rotations in all required general surgery experiences and subspecialty rotations in oculoplastics, surgical dermatology, orthopedic trauma and anesthesia. In addition to clinical skills, the program fosters excellence in research and cultivates leadership. Alison Snyder-Warwick, MD, serves as program director.



UROLOGIC SURGERY

Since its establishment in 1910, the urology residency has prepared graduates for successful careers in urologic surgery. Today, urology residents are exposed to a volume and diversity of surgical cases that is among the highest in the nation. Residents complete rotations at Barnes-Jewish Hospital, St. Louis Children's Hospital, the VA St. Louis Health Care System and Barnes-Jewish West County Hospital. This five-year residency is centered on the values of teamwork, innovation, and the pursuit of excellence. Erica Traxel, MD, leads the residency as program director.



VASCULAR SURGERY

The five-year vascular surgery residency prepares trainees to excel in vascular and endovascular surgery, as well as the management of patients with vascular disease. Residents are provided with a wide range of training in the details of CT and MR imaging techniques; clinical experience in preoperative, operative, and postoperative care; and opportunities for research experience in basic science, translational studies, and clinical trials. The residency is led by program director J. Westley Ohman, MD.

The Department of Surgery congratulates the class of 2021-2022 graduating Chief Residents and Fellows:

RESIDENCY GRADUATES

General Surgery

William Chapman, Jr., MD, MPHS
Jesse Davidson IV, MD, MPHS
Jason Gauthier, MD
Ali Khiabani, MD, MHA
Bradley Krasnick, MD, MSCI
Kristen Seiler, MD
Melanie Subramanian, MD, MPHS

Plastics and Reconstructive Surgery-Integrated

Lauren Jacobson Bechtold, MD
Danielle Cooper, MD
Austin Y. S. Ha, MD
Amelia Van Handel, MD

Vascular Surgery-Integrated

Katherine Holzem, MD, PhD

Urologic Surgery

Yifan Meng, MD
Alexander Parker, MD
Carrie Ronstrom, MD

FELLOWSHIP GRADUATES

Surgical Critical Care

Ea-sle Chang, MD
Marguerite Spruce, MD, Captain, USAF, MC
Patrick Craft, MS, DO
Sumaiya Sarwar, MD
Reilin Moore, MD
Rami Al-Aref, MD

Colon and Rectal Surgery

Kasim Mirza, MD
Jessica Felton, MD
Pridvi Kandagalta, MD

Minimally Invasive Surgery

Victoria Gershuni, MD, MS, MTR

Breast Oncology

Irene Israel, MD

FELLOWSHIP GRADUATES (Cont.)

Abdominal Transplant

Jennifer Yu, MD, MPHS

Vascular Surgery

Genevieve Hayek, MD

Thoracic Surgery

Matthew Schill, MD
Lauren Barron, MD
Kate Engelhardt, MD, MS

Pediatric Surgery

Andrew Yeh, MD

Plastic and Reconstructive Hand Surgery

Kashyap Tadisina, MD
Robert Teixeira, MD

Plastic and Reconstructive Microsurgery

Giorgio Giatsidis, MD, PhD

Peripheral Nerve Surgery

Fawaz Alotaibi, MD, FRCS(C)

Trauma and Reconstructive Urology

Shellee L.K. Ogawa, MD

Minimally Invasive Endourology

Mark Biebel, MD
Brijesh Patel, MD

Center for Humanism and Ethics in Surgical Specialties (CHESS)

Haresh Bhatia, PhD
Parneeta Bhatia, MD
Britta Han, MD
Jordan Kirsch, DO

Congenital Cardiac Surgery

Vinod Sebastian, MD

The Department of Surgery trains the next generation of surgeons in all surgical specialties. Below are the 2022-2023 trainees.

RESIDENTS

GENERAL SURGERY RESIDENCY		GENERAL SURGERY RESIDENCY (CONTINUED)	
Jose Aldana Bastidas, MD	PGY 1	Emily Onufer, MD, MPH	PGY 5
Blake Beneville, MD	PGY 1	Tsehay Abebe, MD	Research
Maxwell Braasch, MD, MPH	PGY 1	Yun Zhu Bai, MD	Research
Horacio Carvajal Dominguez, MD	PGY 1	Sydney Beache, MD	Research
Meredith Freeman, MD, MS, MPH	PGY 1	Tiffany Brocke, MD	Research
Samuel Grinberg, MD	PGY 1	Cameron Cassan, MD	Research
Abigail Hatcher, MD	PGY 1	Julie Clanahan, MD	Research
Charles Liu, MD	PGY 1	Ahmed Eltahir, MD	Research
Fatima Mustansir, MD	PGY 1	Brendan Heiden, MD, MPHS	Research
Christopher Noda, MD	PGY 1	Angela Hill, MD	Research
Uzoma Okere, MD	PGY 1	Martha McGilvray, MD, MPHS	Research
Nicole Santucci, MD	PGY 1	Oluseye Oduyale, MD	Research
Adrienne Visani, MD	PGY 1	Franklin Olumba, MD	Research
Kanhua Yin, MD, MOH	PGY 1	Hannah Phelps, MD	Research
Daniel Colchado, MD	PGY 2	Sophia Roberts, MD	Research
Ioana Florea, MD, MPHS	PGY 2	Merrill Rubens, MD	Research
Helen Li, MD	PGY 2	Hailey Shepherd, MD	Research
Zhiyi Liu, MD	PGY 2	Kerry Swanson, MD	Research
Ariana Naaseh, MD	PGY 2	Felicia Zhang, MD	Research
Ifeanyichukwu Okere, MD	PGY 2		
Usman Panni, MD	PGY 2	PLASTIC SURGERY RESIDENCY	
Nikki Rossetti, MD	PGY 2	Andrea Biaggi Ondina, MD	PGY 1
Shaleen Sathe, MD	PGY 2	Deng Pan, MD, PhD	PGY 1
Omolade Sogade, MD	PGY 2	Arthur Sletten, MD, PhD	PGY 1
Steven Tohmasi, MD	PGY 2	Kevin Urlaub, MD	PGY 1
Catherine Zivanov, MD	PGY 2	Grace Keane, MD	PGY 2
Faiz Gani, MD	PGY 3	Caitlin Marks, MD	PGY 2
William Gerull, MD	PGY 3	Abdullah Said, MD	PGY 2
Britta Han, MD	PGY 3	Erin Silverman, MD	PGY 3
Annie Hess, MD	PGY 3	Anna Rose Johnson, MD, MPH	PGY 3
Paul Kepper, MD, MS	PGY 3	Jonah Orr, MD	PGY 3
Maria Martinez, MD	PGY 3	Margaret (Shea) Harrison, MD	PGY 3
Kenneth Newcomer, MD	PGY 3	Alexandra Keane, MD	PGY 4
Jorge Zarate, MD	PGY 3	Damini Tandon, MD	PGY 4
Katharine Caldwell, MD, MSc	PGY 4	Kenan Tawaklna, MD	PGY 4
Connor Callahan, MD	PGY 4	William Zhu, MD	PGY 4
Leah Conant, MD	PGY 4	Danielle J. Brown, MD	PGY 5
Christian Frye, MD	PGY 4	David Chi, MD, PhD	PGY 5
Matthew Grant, MD, MPH	PGY 4	Rachael M. Payne, MD	PGY 5
Charles James, MD	PGY 4	Ema Zubovic, MD	PGY 6
Bradley Kushner, MD	PGY 4	Jordan Bruce, MD	PGY 6
Ebunoluwa Otegbeye, MD, MPHS	PGY 4	Andrew Linkugel	PGY 6
Eileen Smith, MD	PGY 4		
Allie Steinberger, MD, MPH	PGY 4	VASCULAR SURGERY RESIDENCY	
Erin Andrade, MD, MPH	PGY 5	Varun Dalmia, MD	PGY 1
Ina Chen, MD	PGY 5	Margaret Balugo, MBChB, MPH	PGY 2
Heidy Cos, MD	PGY 5	Shirli Tay, MD	PGY 2
Cathleen Courtney, MD	PGY 5	Julia Suggs, MD	PGY 3
Sandra Garcia Aroz, MD	PGY 5	Brian Sullivan, MD	PGY 4
Meghan Kelly, MD	PGY 5	Momodou Jammeh, MD	PGY 5
Jessica Lindemann, MD, PhD	PGY 5		
Robert MacGregor, MD	PGY 5		

UROLOGIC SURGERY RESIDENCY	
Lauren Elson, MD	PGY 1
Briana Kaplunov, MD	PGY 1
Riley McGinnis, MD	PGY 1
Patrick Martin-Tuite, MD	PGY 1
Kendrick Campbell, MD	PGY 2
James Gross, MD	PGY 2
Jay Jiang, MD	PGY 2
Amy Kuprasertkul, MD	PGY 2
Helen Kim, MD	PGY 3
Connor McCormick, MD	PGY 3
Steven Ngo, MD	PGY 3
Daniel Wong, MD	PGY 3
M. Hassan Alkazemi, MD, MS	PGY 4
Nimrod Barashi Gozal, MD	PGY 4
Andrew McLaughlin, MD	PGY 4
Nicholas Pickersgill, MD	PGY 4
Kathryn Agamawi, MD	PGY 5
Shilpa Argade, MD	PGY 5
Grant Henning, MD	PGY 5
Laura Lee, MD	PGY 5

FELLOWS

SURGICAL CRITICAL CARE	
Caroline Couch, MD	PGY 6
Nicholas Welko, MS, MD	PGY 6
Benjamin Fisher, MD	PGY 6
Brendan Ringhouse, MD	PGY 6
Karthik Sugumaran, MS, DO	PGY 7
Brandon Wojcik, MD	PGY 6

COLON AND RECTAL SURGERY	
Beiqun Zhao, MD	PGY 6
Maggie Westfal, MD	PGY 6
Ana De Roo, MSc, MD	PGY 6

MINIMALLY INVASIVE SURGERY	
Douglas Cassidy, MD	PGY 6

BREAST ONCOLOGY	
Kaitlyn Kennard, MD	PGY 6

ABDOMINAL TRANSPLANT	
Jesse Davidson IV, MD, MPHS	PGY 7

VASCULAR SURGERY	
Sitaram Chivukula, MD	PGY 6
Esmaeel Dadashzadeh, MD	PGY 7
Gayana De Silva, MD	PGY 7

THORACIC SURGERY	
Whitney Brandt, MD	PGY 7
Linda Schulte, MD	PGY 7
Tara Semenkovich, MD, MPHS	PGY 7
Ali Khiabani, MD, MHA	PGY 6
Jason Gauthier, MD	PGY 6
Melanie Subramanian, MD, MPH	PGY 6

MECHANICAL CARDIAC SUPPORT	
Erin Schumer, MD, MPH	PGY 8

PEDIATRIC SURGERY	
Paul McGaha, MD, MSc	PGY 7
Kristen Seiler, MD	PGY 6

HAND SURGERY	
Lauren Jacobson Bechtold, MD	PGY 6
Shady Elmaraghi, MD	PGY 7
Benjamin Timmins, MD	PGY 7

UROLOGIC ONCOLOGY	
John Sheng, MD	PGY 6
Cayce Nawaf, MD	PGY 7

MINIMALLY INVASIVE ENDOUROLOGY	
Hayden Hill, MD	PGY 6
Susan Talamini, MD	PGY 6

MICROSURGERY	
Saif Badran, MD, MRCS	PGY 7



Washington University Medical Campus

For over a century, the Washington University Medical Campus has stood as the premier setting for world-class care, groundbreaking research and innovative training in the St. Louis region. The campus is home to Barnes-Jewish Hospital, St. Louis Children's Hospital and the Alvin J. Siteman Cancer Center, as well as Washington University School of Medicine in St. Louis. Together, the combined Medical Campus institutions are among the largest employers in the St. Louis metropolitan area.

The School of Medicine's clinical practice group, Washington University Physicians, consists of more than 1,700 physicians and clinicians representing more than 78 specialties and subspecialties in medicine and surgery. Patients receive leading care and advanced treatment from specialists who are members of the full-time faculty at the medical school.

Barnes-Jewish Hospital—the largest hospital in Missouri—consistently ranks among the nation's best hospitals by U.S. News & World Report. In 2022, the hospital was recognized as #11 in the nation as well as #1 in St. Louis and Missouri. The facility is registered as a Level 1 Trauma Center and acts as the School of Medicine's dedicated non-profit teaching hospital.

St. Louis Children's Hospital is the region's largest pediatric hospital and sole Level 1 Pediatric Trauma Center. It is consistently ranked among U.S. News & World Report's best pediatric hospitals in the nation. The hospital's mission—doing what is right for kids—is supported by the programs' dedication to medical discovery, innovative therapies and compassionate care.

Siteman Cancer Center is an international leader in cancer treatment, research, prevention, education and community outreach. It is the only National Cancer Institute-designated Comprehensive Cancer Center in Missouri. The 107,422-square-foot Center for Advanced Medicine houses Siteman's clinical offices, testing locations and other cancer services.

With over a dozen hospitals in the region dedicated to the well-being of the community, Washington University is extending the quality of care delivered at the medical campus into local communities, continuing the legacy of clinical, academic and research leadership for years to come.

CLINICAL LOCATIONS

- Barnes-Jewish Hospital
- St. Louis Children's Hospital
- St. Louis Children's Specialty Care Clinic
- Missouri Baptist
- Barnes-Jewish West County Hospital
- Christian Northeast Hospital
- Barnes-Jewish St. Peters
- Progress West Hospital
- BJC Cam South County
- Memorial Hospital Belleville
- Memorial Hospital East
- Siteman Cancer Center
- Center for Advanced Medicine South County
- St. Louis VA Medical Center

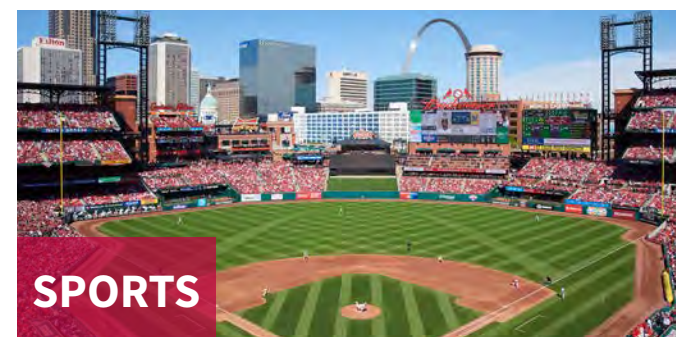
MEET ME IN ST. LOUIS

The city of St. Louis was founded in 1764 and quickly established itself as a center for transportation and trade. With major lines of travel over both railway and waterway, the "Gateway to the West" became a hub for invention. St. Louis hosted the 1904 World's Fair and Summer Olympics in Forest Park, one of the largest urban parks in the United States. Today, St. Louis still holds its place as a globally-recognized center for innovation and vibrancy, including renowned research institutions and acclaimed entertainment venues.

St. Louis boasts historic charm and new additions among a mosaic of diverse neighborhoods. An array of sports, music and arts venues decorate the cityscape. Popular destinations include the St. Louis Art Museum, City Museum, St. Louis Zoo, Missouri Botanical Garden and Busch Stadium. The city continues to grow—recent developments include the St. Louis Aquarium at Union Station. As a big city in a Midwestern state, St. Louis is navigable by car while also providing multi-use trails for walking or biking commutes to places like the Soulard Farmers Market.

With so much to offer, the city attracts an array of professionals and students. Those who travel to St. Louis for their schooling need not be surprised that the region offers a variety of opportunities for academics, researchers and specialists in many fields, including medicine. St. Louis is also a focal point for patients seeking exceptional care, and the Washington University Medical Campus is a destination for those who are dedicated to health and well-being in the region.

The medical campus is located in the city's flourishing the Central West End, a neighborhood with a balance of living spaces, culinary diversity and entertainment sites that appeals to young professionals and families alike. The eclectic area includes historic buildings, local storefronts and eateries espousing some of St. Louis's famous cuisine.



SPORTS

- Busch Stadium and Ballpark Village
- CITYPARK—Home of St. Louis City SC
- The Dome at America's Center
- Enterprise Center—Home of the St. Louis Blues



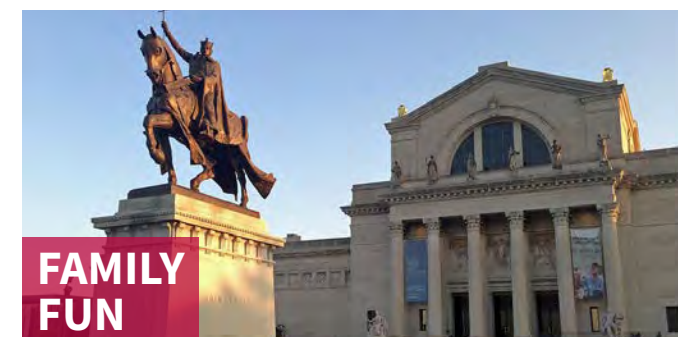
OUTDOOR LOCALES

- Forest Park
- Katy Trail State Park
- The Muny
- Tower Grove Park



CUISINE AND DINING

- Anheuser-Busch St. Louis Brewery
- Charlie Gitto's on the Hill
- Pi Pizzeria
- Ted Drewes Frozen Custard



FAMILY FUN

- City Museum
- Grant's Farm
- St. Louis Art Museum
- St. Louis Zoo



GROUP OUTINGS

- The Fabulous Fox Theatre
- Hi-Pointe Theatre
- St. Louis Symphony
- Up-Down Arcade Bar

CHAIR'S OFFICE



John A. Olson, Jr., MD, PhD, Chair
William K. Bixby Professor and Chairman



William C. Chapman, MD
Eugene M. Bricker Professor of Surgery; Executive Vice Chair



Maria B. Majella Doyle, MD, MBA
Professor of Surgery; Co-Director, Faculty Career Development/Mentoring; Vice Chair for Clinical Affairs



William E. Gillanders, MD
William K. Bixby Professor of Surgery; Vice Chair for Research



Benjamin D. Kozower, MD, MPH
Professor of Surgery; Vice Chair for Patient Safety and Quality Improvement



Tiffany M. Osborn, MD, MPH
Professor of Surgery; Director, Leadership and Professional Development



Mary C. Politi, PhD
Professor of Surgery; Co-Director, Faculty Career Development and Mentoring

INSTITUTIONAL LEADERSHIP



Michael M. Awad, MD, PhD
Professor of Surgery; Director of the Comprehensive Robotic Surgery Program, BJC HealthCare



Sam B. Bhayani, MD, MS
Robert K. Royce Distinguished Professor in Urologic Surgery; Chief, Division of Urologic Surgery; Chief Medical Officer, Washington University Physicians; Patient Care Quality and Safety Committee, Board of Directors, Barnes-Jewish Hospital



Graham A. Colditz, MD, DrPH, MPH
Professor of Surgery; Chief, Division of Public Health Sciences; Associate Director, Prevention and Control, Siteman Cancer Center



Bettina F. Drake, PhD, MPH
Professor of Surgery; Associate Director, Community Outreach and Engagement, Siteman Cancer Center



Timothy J. Eberlein, MD
Spencer T. and Ann W. Olin Distinguished Professor; Director, Alvin J. Siteman Cancer Center



Shaina R. Eckhouse, MD
Associate Professor of Surgery; Surgical Leader, BJC Perioperative Services Leadership



Bruce Lee Hall, MD, PhD, MBA
Vice President and Chief Medical Officer, BJC HealthCare



Steven R. Hunt, MD
Professor of Surgery; Surgical Director, Barnes-Jewish Center for Advanced Medicine - South County



Matthew G. Mutch, MD
Solon and Bettie Gershman Professor of Surgery; Chief, Section of Colon and Rectal Surgery; Chief of Surgery, Barnes-Jewish West County Hospital



Kamlesh B. Patel, MD
Associate Professor of Surgery; Medical Director, Perioperative Services, St. Louis Children's Hospital



Jacqueline M. Saito, MD, MSCI
Associate Professor of Surgery; Medical Director for Clinical Excellence, BJC HealthCare



Brad W. Warner, MD
Jessie L. Ternberg, MD, PhD, Distinguished Professor in Pediatric Surgery; Surgeon in Chief, St. Louis Children's Hospital



Jason R. Wellen, MD
Professor of Surgery; Surgical Leader, Perioperative Services, Barnes-Jewish Hospital

DIVISION OF CARDIOTHORACIC SURGERY



Ralph J. Damiano, Jr., MD
Chief, Division of Cardiothoracic Surgery
Evarts A. Graham Professor of Surgery / Co-Chair, Heart and Vascular Center

Section of Cardiac Surgery



Tsuyoshi Kaneko, MD
Chief, Section of Cardiac Surgery
John M. Shoenberg Chair in Cardiovascular Disease

Endowed Professors

Ralph J. Damiano, Jr., MD

Professors

Nabil A. Munfakh, MD
Michael K. Pasque, MD

Associate Professors

Puja Kachroo, MD
Muhammad Faraz Masood, MD
Spencer J. Melby, MD
Amit A. Pawale, MBBS, FRCS
Harold G. Roberts, Jr., MD
Christian W. Zemlin, PhD, MSc

Assistant Professors

Kunal D. Kotkar, MD
Shuddhadeb Ray, MD, MPH

Instructors

Matthew R. Schill, MD

Section of Thoracic Surgery



Bryan F. Meyers, MD, MPH
Chief, Section of Thoracic Surgery
Patrick and Joy Williamson Chair in Cardiothoracic Surgery

Endowed Professors

Andrew E. Gelman, PhD
Daniel Kreisel, MD, PhD
G. Alexander Patterson, MD

Professors

Benjamin D. Kozower, MD, MPH
Varun Puri, MD, MSCI

Associate Professors

WenJun Li, MD

Assistant Professors

Ruben G. Nava Bahena, MD

Instructors

Tsuyoshi Takahashi, MD

Section of Pediatric Cardiothoracic Surgery



Pirooz Eghtesady, MD, PhD
Chief, Section of Pediatric Cardiothoracic Surgery
Emerson Chair in Pediatric Cardiothoracic Surgery

Associate Professors

Dilip S. Nath, MD

Assistant Professors

Jacob R. Miller, MD

DIVISION OF GENERAL SURGERY



William C. Chapman, MD
Chief, Division of General Surgery
Eugene M. Bricker Professor of Surgery

Section of Acute and Critical Care Surgery



Grant V. Bochicchio, MD, MPH
Chief, Section of Acute and Critical Care Surgery
Harry Edison Professor of Surgery

Professors

Jeffrey A. Bailey, MD
Bradley D. Freeman, MD
John E. Mazuski, MD, PhD
Tiffany M. Osborn, MD, MPH
Douglas J.E. Schuerer, MD

Associate Professors

Sara A. Buckman, MD, PharmD
Obeid N. Ilahi, MD
John P. Kirby, MD
Isaiah R. Turnbull, MD, PhD

Assistant Professors

Neil A. Ermitano, DPM, AACFAS
Mark H. Hoofnagle, MD
Piroska Kopar, MD
Jessica Kramer, MD
Lindsay M. Kranker, MD
Jennifer M. Leonard, MD, PhD
Jerry M. Liddell, DPM
Thoi H. Ngo, MD
Nishant Raj, MD
Jason A. Snyder, MD
Jessica K. Staszak, MD, MS

Assistant Professors (cont.)

Melissa K. Stewart, MD
Kelly J. Vallar, MD
Michael D. Weiss, DPM
Muhammad T. Yasin, MD

Instructors

Rami S. Al-Aref, MD
Patrick A. Craft, DO
Jordan Kirsch, DO
Marguerite W. Spruce, MD

C-STARS

Bracken Armstrong, MD
Travis Arnold-Lloyd, MD
Chelsea Hutchinson, MD
Deacon Lile, MD
Matthew McHale, MD
Michelle Medintz, MD
Charlie Srivilasa, MD
David Testrake, MD

DIVISION OF GENERAL SURGERY (Cont.)

Section of Colon and Rectal Surgery



Matthew G. Mutch, MD
Chief, Section of Colon and Rectal Surgery
 Solon and Bettie Gershman Professor of Surgery

Professors
 Paul E. Wise, MD

Associate Professors
 Sean C. Glasgow, MD
 Steven R. Hunt, MD

Assistant Professors
 Kerri A. Ohman, MD
 Matthew L. Silveira, MD, MS
 Radhika K. Smith, MD

Section of Hepatobiliary-Pancreatic & GI Surgery



William G. Hawkins, MD
Chief, Section of Hepatobiliary-Pancreatic & GI Surgery
 Neidorff Family and Robert C. Packman Professor of Surgery

Associate Professors
 Chet Hammill, MD, MS, MCR

Assistant Professors
 Natasha Leigh, MD
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 Jeffrey Glaser, MD

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Shoenberg Professor of Cardiovascular Disease / John M. Shoenberg Chair in Cardiovascular Disease



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Professor, Section of Cardiac Surgery



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Instructor, Section of Pediatric Cardiothoracic Surgery

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Assistant Professor

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Instructor, Section of Acute and Critical Care Surgery



Neil A. Ermitano, DPM, AACFAS
Assistant Professor, Section of Acute and Critical Care Surgery



Marguerite W. Spruce, MD
Adjunct Instructor, Section of Acute and Critical Care Surgery



Kumar S. Bishnupuri, PhD
Instructor, Section of Hepatobiliary-Pancreatic & GI Surgery



Natasha Leigh, MD
Assistant Professor, Section of Hepatobiliary-Pancreatic & GI Surgery



Jennifer Yu, MD, MPH
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Assistant Professor, Section of Vascular Surgery

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Assistant Professor



Sara M. Malone, PhD
Instructor

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Instructor



Jason Farrow, MD
Assistant Professor



Jeffrey Glaser, MD
Instructor



Zeynep Gul, MD
Assistant Professor



Michael H. Johnson, MD
Associate Professor



Woodson W. Smelser, MD
Assistant Professor

LEADERSHIP UPDATES

**John A. Olson, Jr., MD, PhD**

John A. Olson Jr., MD, PhD, was named chair of the Department of Surgery and William K. Bixby Professor. Olson joins Washington University School of Medicine in St. Louis after serving as head of the Division of General and Oncologic Surgery at the University of Maryland School of Medicine in Baltimore, where he was also vice chair of strategy and finance for the Department of Surgery, founding director of the University of Maryland Cancer Network, and associate director of the Greenebaum Comprehensive Cancer Center. He is a leading surgeon-scientist recognized for his basic science and clinical research on endocrine tumor formation.

**Maria B. Majella Doyle, MD, MBA**

Maria B. Majella Doyle, MD, MBA, was installed as the Mid-America Transplant/Department of Surgery Distinguished Endowed Chair in Abdominal Transplantation at a ceremony hosted by the Foundation for Barnes-Jewish Hospital. She serves as director of the liver transplant programs at both Barnes-Jewish Hospital and St. Louis Children's Hospital. A renowned surgeon, Doyle also leads clinical research aimed at increasing the availability and utilization of donor organs for transplantation.

**Ryan C. Fields, MD**

Ryan C. Fields, who is chief of the Section of Surgical Oncology within the Division of General Surgery, was installed as the Kim and Tim Eberlein Distinguished Professor of Surgical Oncology at a ceremony hosted by the Foundation for Barnes-Jewish Hospital. Fields also serves as director of the Washington University Solid Tumor Tissue Bank and Registry, co-leader of the Solid Tumor Therapeutics Program and the Melanoma and Cutaneous Oncology Program at Barnes-Jewish Hospital and Siteman Cancer Center, and director of resident research in the Department of Surgery.

**Tsuyoshi Kaneko, MD**

Tsuyoshi Kaneko, MD, was named chief of the Section of Cardiac Surgery within the Division of Cardiothoracic Surgery. Kaneko is also the John M. Shoenberg Chair in Cardiovascular Disease. Kaneko joins Washington University School of Medicine in St. Louis from the Brigham and Women's Hospital and Harvard Medical School, where he served as surgical director of the structural heart program, director of aortic and endovascular surgery, and director of clinical outcomes research.

NEW PROFESSORS OF SURGERY

**Jingquin Luo, PhD**

Public Health Sciences

**Jason R. Wellen, MD**

Transplant Surgery

The Department of Surgery gratefully acknowledges the generosity of the following donors:

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The Department of Surgery welcomes your support. Ways to make a gift include annual unrestricted giving such as membership in the Eliot Society, gifts for education of residents and fellows, support for research and endowment, and planned gifts and bequests. For additional information, please contact the Office of Medical Advancement at (314) 935-9691.



Our Key Milestones

Washington University Department of Surgery



1891

St. Louis Medical College becomes the Medical Department of Washington University; Washington University School of Medicine is established.

1942

James Barrett Brown joins U.S. Army as European Senior Consultant in Plastic and Maxillofacial Surgery. Brown assembles a large team of plastic surgeons to treat wounded veterans returning from World War II, leading to new techniques and strengthening plastic surgeons' role in hand reconstruction.

1951

Carl Moyer is named chair. He serves until 1965.

1953

Justin Cordonnier becomes first full-time head of urologic surgery.

1962

Washington University Medical Center is established.

1963

William Newton performs Barnes Hospital's first kidney transplant.

1967

Walter Ballinger is named chair. He serves until 1978.

1968

Separate clinical service for pediatric cardiothoracic patients is created at St. Louis Children's Hospital.

1902

Jewish Hospital opens.

1910

Training of urologic surgeons begins with appointment of John Caulk as professor of clinical genitourinary surgery.

1914

Barnes Hospital opens. Frederick Murphy is appointed surgeon-in-chief and performs the first surgery in the new hospital.

1919

Evarts Graham is appointed first Bixby Professor and full-time chair of the Department of Surgery. Soon after, he establishes "chest service" for thoracic surgery. Graham serves until 1951.

1924

Department researchers develop cholecystography for visualization of the gallbladder.

1925

Vilray Blair is appointed as first Division Chief of Plastic and Reconstructive Surgery.

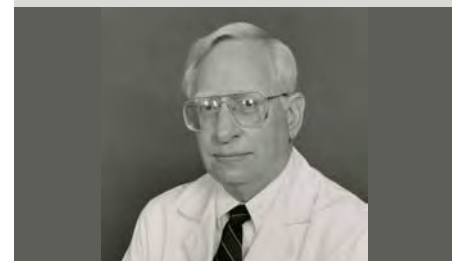
1933

Evarts Graham performs the first successful one-stage pneumonectomy for cancer.



1972

Pediatric surgery division is established.



1973

Kidney transplant program is established at Barnes Hospital.

1981

Samuel Wells Jr. is named chair. He serves until 1997.

1985

Washington University surgeons establish the world's 16th liver transplant program at Barnes Hospital.

1987

Researchers in the Cardiothoracic Surgery Division, led by James Cox, develop a surgical cure for atrial fibrillation.

1990

Urologic Surgery Division performs the first laparoscopic nephrectomy.

1993

Washington University Institute for Minimally Invasive Surgery (WUIMIS) is established.

Top: St. Louis Medical College building in 1891. Middle: Jessie Ternberg, MD, PhD, Chief of Pediatric Surgery, in the operating room. Bottom: Charles Anderson, MD, helped establish the kidney transplantation program at Barnes-Jewish Hospital.



1996

Barnes-Jewish Hospital is created by merger of Barnes Hospital and The Jewish Hospital of St. Louis.

2007

Section of Minimally Invasive Surgery is established within the Division of General Surgery.

2008

First incision-free procedure for obesity in the United States is performed at Washington University.

2010

Division of Public Health Sciences is founded to prevent disease, promote health and improve quality and access to health care. Graham Colditz is named first Division Chief.

2010

The Washington University Institute for Surgical Education (WISE) is formally introduced as an expansion of the surgical skills lab. It is accredited as a Level 1 Accredited Education Institute by the American College of Surgeons in 2013.

2011

Flexibility in Surgical Training (FIST) receives approval from the American Board of Surgery. The Washington University General Surgery Residency, an early adopter of FIST, initiates and participates in a multi-institutional study, finding significant benefits to residents.

2012

Nerve transplant pioneer Susan Mackinnon develops nerve transfer technique to restore hand function in quadriplegic patient.

2014

Transplant surgeons publish 10-year study supporting retrieval of organs from donors in a regional stand-alone facility, which is less costly than hospital-based retrieval.

2015

Siteman Cancer Center receives the highest possible rating from the National Cancer Institute.

2016

Barnes-Jewish Hospital sets new monthly record of 390 trauma admissions. The trauma center treats about 13,000 trauma patients annually with a 99 percent survival rate.

2019

Timothy Eberlein and Alvin J. Siteman are named Citizens of the Year by the St. Louis Dispatch for their work on the foundation and growth of Siteman Cancer Center.

1996

Washington University transplant surgeons at Barnes-Jewish Hospital perform the first adult-to-adult living donor liver transplant in the United States.

1998

Timothy Eberlein is named chair. He serves until 2022.

2001

Center for Advanced Medicine opens adjacent to the old Jewish Hospital as a site for providing state-of-the-art outpatient care.

2001

One of the first surgical skills labs in the country is founded at Washington University School of Medicine.

2004

New modified Cox-Maze procedure for atrial fibrillation – developed by Washington University cardiac surgeons – is shown to be as effective as traditional open procedure.

2005

Siteman Cancer Center is designated a Comprehensive Cancer Center by National Cancer Institute.



2020

Siteman Cancer Center once again receives the highest possible rating—exceptional—from the National Cancer Institute based on a review of its research programs.

2021

Washington University School of Medicine receives \$17 million grant from the National Institute of Health funded through the National Cancer Institute's Cancer Moonshot program to fund cancer research within underrepresented groups in medicine.



2022

Current chair and William K. Bixby Professor John Olson is appointed.

Top: Barnes-Jewish Hospital. Middle: Siteman Cancer Center. Bottom: John A. Olson Jr., MD, PhD.



LIVE

WASHU IN THE NEWS

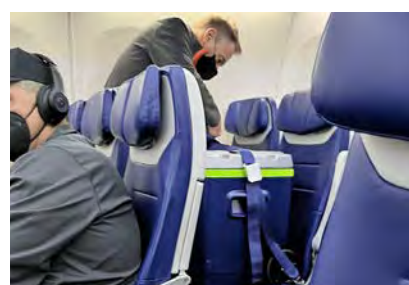
Surgeon-scientist Olson named head of surgery

On July 1, John A. Olson Jr., MD, PhD, will become head of the Department of Surgery and the William K. Bixby Professor at Washington University School of Medicine in St. Louis. Olson comes from the University of Maryland School of Medicine in Baltimore, where he is head of the Division of General and Oncologic Surgery.

OTHER NEWS



Toriola named Danforth WashU Physician-Scientist Scholar



Donor lungs get a seat on Southwest flight to St. Louis as transplant team fights time and snowstorm



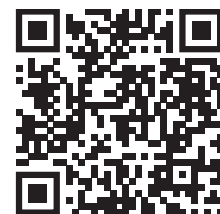
St. Louis police officer recovering after shooting, defies odds



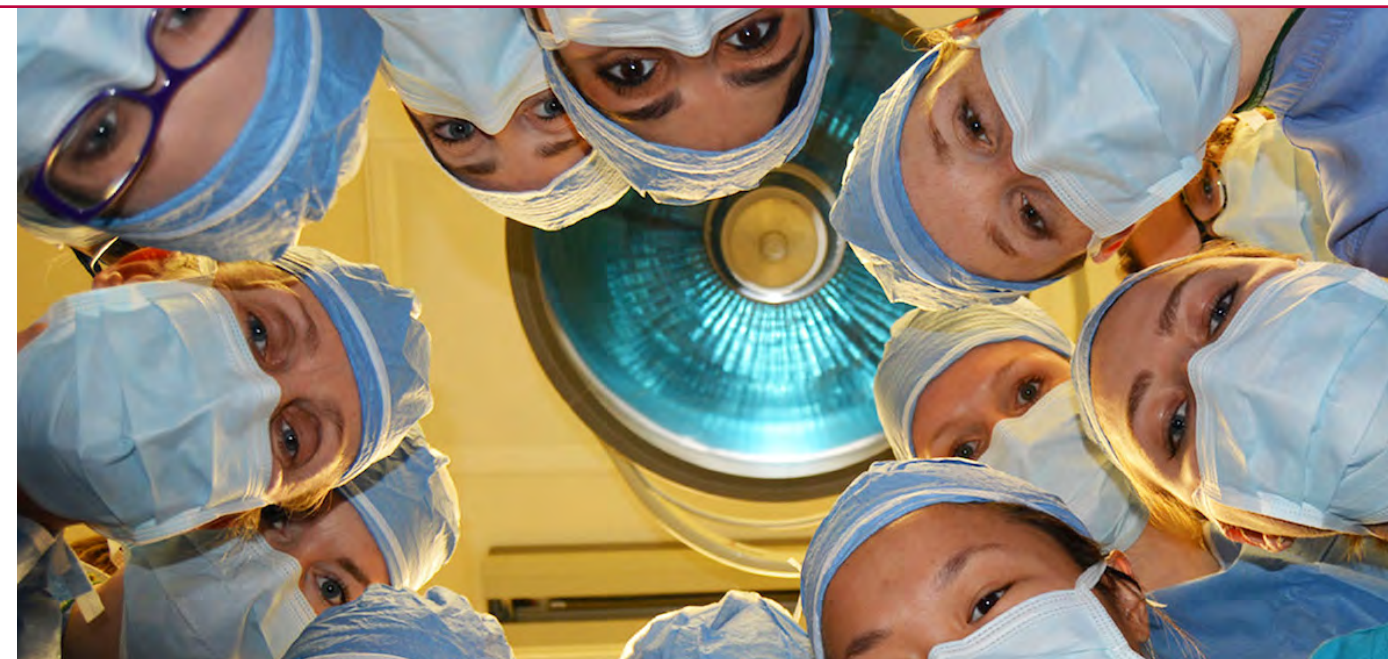
Cancer patient on way to recovery thanks to St. Louis surgeon



Shu (Joy) Jiang, PhD, recognized in Forbes 30 under 30 - Health Care



To view other news, scan the QR code above or visit surgery.wustl.edu/news/.



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WashU Surgery
@WashUSurgery

In addition to surgery residents, the #WISECenter provides training to other health professionals and students. Recently, @GoldfarbNursing students came to the lab to practice chest tube placement. barnesjewishcollege.edu

WashU Surgery
@WashUSurgery

.@WashUColorectal surgeon Radhika Smith, MD, appeared on @FOX2now to discuss colorectal cancer and encourage colonoscopies for those eligible.

WashU Surgery
@WashUSurgery

Congratulations to Susan Mackinnon, MD, a pioneer in peripheral nerve surgery, on receiving the Trustee Award from the American Society of Plastic Surgeons! @WashUPlastics

WashU Surgery
@WashUSurgery

Adetunji Toriola, MD, PhD, MPH, & Bettina Drake, PhD, MPH, helped host an educational event with @SitemanCenter's Program for the Elimination of Cancer Disparities. They offered community members info on breast, colon, & prostate cancer as well as exercises & survivorship.

Surgery

Department of Surgery

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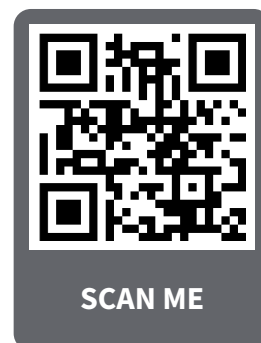
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Contact

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Partner Institutions

The 1,500 specialty and primary care clinicians who make up Washington University Physicians comprise the medical staffs at Barnes-Jewish Hospital and St. Louis Children's Hospital.



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