



Department of Surgery
2020 Annual Report

Letter from the Chair

For much of the world, 2020 has been a year of monumental challenges. But for the Rush Department of Surgery, this has been a year of immense opportunity.

In the first months of the year, our teams carefully monitored the global outbreak of COVID-19 and capitalized on the opportunity to collaborate with one another, reshape our clinical spaces and transform our care delivery in just a few weeks' time. Clinical spaces and building entrances transformed into socially distant havens where patients would be met with not only a temperature screening, but a kind face to assure them that they were in good hands for their care.

As we shifted other visits to telemedicine, our team saw opportunities for maintaining connections with our patients throughout the pandemic and beyond. Virtual visits became one of our most powerful tools and we saw unprecedented growth in our new telemedicine platform. Support groups and webinars quickly followed suit, bringing the expertise of Rush providers directly into the homes of our patients.

Our team efforts paid off and, even when state and local regulations led to a postponement of elective surgical cases, our patients continued to get the care they needed. When urgent operations were needed, our teams embraced the opportunity to deliver lifesaving care, even to patients who were suffering from COVID infections.

The changes sparked by this pandemic have also provided immeasurable opportunities to learn. Whether serving on the front lines in COVID care units, providing care in urgent and emergent procedures or employing the latest in virtual communication tools, our care team has constantly been identifying opportunities for process improvement and collaborating with one another to deliver the excellent care Rush is known for in this ever evolving situation. We could not be more proud of the work our team has delivered throughout the year – both as caregivers and as leaders.

The rise of COVID-19 cases in our nation also presented new opportunities to study its effects on the body and its interaction with other conditions that afflict our patients. Thanks to research at Rush and other academic centers, a spotlight shines on the link between obesity and more severe cases of the virus and our patients are now more vigilant than ever before in taking control of their health and seeking partners who can help them define and reach their goals for better living.

As we approach what we hope to be the turning point in the world's fight against COVID, the Rush Department of Surgery finds itself thriving in our "new normal." Patients seek the expertise of our surgeons and care providers in greater numbers than ever before and we thank our staff – from frontline nurses and medical assistants to our physicians, advanced practice providers, and leaders – whose flexibility and dedication have made such success possible.

This year has been an opportunity to prove that Rush was built for this. It has been an opportunity to prove that we are stronger than we had ever imagined. And I could not be more proud of the work that our team has accomplished.

Now, I would like to take this opportunity to share some of their many accomplishments with you in our Rush Department of Surgery Annual Report for 2020.

Wishing you much success in 2021 and the years to come,

Alfonso Torquati, MD, MSCI, FACS

Helen Shedd Keith Professor of Surgery
Chair, Department of Surgery

Department Leadership



Alfonso Torquati, MD, MSCI, FACS
Helen Shedd Keith Professor of Surgery
Chair, Department of Surgery



Rosalinda Alvarado, MD
Diversity Officer



Anuja Antony, MD
Vice Chair, *Academic Affairs*



M. Saleem Bhat, PhD
Vice Chair, *Research*



Edie Y. Chan, MD
Residency Program Director
General Surgery



Shaista Khan Chatterji, MHA
Department Administrator



Edward Cherullo, MD
Chief, *Division of Urology*



Christopher Coogan, MD
Residency Program Director
Urology



Amir Dorafshar, MD
Chief, *Division of Plastic and
Reconstructive Surgery/
Orthodontics*



Daniel J. Deziel, MD
Department Liaison to
Stroger Hospital



Dana Hayden, MD
Director of Research
Chief, Division of Colon &
Rectal Surgery



Martin Hertl, MD, PhD
Chief, Division of Transplant
Surgery



Keith W. Millikan, MD, FACS
Senior Vice Chair
Chief, Division of General
Surgery
Vice Chair, Education



Jonathan A. Myers, MD, FACS
Vice Chair, Clinical Operations



Philip Omotosho, MD
Vice Chair, Quality & Clinical
Effectiveness
Chief, Division of MIS &
Bariatric Surgery
Director, Minimally Invasive
and Bariatric Surgery Fellowship



Sam Pappas, MD
Chief, Division of Surgical
Oncology



Naomi Parrella, MD
Medical Director, Center for
Weight Loss and Lifestyle
Medicine



Srikumar Pillai, MD
Chief, Division of Pediatric
Surgery



Theodore Saclarides, MD
Vice Chair of Network



Loren S. Schechter, MD
Director, Gender Affirmation
Surgery Fellowship



Ami Shah, MD
Co-Director, Surgical Clerkship
Program



Deana Shenaq, MD
Residency Program Director,
Integrated Plastic and
Reconstructive Surgery



Nicole Siparksy, MD
Chief, Section of Acute Care
and Critical Care Surgery



Benjamin Veenstra, MD
Co-Director, Surgical Clerkship
Program



Jose Velasco, MD
Director, Surgical Innovation

Department of Surgery at a Glance



CY2020

111

Faculty

17

Active clinical research studies

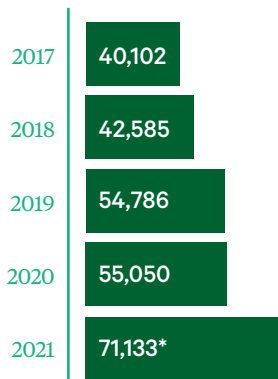
16

APPs employed

18

Grant proposals

Total DOS Annual Visits

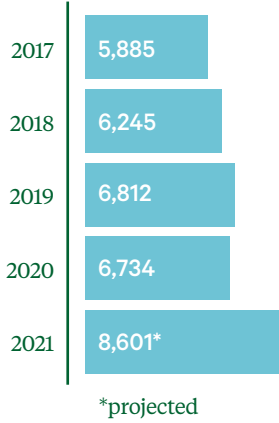


*projected

DOS Outpatient Visits

Division	Projected				
	2017	2018	2019	2020	2021
General Surgery	7,088	6,562	7,477	6,840	8,286
MIS & Bariatrics	6,833	8,653	10,644	11,021	14,592
Colon & Rectal	6,064	4,511	4,591	4,521	5,661
Surgical Oncology	1,580	6,415	6,735	6,695	8,829
Plastic Surgery	3,426	2,638	8,231	8,350	10,434
Urology	14,065	12,297	15,432	16,208	21,798
Pediatric Surgery	1,046	1,509	1,676	1,415	1,533

Total DOS Cases

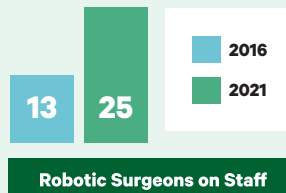


Surgical Cases

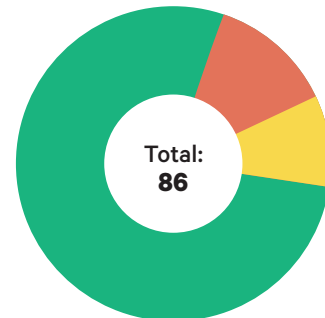
Division	Projected				
	2017	2018	2019	2020	2021
General Surgery	1,781	1,999	1,844	1,701	1,737
MIS & Bariatrics	1,026	735	831	739	984
Colon & Rectal	652	717	900	888	1,131
Surgical Oncology	875	951	1,013	872	1,227
Plastic Surgery	364	707	881	773	1,071
Urology	919	836	1,026	1,443	2,064
Pediatric Surgery	267	300	317	318	387



Over the last 6 years, Rush has nearly doubled the number of robotic surgeons on staff from 13 in 2016 to 25 in 2021.



DOS Residents and Fellows CY2020



- General Surgery: **67**
- Urology: **11**
- Plastic and Reconstructive Surgery: **8**

Table of Contents

Department of Surgery Historical Timeline.....	1
Virtual Visits: Transformative Technology	4
Building a State-of-the-Art Home for Cancer Care.....	6
Division of General Surgery.....	8
Division of Bariatric Surgery.....	11
Division of Pediatric Surgery	14
Transplant and Hepatology	16
Division of Surgical Oncology	18
Division of Plastic and Reconstructive Surgery.....	20
Division of Urology.....	23
Division of Colorectal Surgery	25
Integrated Plastic and Reconstructive Surgery Residency Program.....	27
Publications.....	29



Rush Department of Surgery History

Rush University Medical Center's Department of Surgery has deep roots in the general history of Rush. The department was founded by a highly accomplished and innovative surgeon who laid the foundation for clinical, research and academic excellence. Through the years Rush has provided medical educations to generations of notable surgeons who have in turn contributed valuable innovations to their field. Rush's Department of Surgery in particular has often been at the forefront in pioneering procedures and remains a leader in both research and their commitment to broadening opportunities to the next generations of medical professionals.

1830-1886

March 2, 1837 - Rush Medical College receives its charter, founded by surgeon Daniel Brainard, MD.

1860 - Brainard performs the first knee arthroplasty in Illinois.

1866 - Moses Gunn, MD, succeeds Brainard as chief of surgery at Rush.

1881 - Surgeon and Rush faculty member Christian Fenger, MD, accomplishes the first successful hysterectomy for carcinoma of the cervix.

1883 - Rush faculty establishes Presbyterian Hospital, a teaching hospital.

1885 - Alice Mitchell, MD, is appointed to Rush as the first female surgical intern in the country.

1871 - The medical school is destroyed in the Great Chicago Fire.

1876 - Rush moves into new buildings on the near west side of Chicago, where we are still located today.

1884 - Charles Parkes, MD, presents his work on operating on gunshot wounds of the abdomen at the AMA convention, changing surgical practice around the world.

1885 - Parkes performs what may be the first choledochotomy.

1886 - Rush student and surgeon John Benjamin Murphy, MD, triages and operates on the wounded from the Haymarket Riot.

1887-1899

The historically influential Chicago surgeons Christian Fenger, MD, Nicholas Senn, MD, and J.B. Murphy become professors of surgery at Rush. Later, Senn and Murphy are chairs as well.

1887 - Parkes is unanimously appointed chief of surgery after Gunn's death.

1887 - Fenger publishes his findings about using antiseptics in abdominal operations.

1889 - Senn writes the first book on surgical bacteriology.

1890 - Senn publishes the comprehensive "Principles of Surgery."

1891 - Senn takes over as chief of surgery at Rush.

1892 - Murphy develops the Murphy Button, a surgical device for intestinal and biliary anastomoses that increased access to abdominal surgery around the world. He also pioneered diagnoses and early operation for appendicitis and was the first to anastomose a severed femoral artery.

1899 - Arthur Dean Bevan, MD, establishes the surgical treatment for cryptorchidism. He is also the first in the United States to use ethylene anesthesia and develops a hockey-stick shaped incision for cholecystectomy known as the Bevan incision.

1900-1979

1908 - Lewis Linn MacArthur, MD, Rush graduate and master surgeon, performs the first operation in the United States for resection of a pituitary tumor. He also develops a transcranial, supraorbital approach to the pituitary which Harvey Cushing adopts as an alternative to nasal approaches. In addition, MacArthur develops repairs for hernias, the bile ducts, the ureter, rectal prolapse, and uses the gallbladder for the administration of fluids.

1909 - Isabella Coler Herb serves as chief anesthetist from 1909 to 1941, becoming the first woman appointed to the staff of Presbyterian Hospital.

1942 - Rush Medical College closes its doors after the affiliation the University of Chicago ended.

1952 -- Ted Beattie, MD, is recruited to become the first full-time chief of surgery at Presbyterian and was instrumental in the 1956 merger of Presbyterian and St. Luke's Hospital.

1965 - Ormand Julian, MD, succeeds Beattie. From his career in the late 1940s and early 1950s, he brings along the following innovations for surgery on aneurysms: arterial occlusion, performing the first vein fem pop bypasses and aortic resections, developing dacron grafts, performing the first mitral commisurotomy in Chicago, and establishing median sternotomy as the standard approach for heart surgery.

1963 - W. D. Shorey, MD, J. H. Schneewind, MD, and H. A. Paul, MD of Presbyterian-St. Luke's Hospital's Department of Surgery are the first to reattach a severed hand.

1968 - Hassan Najafi, MD, Chairman of Presbyterian-St. Luke's Hospital's Department of Cardiovascular Thoracic Surgery, performs the first successful adult heart transplant in Chicago.

1969 - Rush Medical College reactivates its charter and merges with Presbyterian-St. Luke's Hospital to form Rush-Presbyterian-St. Luke's Medical Center.

1972 - Rush University is established.

1980-2009

1985 - A liver transplant program is established under the direction of James W. Williams, MD.

1991 - The department of surgery introduces laparoscopic appendectomies, hernia repairs, and gallbladder removals. The procedures require only quarter-inch incisions and greatly reduce hospitalization time and scarring.

March 1993 - The Rush Surgicenter opens with four operating rooms in the Professional Building.

April 1993 - In a rare 15-hour procedure, doctors remove a malignant tumor that had attached itself to a woman's liver, pancreas, kidney and small bowel, followed by transplanting a liver, pancreas, small bowel and parts of the small intestine and stomach.

September 1993 - A new short-stay surgical unit, designed for patients undergoing surgeries and other procedures that involve hospital stays of five days or less, opens.

1994 - The Pritzker Foundation endows the Steven G. Economou, MD, Chair in General Surgery.

1995 - Rush and Cook County Hospital enter into an agreement designating Rush as County's sole medical school affiliate.

2001 - Rush studies interstitial laser surgery, a treatment which uses laser energy delivered through a needle to heat the area around a tumor to 140 degrees Fahrenheit, hot enough to destroy cancer cells.

September 2003 - Our institution officially changes its name to Rush University Medical Center.

2004 - Liver transplants at Rush increased by 43 percent from FY03 to FY04.

2007 - Rush is the first medical center in Chicago to use the high-definition da Vinci S Surgical System to allow for extended dexterity and control during procedures.

2010-present

January 2011 - Rush opens the Rush University Cancer Center, which spans the entire 10th floor of Rush's Professional Building. This center and The Coleman Foundation Comprehensive Cancer Clinics are made possible by a \$5 million challenge grant from The Coleman Foundation.

January 2012 - Rush's Tower opens to patients. It is home to the Edward R. Brennan Entry Pavilion, the Robert R. McCormick Foundation Center for Advanced Emergency Response, the Mary Jo and John Boler Centers for Advanced Imaging, the James R. and Helen D. Russell Surgery Center, and the Herb Family Acute and Critical Care Tower.

June 2015 - Alfonso Torquati, MD, pilots Rush's new bariatric surgery program, which is accredited almost one year later by the American College of Surgeons.

January 2017 - Torquati takes over the chair of the Department of Surgery from Daniel Deziel, MD. At this same time, the department updates its name from Department of General Surgery to the Department of Surgery. Plastic surgery incorporates into the department and the separate sections become subspecialty divisions within the department.

July 2017 - The DOS incorporates Urology as the most recent surgical division. The division of surgical oncology is expanded by onboarding doctors Sam G. Pappas, MD, and Cristina M. O'Donoghue, MD, MPH, in addition to three breast surgeons.

2018 - The Department of Surgery becomes top ranked for robotic colorectal surgery in the Chicago area.

2019 - The department appoints Rosalinda Alvarado, MD, as surgery's chief diversity officer.

January 2020 - Within the past three years, the department grows by thirty-five doctors with an emphasis on hiring women and people of color.

July 2020 - The Department of Surgery's bariatric program is ranked number one in the Chicagoland area. Rush's Gastroenterology and GI Surgery Program is ranked 31st in the nation by *U.S. News and World Report*, and Rush University Medical Center is ranked 17th nationwide.

Virtual Visits: Transformative Technology

How COVID-19 catalyzed the Department of Surgery's adoption of telehealth

Prior to COVID-19, nearly 90% of Americans had never participated in a virtual visit with their doctor, according to Doximity's 2020 State of Telemedicine Report. Fast forward to 2020, when the pandemic disrupted every aspect of society, and one primary way patients could connect with the Department of Surgery at Rush was through their mobile devices.

The pandemic catalyzed patients' use of telehealth. According to Doximity, the number of Americans who reported having participated in at least one telehealth visit since the COVID-19 outbreak increased by 57%. For those with a chronic illness, this increase is even higher at 77%.

Rush, like many hospitals around the country, had already begun incorporating telehealth before COVID-19. According to the American Hospital Association, a third of all U.S. hospitals fully or partially implemented telehealth in 2010; by 2017, almost three-quarters had adopted it.

"Our department had the capability to do virtual visits prior to COVID, but we didn't do a lot of them until we were operating in lockdown," explains Benjamin Veenstra, MD, FACS, a general surgeon at Rush. "Medicare and their lack of reimbursement for virtual visits was one of the significant reasons why we did so few of them pre-COVID."

According to the American Medical Association, the Centers for Medicare & Medicaid Services (CMS)'s telehealth policies began changing once the pandemic hit. CMS, with private insurers following suit, began temporarily lifting payment restrictions on a wide range of services and delivery technologies so that a greater number of patients nationwide, not just those in rural areas, could take part in virtual visits.

In addition to geographic boundaries, the use of telehealth historically tended to favor service lines where providers could

offer consultation or treatment that could rely almost entirely on visual observation and a conversation with the patient. For example, the Parkinson's Disease and Movement Disorders program at Rush conducts hundreds of telehealth visits every year. "Because I can see the patients and their disability on the screen, I can make responsible treatment recommendations and explain them carefully to the patient and family members in attendance," explains Christopher Goetz, MD, a neurologist who helped to spearhead Rush's telemedicine pilot project.

In contrast, surgeons need to conduct a visual and physical examination of a patient, along with utilizing CT and MRI scans to fully understand the patient's health care needs, both of which are impossible to do through telehealth.

"Depending on the procedure, certain post-op visits, such as with gallbladder or hernia surgeries, can be done virtually," says Dr. Veenstra. "However, as surgeons, it's necessary for us to lay hands on the patient in order to accurately know how to best care for them."

In 2019, the Department of Surgery had 31 total virtual visits; in 2020, they had 13,376. To accommodate the meteoric rise of telehealth demand in the spring of 2020, the rollout was straightforward: Each provider was equipped with a mobile device, such as a mobile phone or tablet, and given training on how to conduct a virtual visit through the electronic health record system. Although the solution was simple, the Department of Surgery had several kinks to iron out.

"The clinical flow -- the hand-off from front desk staff to the nursing staff to physicians -- did not run smoothly at first," explains Naomi Parrella, MD, FAAFP, Dipl. ABOM, and Medical Director, Center for Weight Loss & Lifestyle Medicine. "We had to rapidly adapt and develop entirely new workflows."

Most of the challenges centered around the technical aspects

of getting patients comfortable with the new platform, checked in and seen by the providers in the appropriate order. An unanticipated challenge was an inability to fully assess the patient prior to being seen by the physician.

“When a patient comes for an in-person visit, by the time they are seen by me, we have collected a variety of information about them,” says Dr. Parrella. “Their vitals, their mentalemotional state, who’s with them. These are factors that can help us determine how to provide more holistic care in addition to the medical side of treatment.”

Whether it was the newness of the technology or patients simply not being in the same physical room with them, both Drs. Veenstra and Parrella said enculturating trust throughout the virtual visit was critical for success. Dr. Veenstra thought if providers had already developed good bedside manner prior to the pandemic, then taking the time to explain a procedure, test results or a postoperative plan would in many ways be the same as if the patient and provider were in the same room. For providers where that may have been a struggle in the past, telehealth exacerbated that challenge.

In 2020, Doximity estimated that more than 20% of all medical visits will have been conducted through virtual visits, representing \$29.3 billion of medical services. In just two years from now, Doximity predicts that number will jump to \$106 billion.

In August 2020, CMS announced proposed changes to expand telehealth permanently, while the Federal Communications Commission (FCC) unanimously approved \$200 million for telehealth funding.

With COVID-19 catalyzing its adoption, telehealth looks to be a mainstay for patients and providers in the future even in the Department of Surgery where in-person, hands-on visits are central to care.

Dr. Parrella believed the convenience of telehealth will help keep patients more engaged and more connected to their health care team. She estimates that no-show rates for appointments dropped during the pandemic, reinforcing her prediction.

Dr. Veenstra also believes telehealth will have a permanent place in health care moving forward. “At the beginning, I think we looked at it as a stopgap,” he says. “While telehealth can’t completely replace in-person visits in surgery, we can use it to continue to augment our care.

Providing patients with the opportunity to see us for some of their visits from the comfort of their home will be a great way to keep us connected and partners for their good health.”

Virtual Visits by the Numbers

57% | 77%

Increase of number of Americans who participated in at least one telehealth visit since COVID-19 outbreak. Higher increase for those with chronic illness.

31

Total Virtual Visits in 2019

13,376

Total Virtual Visits in 2020

\$200 Million

Funding approved for telehealth by
Federal Communications Commission





Building a State-of-the-Art Hub for Cancer Care

Rush patients and staff have helped inform the design of the Joan and Paul Rubschlager Building, which will house comprehensive care and leading-edge research.

In June of 2019, Rush University Medical Center broke ground on the Joan and Paul Rubschlager Building, a modern, 480,000-square-foot outpatient care center made possible by the largest philanthropic gift in Rush's history.

While the COVID-19 pandemic has slowed the timeline for the building to be completed, the \$450 million building will be a destination center for cancer care, as well as neurosciences, when it opens its doors in a few years. It will house all outpatient services for comprehensive cancer care under one roof. Patients will have access to new treatment options at the Cancer Center through expanded clinical trials; the building's shared research sample storage and processing areas will facilitate training, education and research.

Additionally, technology-equipped spaces for conferences, tumor board meetings and instruction will foster even more collaboration among faculty, students and staff.

"In planning the Rubschlager Building, our goal is to make the patient experience as positive and as seamless as possible," says Omar Lateef, DO, CEO of Rush University Medical Center. "From the moment patients enter the front doors, we want them to experience personalized attention that makes their transitions through the building comfortable and smooth."



Joan and Paul Rubschlager

Planning with, by and for Rush's patients

"In order to make the new building a world-class center for cancer and neurosciences, Rush is working closely with the patients and families who will use the center, and also gathering input from staff who will work in the building," says Patricia Nedved, MSN, CENP, associate vice president, ambulatory transformation at Rush.

Rush's cancer patient advisory council weighed in on design elements, the use of technology within the building, clinical care spaces such as the infusion center and more. And their input has helped shape all aspects of the building. For example, patients said they wanted individual rooms in the infusion center for privacy and space during their treatments, and the new infusion space will house all private infusion rooms.

The transformation team at Rush visited several other facilities to plan the building. "Our goal during these visits was to look at best practices to validate that we are in alignment and to learn from other centers," explains Anthony Perry, MD, vice president of ambulatory transformation at Rush. "We looked at how services are designed, the ease of check-in and check-out, flow of patients and employees throughout the building, how the infusion services are built, and the ease of travel through the building for patients and visitors."

A look inside

Located on the northeast corner of Ashland Avenue and Harrison Street on Chicago's Near West Side, the Rubschlager Building will have an enclosed walkway connecting it to Rush's Tower hospital building across Ashland.

Outpatient clinical services and amenities housed there will include the following:

- The latest technology and equipment for diagnostic imaging
- On-site radiation oncology with an MRI linear accelerator
- On-site lab draw and processing
- A retail and specialty pharmacy
- Retail spaces and food options
- 90 individual cancer infusion rooms
- 82 cancer exam/treatment rooms
- Acupuncture and massage rooms
- Infusion and investigational drug pharmacies
- Respite and lactation rooms
- Outdoor space for patients, visitors and staff
- An adjacent, six-story, 900-space parking facility



Division of General Surgery

Untapped Potential

Rush Utilizes Robotic Surgery For Better Patient Outcomes,
Physician Longevity

When Benjamin Veenstra, MD, FACS, first came to Rush in 2015, he thought robotic surgery was just an expensive and unnecessary alternative to performing laparoscopic surgery.

“At first, I didn’t think it added much benefit for the patient or the surgeon,” Veenstra, a general surgeon, says. “But I didn’t want to be an MIS (minimally-invasive surgery) trained surgeon who was behind the curve on robotics and missing out on the advantages this type of surgery provides.”

Since its introduction in the late 20th century, laparoscopic surgery has proved to be a viable alternative to open surgery; most Rush surgeons are trained in this kind of technique.

Rush has both daVinci Si and daVinci Xi models—the latter, acquired in 2018, is utilized for complex, multi-specialty surgeries.

The Xi model gives surgeons the ability to operate across multiple quadrants in the abdomen and pelvis. It also allows for collaboration amongst sub-specialty surgeons, who can simultaneously perform multiple, minimally invasive procedures—typically done between colorectal, surgical oncology and gynecologic oncology services.

For example, surgeons performing a complex colorectal resection in combination with a liver resection or gynecologic oncology resection, would traditionally use an open surgical approach. Instead of creating new, or larger, incision sites for separate abdominal and pelvic operations, surgeons can use the same port sites to perform both parts of the operation.

Robotic surgery with the daVinci Xi allows complex operations, such as these, to proceed in a minimally invasive manner through several tiny incisions. This minimally invasive approach allows for improved recovery time and decreased infectious



Benjamin Veenstra, MD, FACS

complications, which is particularly important for patients who have already undergone chemotherapy and are at higher risk.

“Complex surgeries such as this one [liver resection combined with a total colectomy] would be possible, but incredibly difficult to do laparoscopically,” comments Anuradha Bhama, MD, FACS, FASCRS, a colorectal surgeon.

While the total operating time is not effectively different between the two methods, robotic surgery offers tremendous ergonomic benefits to the surgeon

– **Anuradha Bhama, MD, FACS, FACRS**

Dr. Veenstra concurs: “With a laparoscopic procedure, your back, shoulders and wrists are stuck in awkward positions for long periods of time. With robotic surgery, you’re still in complete control of the operation, but docked in a corner of the room, sitting in a comfortable chair with an adjustable seat, vision cart, and handles where your body is less stressed. My mentor is able to extend his surgical career by 5 years using robotic surgery because he’s not as worn down.”

Robotic surgery gives surgeons complete control of the operation. In laparoscopy, surgeons can only use two handheld instruments, and often rely on assistants for retraction. Robotic surgery employs a four-arm system that is controlled by the surgeon, and can be used for retracting, cutting, and suturing tissue. They also have complete control of a 3D camera, allowing for improved visualization. Infrared or ‘firefly’ lighting is frequently used with the robotic platform, which allows surgeons to gauge blood flow to tissues and even assists in identifying anatomic landmarks. Surgeons will soon be able to overlay pre-operative imaging to more accurately remove affected tissue.

The newer Xi model also gives surgeons the ability to do advanced stapling. The stapler on the Xi can perform 1,000 measurements per second, enabling surgeons to know how much pressure it’s putting on tissue as it clamps the tissue.

Over the last 4 years, Rush has increased the number of robotic procedures performed by 250%

It will pause and allow for compression of the tissue before it continues closing; in contrast, surgeons rely on solely on their hands to control closing in laparoscopic surgery.

The older Si models, for instance, are typically used by OB/GYNs and urologists for single quadrant surgeries, such as hysterectomies for benign disease and prostatectomies.

While robotic surgery is making life easier for surgeons, patients also benefit. With smaller and fewer incisions, they tend to heal more quickly from robotic surgery, have a shorter length of stay in the hospital, and require less pain medication.

The robotic program at Rush is flourishing. Over the last 4 years, Rush has increased the number of robotic procedures performed by 250%, from 202 in 2016 to 523 in 2019. A group of passionate, robotically-trained surgeons are making the push for Rush to do more.

Over the last 2 years, Rush's division of colorectal surgery has more than quadrupled the number of robotic cases it's performed. In 2016, the division performed 5 robotic operations; in 2019 the division completed a total of 68 robotic operations. This is in large part to Dr. Bhama, who performed 55 of these procedures. "There have been occasions when I've cancelled my own vacations if I knew the robot would be available for use," she says. "I believe in this technology."

Dr. Veenstra, and his partner Dr. Scott Schimpke, in the division of Bariatrics, recently began performing robotic weight loss procedures in July of 2019 and have now done over 35 procedures.

The field of robotic surgery is relatively new, gaining greater traction at academic medical centers, such as Rush, as recently as 2016. Dr. Bhama says that while the outcomes for both laparoscopic and robotic surgery are about the same with the currently utilized outcome metrics, she is confident that surgeons are still uncovering the potential of robotic surgery to improve outcomes and patient satisfaction.

"There's only been one multi-center randomized control trial that shows no difference in major outcomes between the two procedures, and better outcomes for some aspects with robotics, which means both modalities are excellent options," she says. "But I don't think we've uncovered the full potential of robotics. The benefits to the surgeons and patients can only continue to grow."

Division of General Surgery Faculty

Keith W. Millikan, MD
**Senior Vice Chair, Vice Chair, Education
Division Chief, upper GI, HPB, complex hernia**

Daniel J. Deziel, MD
Department Liaison to Stroger Hospital

Alexander Doolas, MD
Professor emeritus

Samir K. Gupta, MD
Surgical critical care and acute care, general

Nicole F. Siparsky, MD
Section Chief, Surgical critical care and acute care, general

Keith M. Monson, MD
General

Donald D. Nash, MD
General

Harry Richter, MD
General

Thea P. Price, MD
Surgical critical care and acute care, general

Raelene Kennedy Kim, MD
Surgical critical care and acute care, general

Jose Velasco, MD
Surgical critical care and acute care, general



Philip Omotosho, MD

Division of Bariatric Surgery

Integrated and Invested

Rush's Weight Loss and Bariatric Surgery Program's patient-centered model yields more effective results

The Rush Center for Weight Loss and Bariatric Surgery may be one of the only hospital programs in the world to give its patients a lifetime guarantee: No matter what life puts in their way, Rush will be there for them.

“We’re in a lifelong partnership with all of our patients,” says Naomi Parrella, MD, FAAFP, Dipl. ABOM, and Medical Director, Center for Weight Loss & Lifestyle Medicine, who counsels patients on their weight loss goals. “Patients feel completely embraced and taken care of when they walk in our doors.”

The foundation of this commitment comes from the program’s strength—its integrated, interdisciplinary approach to treating medical weight loss. Rush combines bariatric surgery, which has been used to treat obesity for 60 years, and medical weight management.

Medical weight management employs techniques that tap into a patient’s underlying physiological processes that, in turn, affect their ability to attain and maintain a certain weight. For the last four decades as obesity has become a public health challenge, both arenas have continued to solve the problem, working mostly in silos.

Alfonso Torquati, MD, MSCI, FACS and chairperson in the Department of Surgery, developed this integrated model at Rush after working at Duke University—a national leader in the treatment of obesity. Despite its success, Duke’s programs were not fully integrated, and Dr. Torquati saw an opportunity to guide obesity medicine toward significantly greater effectiveness.

“The switch to viewing obesity as a chronic condition was key,” he says. “The second piece was having support from the leadership at Rush to build the program from the ground up. It enabled us to bring willing, collaborative partners from the surgical side and medical weight loss side together.”

When Dr. Torquati brought this concept to Chicago in 2015, no one else was taking this integrated approach, elevating Rush as a pioneering leader in the market. In just 5 years, Rush went from creating a new, integrated program to ranking second in Chicago in surgical volume for academic medical centers, a notable achievement.

In the last 20 years, physicians have started to view obesity as a metabolic disorder that requires a focus on the disease in and of itself. But only in 2012 did the American Medical Association recognize obesity as a disease. As Philip Omotosho, MD, and

chief of the Division of Minimally Invasive and Bariatric Surgery, explains: “If physicians don’t view obesity as a disease, hospitals won’t put resources into helping patients lead healthier lifestyles.”

“Looking at the big picture, we want to tackle obesity from every possible angle,” he continues. “There are places all over the country that have something, whether it’s a bariatric surgery center with little or no medical weight management or vice versa.”

In some cases, the medical weight loss practitioner resides in internal or family medicine who wouldn’t, in most cases, have contact with a surgeon; this leads to an unhelpful competition for patients.

As Dr. Omotosho emphasized, “Integration is the key differentiator.”

Rush is a pioneer in obesity medicine by offering an integrated center that can be flexible with patients’ needs. Those struggling with obesity may benefit from surgery; others may benefit from medical weight management without surgery. Some patients may need surgery but could benefit from medical weight management to prepare themselves for it.

Using this integrated approach, Rush is demonstrating superior results. Patients coming into the Center experience an average weight loss of 60-70% of their excess weight at 12 months, which puts Rush in line with national averages and the best available data. The overall complication rate at Rush is less than 3% and Rush has a mortality rate of 0% in the last 3 years.

Weight isn’t simply a number on a scale. A myriad of factors lead to excess weight gain. For example, a patient’s genetic makeup could be responsible or medication might be a factor. People suffering from trauma may have turned to food for comfort.

Equally diverse are the reasons people come in to see the team at Rush. Obesity could be affecting their quality of life. Reducing cancer risk, getting their body ready for a joint replacement surgery or controlling and reversing diabetes are other possible reasons.

Treating obesity is a team sport.

– Alfonso Torquati, MD, MSCI, FACS

The overall complication rate at Rush is less than 3% and Rush has a mortality rate of 0% in the last 3 years.

“Patients come in and see us with different needs and those needs can change over time,” says Dr. Parrella. “They could be doing fine, then an emotional trauma, such as the death of a family member, hits and they stop taking care of themselves and doing what helped keep them healthy.”

As Dr. Parrella explained, there are a multitude of medical weight loss centers that offer one-year or 12-week programs, for instance, but don’t continue a lasting partnership with patients as their lives changes. No matter what scenarios a patient faces or questions that arise after an intervention, Rush has an open-door policy to help patients maintain a healthy lifestyle.

That open-door policy doesn’t box patients in to choosing one route of treatment over another. In flexing around patient needs, Rush’s team of specialists—surgeons, psychologists, nutritionists, and exercise physiologists—can adapt a course of treatment that meets a patient’s goals and treatment preferences.

“Our team talks to each other and listens to what the patient needs,” says Dr. Parrella. “As a group, we join to solve the problem at hand. Patients feel completely embraced and taken care of and we empower them to make choices they want. No one is being sent away.”

“Treating obesity is a team sport”, Dr. Torquati says. “Having expertise across multiple disciplines is the best approach for Rush and will continue to serve our patients best.”



Division of MIS and Bariatric Surgery Faculty

Phillip Omotosho, MD
Vice Chair, Quality and Clinical Effectiveness
Division Chief, bariatric, minimally invasive, upper GI

Jonathan A. Myers, MD
Vice Chair, Clinical Practice/Operations
Bariatric, upper GI, HPB, hernia, minimally invasive

Naomi Parrella, MD
Director, Strategic Development and Implementation
Obesity, weight management

Marc Sarran, MD
Scott W. Schimpke, MD
Bariatric, minimally invasive

Alfonso Torquati, MD
Department Chairperson
Bariatric, minimally invasive

Benjamin R. Veenstra, MD
Co-Director, Surgical Clerkship Program
Upper GI, minimally invasive, hernia, general



Mary Beth Madonna, MD

Division of Pediatric Surgery

Department of Surgery - Bowel Management Program

The Department of Surgery's Bowel Management Program is one of only a handful of its kind in the nation.

Established in 2019 by Mary Beth Madonna, MD, the bowel management program specializes in congenital colorectal issues including imperforated anus and Hirschsprung's disease, treating patients from "potty-training to college age." Methods of treatment range from surgery to specialty diets, a regime of laxatives, and/or an enema program.

Madonna says that providers in the Division of Pediatric Surgery work closely with gastroenterologists, urologists and neurosurgeons, among other specialists, but patients remain under pediatric surgery given the depth of understanding of their primary colorectal diagnosis. The team focuses on helping patients navigate what often are multiple conditions, and assists in their understanding of how they may all relate.

Most programs use an algorithmic approach, whereas we take an individualized approach by focusing on diet and holistic options.

- Mary Beth Madonna, MD

Elizabeth Nanney, the program director, states that their approach is conservative and individualized based on the patient and family's needs. Some cases are highly complex, involving multiple conditions and impacting the patient's overall health. Providers consider that children and families are all unique and have various personal factors to consider when developing a treatment plan. For example, patients who may struggle to achieve social continence during the school year have the opportunity to take part in a more in depth week-long program where they are able to investigate issues on a daily basis and make changes to their treatment regimens. These programs are offered during the summer, so as not to impact a child's academic schedule.

Madonna first launched this program about 10 years ago. Her outcome data shows success rates of between 92% and 97% year over year with success being measured as continence achieved on a social level.



Jonathan Ross, MD

Division of Pediatric Surgery Faculty

Srikumar B. Pillai, MD
Division Chief

Mary Beth Madonna, MD
Pediatric

Brian Gulack, MD
Pediatric

Ami N. Shah, MD
Co-Director, Surgical Clerkship Program
Pediatric



Transplant and Hepatology

High Achievers

Rush's Solid Organ Transplant Program consistently demonstrates superior outcomes

Over the last six years, Rush's Solid Organ Transplant Program has indeed been solid: reliable, consistent and high-performing both nationally and in the Chicago area.

In 2019, Rush beat the national average for patient and graft survival rates over a one-year period in six out of eight categories [see chart], and in four of the eight categories, ranked first or tied for first in the Chicagoland area (from the Scientific Registry of Transplant Recipients, srtr.org).

"While these superior outcomes make Rush's program unique to Chicago and among the nation's best, we continually seek improvement in our treatment plans and in how we care for our patients," says Martin Hertl, MD, PhD, MBA, director of the Rush Solid Organ Transplant Program and division chief of transplant surgery at Rush.

"It's very difficult to reduce something that is as complicated as transplant to a grade or score; but when using the survival rate to measure the success of the program, it shows that Rush is one of the best in the nation," said Nancy Reau, MD, chief of the Section of Hepatology at Rush and associate director of the Rush Solid Organ Transplant Program.

Transplantation comes with a host of challenges, namely that there are not enough available, healthy organs to meet the demand. According to organdonor.gov, as of March 2020, over 112,000 people were waiting for organ transplants. In 2019, only 39,718 transplant operations were performed.

This glaring disparity is partly due to the regional availability of organs. Organ availability—the percentage of people who self-select as organ donors—varies considerably state by state. Less densely populated states, such as Montana and Alaska, boast the nation's highest organ donor percentages—93% and 92%, respectively. By contrast, 60% of Illinois' population is registered as organ donors, according to fivethirtyeight.com.

While the availability of organs may be greater in less densely populated states, people residing there typically have less robust healthcare systems. As a result, individuals diagnosed in states whose healthcare systems are more vigorous may be diagnosed earlier and put on waiting lists for longer periods of time. As fivethirtyeight.com also pointed out, the cause of death in more rural areas of the country can have the unfortunate effect of turning organ registrants into donors more quickly.

With unpredictability surrounding the availability of organs, patients often start their own search for a transplant match, turning first to family or close friends. If that search proves fruitless, patients often expand it, leading them oftentimes to contact complete strangers.

Rachel Schultz, a 31 year-old Navy veteran, was diagnosed with late stage 3 kidney disease and needed a transplantation to save her life. Despondent upon learning that it could take years to find a kidney from a deceased donor, Schultz began researching living donations, which led her to the Rush Living Donor Program.

Survival Rates

Transplant Type	Percentage	National Percentage	Chicagoland Rank
Living Kidney Donor Patient	100	99.12	T-1st
Living Kidney Donor Graft	97.96	98.09	2nd
Deceased Kidney Patient	97.99	97.05	3rd
Deceased Kidney Graft	98.30	94.91	2nd
Kidney/Pancreas Patient	100	97.63	T-1st
Kidney/Pancreas Graft	93.75	96.23	3rd
Deceased Donor Liver Patient	93.94	93.08	T-1st
Deceased Donor Liver Graft	94.03	91.29	1st

She looked at “any possible outlet for information” to get her request out to the public, which included sending out flyers to the American Legion and local VFWs, asking for help in finding a donor match. Ultimately, a request posted on the website for 95.3 FM—“The Bull”—led Schultz to her donor match, Nicole Gaborek, a Lakemoor, IL police officer. The transplantation was a great success.

As a national and regional leader in living kidney donor patient survival, Rush prides itself on these and other superior outcomes with a patient-first, collaborative focus. Rush is the only Chicagoland Donor Care Network (DCN) Centers of Excellence (COE), a network of elite transplant centers that have agreed to the DCN commitments and are supporting programs that focus on the highest standards of living kidney donor support and service.

The Transplant Program offers same-day appointments at its main campus location, and the team practices at 10 satellite locations throughout the Chicagoland area.

Transplant patients receive an evaluation and medical tests and are set up with a team of healthcare providers that may include a pre-transplant nurse coordinator, hepatologist, nephrologist, transplant surgeon, cardiologist, medical assistant, social worker, pharmacist, dietician, financial coordinator and other team members.

Even though the Transplant Program can’t solve the short supply of available transplants, they do try to expedite a patient’s evaluation process to get them on a waiting list faster. Most kidney transplant candidates, for instance, are put on a waitlist within 30 days of their initial evaluation.

“From the moment a patient comes to Rush, several individuals are in contact with the person,” says Dr. Reau. “Having each of these key providers on a patient’s care team will help identify and resolve issues that may arise to help keep each patient as healthy as possible.”

“We are a very collaborative group,” says Dr. Hertl. “The success we found is in having a multidisciplinary team to collaborate on every aspect of patient care. The patient is the center of the decision making. From there we make sure we’re all on the same page. No stone is left unturned.”

Transplant and Hepatology Faculty

Martin Hertl, MD, PhD
Division Chief, transplant

Edie Y. Chan, MD
**Program Director, General Surgery Residency Program
 Transplant**

Edward F. Hollinger, MD, PhD
Transplant

Stephen C. Jensik, MD
Transplant

Dolamu Olaitan, MBBS
Transplant

Erik Schadde, MD
Transplant

Division of Surgical Oncology

Excellence in Pancreatic Cancer Care

Rush Named National Center of Excellence for Pancreatic Cancer

Pancreatic cancer is among the deadliest cancers in the United States. Pancreatic ductal adenocarcinoma, which accounts for more than 90% of pancreatic cancer cases, is the only type of cancer with an overall five-year survival rate in the single digits. It is expected to surpass colorectal cancer this year as the second leading cause of cancer deaths in the United States.

Rush is facing these sobering statistics by bringing together a multidisciplinary team of specialists — including medical oncologists, surgical oncologists, general surgeons, radiation oncologists and gastroenterologists — who work together to tailor the most effective plan of care for each patient.

“Every case of pancreatic cancer is unique, and each patient needs a therapy precisely designed for them,” says Sam Pappas, MD, chief of surgical oncology. “While surgery is typically the best option for long term survival, Rush surgeons work closely with medical oncologists and radiation oncologists to determine very specific sequences and doses of chemotherapy, radiation and immunotherapies that we believe will work best for them.”

Together, the team is able to provide patients who have pancreatic cancer with the most advanced diagnostic tools and treatments including the following:

- Staging studies, including axial imaging and diagnostic modalities including endoscopic ultrasound (EUS) and endoscopic retrograde cholangiopancreatography (ERCP) to diagnose pancreatic cancer and provide stage-appropriate therapies
- Tumor molecular profiling
- Complex surgical intervention, including robotic surgeries
- Chemotherapy, radiation therapy and immunotherapies
- Innovative clinical trials and leading-edge research

“The gastroenterology and endoscopy providers are usually the first people to tell the patients and their families about their cancer diagnosis,” says Ajaypal Singh, MD, director of advanced endoscopy. “Knowing that we have a very strong and dedicated multidisciplinary team to take care of these patients going forward makes our job easier while discussing the life-altering diagnosis with patients and their families.”

Division of Surgical Oncology Faculty

Sam G. Pappas, MD
Division Chief, oncology

Rosalinda Alvarado, MD
**Diversity Officer
Breast oncology**

Cristina M. O'Donoghue, MD, MPH
Oncology, breast oncology, melanoma

Andrea Madrigano, MD
Breast oncology

Claudia B. Perez, DO
Breast oncology

Sean Wrenn, MD
Endocrine surgery, neuroendocrine surgery

Thomas Witt, MD
Associate Professor emeritus



Sam G. Pappas, MD, Chief, Surgical Oncology

Center of excellence

The National Pancreas Foundation (NPF), has recognized Rush University Medical Center as a National Center of Excellence for Pancreatic Cancer. This designation is given to hospitals that have demonstrated the multidisciplinary approach, social support and advanced research resources needed to successfully treat this devastating disease.

“Being named a national center of excellence assures our patients that we have both the people and processes to help them through every step of surviving pancreatic cancer,” says Ashiq Masood, MD, director of the gastrointestinal cancer program.

The NPF’s centers of excellence program was created five years ago, when the NPF saw a growing need from patients who frequently reached out for pancreas disease specialist recommendations.

“This NPF designation is a testament to Rush investing in the tools, technologies and people that are saving lives at Rush today and leading innovation that will be replicated nationally,” says Singh.

Rush University Medical Center is one of only 43 hospitals in the country — and the only one in Illinois — to earn this distinction.

NPF Centers of Excellence go through a months-long auditing process to demonstrate they have meet a series of criteria developed by a national task force of pancreatic cancer experts.

Those criteria are focused on the following three areas:

- **Designated core personnel** — The hospital must demonstrate how a multidisciplinary team of pancreatic cancer specialists coordinates efforts for each patient. Those specialists include a program director, medical oncologists with primary practice in gastrointestinal cancers (including expertise in pancreatic/hepatobiliary malignancies), a pathologist with expertise in gastrointestinal malignancies, radiation and interventional oncologists, gastroenterologists, and surgeons who perform a minimum of 20 pancreas resections a year for three consecutive years.
- **Clinical trial access** — Hospitals must be leaders in developing new drugs and treatments, with patients having access to approved clinical trials testing novel therapies for pancreatic cancer.
- **“Whole patient” support** — Beyond advanced clinical expertise, the hospital must be able to demonstrate a comprehensive commitment to social, educational, nutritional and emotional support programs designed to treat the “whole person.” These programs may include patient and family support groups, social worker access, pain management service and mental health support.



Amir H. Dorafshar, MBChB, Division Chief, Plastic and Reconstructive Surgery

Division of Plastic and Reconstructive Surgery

Longstanding Commitment, Outstanding Care

Rush provides patients seeking gender affirmation surgery with high-quality, well-rounded care

Rush's commitment to multidisciplinary care is a hallmark of many of its programs, but nowhere is it more critical, and more needed, than for patients undergoing gender-affirming surgery.

When a person experiences a disconnect between their physical anatomy and their gender identity, surgery may help unify their body with who they know themselves to be.

As one might imagine, this transformation is complex. A team of plastic surgeons, endocrinologists, urologists, physical therapists, and behavioral health therapists work together to provide holistic care for people. Equally as complex are the barriers and disparities in the healthcare system that can prevent transgender and gender-diverse individuals from seeking appropriate care.

Fortunately, Affirm: The Rush Center for Gender Sexuality & Reproductive Health provides safe, accessible, and multidisciplinary, wraparound care for those who identify as LGBTQ+. For those patients who want to explore gender

affirmation surgery, their multidisciplinary, individualized care plan is guided by Affirm, which works across the Rush system to coordinate care and bridge gaps. Affirm also worked in conjunction with plastic surgery to bring cultural and clinical competency to a large health facility, training nearly 1,000 hospital staff and employees.

"What separates Rush is our partnership with Affirm," explains Amir Dorafshar, MD, chief of Plastic and Reconstructive Surgery at Rush. "Our world-class medical and surgical teams work together to provide holistic care for this vulnerable patient population."

According to a 2016 study by the Williams Institute at the UCLA School of Law, approximately 1.4 million Americans (0.6% of the total population) identify as transgender. Of this group, 70% percent experienced discrimination in a healthcare setting, according to the 2019 Human Rights Campaign Health Equality Index.

Gender Affirming Surgery Treatments

- Body sculpting, including tummy tuck (abdominoplasty) and liposuction with fat grafting/ lipofilling
- Breast augmentation
- Buttock augmentation
- Facial feminization and masculinization procedures, including the following:
 - Brow lift
 - Brow reduction or augmentation
 - Hairline advancement
 - Upper eyelid surgery (blepharoplasty)
 - Facelift
 - Nasal surgery (rhinoplasty)
 - Jaw and chin reshaping
 - Cheek implants
 - Lip shortening
 - Fillers (lipofilling, hyaluronic acid)
 - Skin resurfacing (chemical peel, laser resurfacing)
- Genitourinary reconstruction (congenital, traumatic and oncologic)
- Hysterectomy and / or oophorectomy
- Penile construction surgery, including the following:
 - Abdominal flap
 - Groin flap
 - Metoidioplasty
 - Phalloplasty
- Orchiectomy
- Penile implants
- Scrotoplasty and testicular implants
- Top surgery and chest contouring, including the following:
 - Double incision with nipple grafts
 - Periareolar and keyhole incisions
 - Liposuction
- Tracheal shave
- Vaginoplasty, including the following:
 - Inversion vaginoplasty
 - Intestinal vaginoplasty
 - Peritoneal vaginoplasty
 - Revision vaginoplasty

In addition, because of widespread stigma and lack of acceptance not only in a healthcare setting, but in workplace, educational, and domestic environments as well, transgender and gender-diverse individuals are more susceptible to mental health challenges. The transgender and gender-diverse community may be at increased risk for anxiety and substance abuse. In addition, the 2015 U.S. Transgender Survey found that 81.7% of transgender individuals reported seriously thinking about suicide in their lifetimes, while nearly 50% had attempted suicide in the same year.

If transgender and gender-diverse individuals seek surgical treatments, additional challenges remain. While the demand for gender affirmation surgery is increasing, there simply aren't enough surgeons to perform the wide range of state-of-the-art gender-affirming treatments, including facial feminization and masculinization procedures and "top" and "bottom" surgeries.

"One of the most challenging aspects of the work is meeting the demand for gender affirming surgeries," says Loren Schechter, MD, an international leader in the field of gender affirmation surgery who is on academic appointment at Rush. "Right now, the request for surgery outstrips the availability of trained surgeons."

By including gender identity as a protected class, the Affordable Care Act (ACA) was the catalyst that broke down years of discriminatory practices that prevented transgender and gender-diverse individuals from having gender affirmation surgery covered by their insurers. However, the guidance of section 1557 of the ACA, which did not originally state gender identity, but was later amended to include it under a 2016 ruling during the Obama administration, ensured non-discrimination based on sex.

In June 2020, the Office for Civil Rights in the Department of Health and Human Services removed protections on the basis of sexual orientation or gender identity. While this ruling will be challenged in court, the availability and acceptance of gender affirmation surgery again remains in the balance. Regardless, Rush remains resolute in its commitment to LGBTQ+ care.

Long before the ACA was enacted and prior to the launch of Affirm in January 2020, Rush has historically displayed a commitment to diversity and inclusion in its mission. For example, Rush was laying the groundwork to provide non-discriminatory care for at-risk populations, beginning with comprehensive affirmative action policies in the 1970s.

Rush was recognized as a leader in LGBTQ+ health by the Human Rights Campaign Healthcare Equality Index in 2009 and continues to be well-known internationally as a pioneering program that treats some of the most complex gender affirmation surgeries.

Rush was the first hospital in Illinois to offer health coverage for transgender employees and students in 2016.

"Affirm didn't come out of nowhere," says Christopher Nolan, system manager for community health and benefit and chair of the LGBTQ Leadership Council. "It was in the works since 2009 to become a leader in LGBTQ+ healthcare. Two years before its official launch [in 2018], we were working to build a comprehensive program and to become a leader in the LGBTQ+ healthcare community. We still have a lot of work to do."

Division of Plastic and Reconstructive Surgery Faculty

Amir H. Dorafshar, MBChB
Division Chief, plastics, reconstructive

Anuja K. Antony, MD, MPH
**Vice Chair, Academic Affairs
Plastics, reconstructive and cosmetic**

Gordon H. Derman, MD
Plastics, hand

Keith Hood, MD
Plastics, reconstructive and cosmetic

George Kokosis, MD
Plastics, reconstructive and cosmetic

Soumya Padala, BDS, MDS, MS
Orthodontics

Loren S. Schechter, MD
Plastics, reconstructive

Deana S. Shenaq, MD
Plastics, microsurgery

Christina Tragos, MD
Plastics, reconstructive and cosmetic

Division of Urology

Genitourinary Cancer: Longer Life, Plus Quality of Life

New diagnostic technologies and leading-edge therapeutic options offer patients highly effective treatment with potentially fewer aftereffects.

Many people diagnosed with genitourinary cancers — cancers of the kidney, prostate, bladder, testis and penis — have heard stories of patients for whom the treatment almost seemed worse than the disease, resulting in issues like bladder and bowel problems or sexual dysfunction. At Rush, the multidisciplinary genitourinary cancer team focuses on innovative approaches to diagnosis and treatment that aim to minimize residual effects and maximize patients' quality of life.

Andrew Stephenson, MD, MBA, director of urologic oncology at the Rush University Cancer Center, says that precise diagnosis is key to formulating the right plan. "Prostate cancer in particular is often invisible on conventional imaging," he explains, so the team is using a breakthrough robot-assisted technology that's available in the United States only at Rush. Image-guided targeted transperineal biopsy uses MRI to detect and sample prostate cancers right in the physician's office — a minimally invasive procedure that's not only more accurate but also far more comfortable for patients.

This technology will also enable in-office delivery of focal therapy, which uses thermal energy to destroy cancerous cells without harming non-cancerous areas. Focal therapy has the potential to achieve similar cancer control rates as surgery and radiation, with fewer aftereffects. Rush is also using irreversible electroporation (IRE, available in North America only at Rush) for targeted treatment of prostate cancer.

Team approach plus high-tech tools

After diagnosis, the multidisciplinary genitourinary cancer team — which includes urologists; medical, surgical and radiation oncologists; researchers and pathologists — confers and creates a customized plan.

"We can handle the full spectrum of disease, from cutting-edge treatment for early-stage patients to novel investigational approaches for the most advanced patients," says medical oncologist Timothy M. Kuzel, MD.

If the treatment plan includes surgery, it is likely that the procedure will be minimally invasive. The genitourinary cancer team performs more robotic surgeries than any other service line at Rush. Urologists at Rush are recognized as global experts in the use of minimally invasive robotic surgical approaches to treat cancers of the prostate, bladder, kidney, testis and penis, achieving outcomes similar to conventional surgery with more rapid recovery and fewer side effects.

For patients whose cancers do not require immediate treatment, Rush urologists are also known for their expertise in novel diagnostic approaches and genomics to better characterize patients' cancers and improve outcomes of watchful waiting and active surveillance.



Sarah Adelstein, MD, and Peter Tsambarlis, MD

Precision oncology for urologic cancers

Advances in precision oncology and immunotherapy have helped improve outcomes for people with genitourinary cancers. Rush's genomic testing partner, Tempus, can now identify genomic variants and suggest therapeutic options — including clinical trials for which Rush is the only Midwest location — for a patient's unique molecular and clinical profile. And thanks to combination targeted therapies or immunotherapies, survival rates for kidney cancer have risen from a year or less to five years or more.

"I tell patients that even when there's not a cure, we can turn your disease into a chronic disease like diabetes or high blood pressure that will need management throughout your life — but ultimately you'll die from something else before you die from your cancer," Stephenson says.

Partnership brings leading-edge radiation oncology to Rush

Rush's partnership with Alliance Oncology ensures access to state-of-the-art radiation oncology treatments for genitourinary cancer patients and gives Rush clinicians access to huge national datasets of clinical benchmarks.

Radiation oncology treatment options available at Rush currently include IGRT, SBRT, IMRT, brachytherapy and Ra-223, and next-generation PET scans using the radiopharmaceutical Ga-68 dotatate will be available in 2020, according to radiation oncologist Dian Wang, MD, PhD.

Division of Urology Faculty

Edward E. Cherullo, MD

Division Chief, urology

Sarah Adelstein, MD

Urogynecology

M. Saleem Bhat, PhD

Vice Chair, Research

Alexander K. Chow, MD

Urologic oncology

Christopher L. Coogan, MD,

Residency program director

Urology

Shahid Ekbal, MD

Urology

Jerome Hoeksema, MD

Distinguished professor

Narendra Khare, MD

Urology

Badrinath Konety, MD, MBA, MBBS

Dean, Rush Medical College

Kalyan Latchamsetty, MD

Urology

Laurence Levine, MD

Urology

Charles F. McKiel, Jr, MD

Professor emeritus

Ephrem Olweny, MD

Endourology, urology

Jonathan H. Ross, MD

Pediatric urology

Andrew J. Stephenson, MD

Urology oncology

Peter N. Tsambarlis, MD

Urology, men's health

Srinivas Vourganti, MD

Urology, urology



Dana Hayden, MD, MPH

Division of Colorectal Surgery

COVID-related Delays in Colorectal Cancer Screening Jeopardizes Preventive Care, Early Treatment

With the COVID-19 pandemic interrupting non-urgent medical care, physicians are concerned that important gains in preventing colorectal cancer could be lost and their patients could miss out on life-saving preventive care or treatment.

While it is impossible to know how much screening will be missed because of the pandemic, Rush colorectal surgeon Dana Hayden, MD, MPH, estimates that two months with little or no screening theoretically could postpone diagnosis of cancer in 24,650 patients, among those some 9,860 cancers that may be at an advanced stage already.

Colorectal cancer is the second-leading cause of cancer death, yet it is highly preventable and treatable with screening and early diagnosis, said Laura J. Zimmermann, MD, MS, medical director of Rush's Prevention Center and assistant professor of Preventive Medicine and Internal Medicine at Rush University Medical College.

"If it's caught early, it has a really high cure rate, but if by delaying we find something later, it may be harder to treat," she said.

Colonoscopies to screen for colorectal cancer came to a standstill for more than two months when most states halted elective surgical and endoscopic procedures to help hospitals address the surge in COVID-19 cases. In Illinois, the stoppage lasted from mid-March through May. Before the pandemic, Rush was performing about 800 colonoscopies a month on average.

While Rush is performing screening colonoscopies again, Hayden an associate professor and chief of the Division of Colon and Rectal Surgery at Rush University Medical Center, worries that the delay in care will linger, with patients who had taken the important step of scheduling a colonoscopy putting off rescheduling, and those who are due to be screened skipping the test altogether.

“We really don’t know how long the delay could last,” Hayden said. “Patients may be focused on more urgent matters than preventive care and may also be nervous about coming to the hospital while the pandemic continues.”

That would reverse a positive, lifesaving trend:

The rate of people over age 50 who are up to date on colorectal cancer screening has improved greatly in the past several years, from 38 percent in 2000 to 66 percent in 2018, according to the American Cancer Society.

“As the rate of screening has increased in these age groups (over 55 years old), the incidence of colorectal cancer has decreased,” Hayden said. And the mortality rate has declined as well.

Delayed screening means people will miss the opportunity to prevent or treat the disease early. That leads to a greater incidence of cancer, which is diagnosed at later stages with more severe symptoms and higher mortality, she said.

Unlike some other cancers, screening for colorectal cancer can do more than find cancer: It also can help prevent it. A colonoscopy identifies cancer in its earliest, most treatable stage and also finds pre-cancerous polyps that the physician can remove during the procedure, preventing progression to cancer.

People who cannot have or are reluctant to have a colonoscopy and who are not especially high-risk may be able to take other tests, she said. The stool-based fecal immunochemical test (FIT) looks for hidden blood in the stool and a stool-based DNA test can find precancerous and cancerous DNA within a stool sample; both tests can identify markers of large colon polyps and cancer.

Even with the higher rate of colorectal screening, a third of Americans over 50 have not been tested. These home-based tests in which samples are sent to a lab have been embraced by patients who otherwise may not be screened at all.

A primary care provider will help a patient choose the test they need during an office visit or a telemedicine (phone or video) visit, Zimmermann said.

“The discussion is very much based on health history. I don’t need to examine them physically to know if they are of average risk,” she said. Telemedicine allowed her to continue ordering colonoscopies and home-based tests for her patients during Illinois’ stay-at-home pandemic restrictions.

A colonoscopy is the best way to prevent cancer, but it may be better to have more people undergo a good test than fewer people having the best test

- Dana Hayden, MD, MPH

“It would be tragic if anyone missed being screened for cancer when they have the opportunity to come to Rush, where we were prepared to handle the pandemic and we are fully ready to see our patients again,” Zimmermann said.

Division of Colon and Rectal Surgery Faculty

Dana M. Hayden, MD, MPH
Chief, Division of Colon and Rectal Surgery
Director, Research

Anuradha R. Bhama, MD
Colon and rectal

Henry R. Govekar, MD
Colon and rectal

Theodore J. Saclarides, MD
Colon and rectal
Vice Chair, Network Surgery

Integrated Plastic and Reconstructive Surgery Residency Program

When Andrew Bonnett, MD, was trying to figure out his life after medical school seven years ago, the landscape of plastic surgery residency programs looked very different than it does today.

In 2013, when Bonnett was applying for his residency placement, there were far fewer integrated programs in which plastic surgery training begins from day 1 in residency. Bonnett had a 40% chance to be matched with an integrated plastic surgery program. Otherwise, had he not matched, he would have been shut out from all plastic surgery residency programs that year.

“I would have had to do a prelim or a research year before applying again next year,” Bonnett says. “My med school counselors said if that happened, I’d be viewed as someone who was rejected from the prior year, so I had to figure out my plan B.”

Bonnett was very interested in plastic surgery, but given the field’s intensely competitive nature, he opted for a five-year general surgery residency instead, a decision he does not regret. He subsequently came to Rush upon completion of his general surgery residency through its currently phased out, independent, 3-year plastic surgery residency. Historically at Rush, as well as at many other programs nationwide, independent programs welcomed residents who had already completed five years of general surgery and used the three-year residency to refine and hone surgical techniques for plastic surgery.

“The general surgery residency made me a good surgeon and an overall better physician,” he explains. “I’m not sure I would have felt as confident if I hadn’t had that experience. But, if I had to make the same decision today, I’d put all my eggs in the basket of doing an integrated residency program.”



Andrew Bonnett, MD

Since 2013, the number of integrated residency programs around the country have increased **93%**

To cover the vast amount of material in three years isn't enough time. Starting residency earlier and fully immersing residents in the integrated experience offers many advantages.

- Amir Dorafshar, MD

From the time he applied to programs seven years ago to today, the number of integrated residency programs around the country have increased by 93%. According to the Accreditation Council for Graduate Medical Education (ACGME), in 2013, there were 42 integrated programs; today there are 81.

Because of the increased availability of programs and resident positions, Bonett speculates that instead of having a 40% match chance in 2013, he would have been starting his first year of an integrated program.

As the number of integrated programs has increased, the number of independent programs has decreased. Over the last two years, Rush phased out its independent program in favor of an integrated one. The change, explains Division Chief Amir Dorafshar, MD, lies with hospitals' modernization of the plastic surgery curriculum.

"The field has grown exponentially over time. To cover the vast amount of material in three years isn't enough time. Starting residency earlier and fully immersing residents in the integrated experience offers many advantages."

One of the clear advantages is that it gives residents who are fully invested in the field of plastic surgery the chance to start their training right away.

"If you know what you want to do, being able to do that from the start is incredibly important," says Elizabeth O'Neill, MD, MPH, and the current first year integrated plastic surgery resident. "Aside from the ability to start right away, I was really drawn to Rush by its fresh leadership and the newness of

its integrated program, even though Rush has been training plastic surgeons for years."

Before the rise of integrated programs, independent residents came to Rush as already trained surgeons looking to put the finishing touches on their surgical expertise. As general surgery has evolved to incorporate different kinds of surgical specialties—laparoscopic, robotic, and endovascular—which plastic surgery does not traditionally draw upon—the advantage for independent residents has lessened, compared to the streamlined integrated approach to training.

Deana Shenaq, MD, residency program director, agrees with Dr. Dorafshar that three years isn't enough time for residents to incorporate the breadth and depth of training presented by a plastic surgery program. At the same time, starting plastic surgery training in an integrated program, compared to an independent one, saves residents three years of laborious 80-hour workweeks, providing an opportunity for better work-life balance.

"Plastic surgery is the only field of medicine where you're knowledgeable about every part of the body and expected to operate head to toe," she says. The integrated model gives residents time to figure out their specialty and their trajectory with plastic surgery in either private practice or academic medicine."

During the first three years of Rush's seven-year residency program, residents hone their general surgical skills, and are given opportunities to apply those surgical techniques in the plastic surgery arena as early as year one. In fact, nearly two-



Plastic and Reconstructive Surgery Residents



Plastic and Reconstructive Surgery Residents

The integrated model gives residents time to figure out their specialty and their trajectory with plastic surgery in either private practice or academic medicine.

– Deana Shenaq, MD

thirds of the internship year is dedicated to service on plastic surgery teams, something unique to Rush's program.

"While we have to teach the technicalities of suturing, for instance, at the start, residents in our integrated program are really dedicated to the field," says Dr. Dorafshar. "Eventually they catch up in surgical acumen and excel in plastic surgery knowledge and ability."

Rush schedules a mandatory research year that falls between residents' 3rd and 4th post graduate years (PGYs). As Dr. Shenaq explained, the research year gives residents the ability to pursue advanced degrees, such as a Master of

Science degree in Clinical Research. It also gives residents the opportunity to immerse themselves into research interests of their choice. The research year can sharpen a resident's focus on what they want to specialize in and it keeps them abreast of the most up-to-date advances in plastic surgery.

Marek Hansdorfer, currently in his research year, is simultaneously pursuing a Master of Science in Clinical Research through Rush's graduate college while doing multidisciplinary clinical outcomes research on craniofacial surgery and breast reconstruction at Rush.

"I'm someone who already enjoys doing research," he says. "This year will sharpen my research skills and enable me to hone in on topics of interest. Ultimately, I think this can impact my abilities as a provider."

During the last three years, residents become fully immersed in their plastic surgery rotations, performing common types of surgeries, such as body contouring or carpal tunnel surgery, and later more advanced procedures, such as complex craniofacial and microsurgical flap surgery.

Part of residents' training also includes rotations at Cook County Hospital where they intersect with a diverse socio-economic group of patients and a varied caseload, requiring a range of procedures, from cosmetic to traumatic. In addition, residents gain exposure to the rapidly evolving field of gender affirmation surgery.

"The patient diversity in Chicago is incredible," says O'Neill. "The experience at Cook County Hospital was a great opportunity in this program."

Exposure, Dr. Shenaq explains, is what separates Rush from other residency programs around the country. "Our partnership with Cook County Hospital gives our residents tremendous opportunities to learn, to extend the range of their clinical expertise."

She adds, "While having a research year is not unique to Rush, having that time to grow professionally puts our residents on their own self-determined course. It is this combination of experiences that sets our residents up to become leaders in the field of plastic surgery."

Department of Surgery

Faculty

Division of Abdominal Transplantation

Edie Y. Chan, MD Associate Professor
Martin Hertl Professor
Edward F. Hollinger Assistant Professor
Stephen C. Jensik Assistant Professor
Oyedolamu Olaitan Assistant Professor
Erik Schadde Associate Professor

Division of Colon and Rectal Surgery

Anuradha Bhama Assistant Professor
Henry R. Govekar Assistant Professor
Dana M. Hayden Associate Professor
Bruce A. Orkin Professor Emeritus
Theodore J. Saclarides Professor

Division of General Surgery (Section of Acute Care Surgery)

Daniel J. Deziel Professor
Alexander Doolas Professor Emeritus
Samir K. Gupta Assistant Professor
Raelene D. Kennedy Kim Assistant Professor
Kieth W. Millikan Professor
Keith M. Monson Assistant Professor
Donald D. Nash Assistant Professor
Thea P. Price Assistant Professor
Harry Richter Associate Professor
Nicole Siparsky Associate Professor
Jose M. Velasco Professor
Norman L. Wool Adjunct Assistant Professor

Division of Minimally Invasive and Bariatric Surgery

Jonathan A. Myers Professor
Philip A. Omotosho Associate Professor
Marc Sarran Instructor
Scott W. Schimpke Assistant Professor
Alfonso Torquati Professor
Benjamin R. Veenstra Assistant Professor

Division of Pediatric Surgery

Brian Gulack Assistant Professor
Mary Beth Madonna Associate Professor
Srikumar B. Pillai Associate Professor
Ami R. Shah Associate Professor
Thomas Weber Professor Emeritus

Division of Plastic and Reconstructive Surgery

Anuja K. Antony Professor
John Q. Cook Assistant Professor
Gordon Derman Assistant Professor
Amir H. Dorafshar Professor
Matthew Doscher Adjunct Assistant Professor
Alvara Figueroa Adjunct Assistant Professor
Alireza Hamidan Jahromi Instructor
Keith C. Hood Assistant Professor
Liza Johannesson Adjunct Assistant Professor
Georgios Kokosis Assistant Professor
Stan Monstrey Adjunct Professor
James Murphy Assistant Professor
Soumya Padala Assistant Professor
Loren Schechter Adjunct Assistant Professor
Deana S. Shenaq Assistant Professor
Karen Tessler Assistant Professor
Christina Tragos Assistant Professor
Norman Weinzeig Professor

Division of Surgical Oncology

Rosalinda Alvarado Assistant Professor
Darius S. Francescatti Adjunct Assistant Professor
Andrea Madrigano Associate Professor
Cristina M. O'Donoghue Assistant Professor
Sam G. Pappas Associate Professor
Claudia B. Perez Assistant Professor
Thomas R. Witt Associate Professor Emeritus
Sean Wrenn Assistant Professor

Division of Urology

Sarah Adelstein Assistant Professor
Edward E. Cherullo Professor
Alexander K. Chow Assistant Professor
Christopher Coogan Professor
Shahid Ekbal Assistant Professor
Jerome Hoeksema Distinguished Professor
Narendra Khare Adjunct Assistant Professor
Kalyan Latchamsetty Associate Professor
Laurence Levine Professor
Charles Mckiel Professor Emeritus
Ephrem Olweny Assistant Professor
Jonathan H. Ross Professor
Andrew J. Stephenson Professor
Peter Tsambarlis Assistant Professor
Srinivas Vourganti Assistant Professor

Research

Adan Becerra Assistant Professor
Mohammad S. Bhat Professor
Fei Chu Assistant Professor
Katrien Corbelis Assistant Professor
Adrian Mansini Assistant Professor
Yueming Tang Assistant Professor

Department of Surgery (Includes Cook County faculty and any faculty member not tied to a division or section)

Ariane Abcarian Assistant Professor
Bashar Attar Professor
Steven Bonomo Assistant Professor
Faran Bokhari Professor
Cynthia Brincat Associate Professor
Caroline Butler Assistant Professor
Fadi Dahdaleh Adjunct Assistant Professor
Andrew Dennis Associate Professor
Erin Farlow Assistant Professor
Jacqueline Harrison Assistant Professor
Anngell Jones Assistant Professor
Daniel Kacey Assistant Professor
Matthew J. Kaminsky Assistant Professor
Richard Keen Assistant Professor
Syed I. Khalid Adjunct Instructor
Thomas Komar Assistant Professor
Kristina Kramer Assistant Professor
Gianluca Lazzaro Assistant Professor
Minh B. Luu Adjunct Assistant Professor
Kristine Makiewicz Assistant Professor
Brian McCann Adjunct Assistant Professor
Nathalie Mantilla Assistant Professor
Elizabeth Marcus Assistant Professor
Thomas Messer Assistant Professor
Patrick L. Molt Adjunct Professor
Jennifer Rickard Adjunct Assistant Professor
Margaret Rigamer Assistant Professor
Victoria Schlanser Assistant Professor
Neha Sheng Assistant Professor
Kathryn A. Solka Assistant Professor
Frederic Starr Assistant Professor
Leah Tatebe Assistant Professor
Julie Wescler Assistant Professor
Kenya Williams Assistant Professor

Department of Surgery

Residents and Fellows

Chief Administrative Residents

Justin Gerard
Laurel Tangalakis

PGY-5 (Chief Residents)

Justin Gerard
Jennifer Kalil
Danby Kang
John Lewandowski
Constantine Saclarides
Laurel Tangalakis
John Tierney
Manu Venkatramani

PGY-4

Sit Chivukula
Julia Coughlin
Rick Jacobson
John Klein
Emily Munding
Lauren Williams
Augustine Wilson
Ashley Woodfin
Tommy Xu

PGY-3

Laura DeCesare
Cammie Jaber
Alex Kremers
Brittany Mead
Neha Nimmagadda
Brendan O'Donnell
Samantha Terranella
Genevieve Wiehl
Aaron Weigmann

PGY-2

Elizabeth Anderson
Joel Braverman
Andrew Donaldson
Chassidy Grimes
Cheryl Hornsby
Lilia Lunt
Niel Page
Melissa Rangel
Gwyneth Sullivan

PGY-1

Talib Chaudhry
Alison Coogan
Samantha Demoss
Jemma Flood
Sarah Keshwani
Vaishnavi Krishnan
Ryan Kuhn
Oliver Ralph
Mayya Volodarskaya

PGY-1 Specialty Categorical/Preliminary

Sabina Cashin – IR
Murat Osman – IR
Aesha Patel – IR
Ricky Patel – IR

LAB

Miles Grunvald
Seungjun Kim
Nick Skertich
Joshua Underhill
Michael Williams

Publications

January-December 2020

1. Jochum SB, Ritz EM, Bhama AR, Hayden DM, Saclarides TJ, Favuzza J. Early feeding in colorectal surgery patients: safe and cost effective. *Int J Colorectal Dis.* 2020 Mar;35(3):465-469. doi: 10.1007/s00384-019-03500-1. Epub 2020 Jan 4.
2. Ziegelmann MJ, Trost LW, Russo GI, Levine LA. Peyronie's Disease Intervention Studies: An Exploration of Modern-Era Challenges in Study Design and Evaluating Treatment Outcomes. *J Sex Med.* 2020 Mar;17(3):364-377. doi: 10.1016/j.jsxm.2019.11.271. Epub 2020 Jan 10.
3. Setia SA, Massie PL, Epstein MJ, Sharma A, Fogg L, Cherullo EE, Chow AK. Renal Forniceal Rupture in the Setting of Obstructing Ureteral Stones: An Analysis of Stone Characterization and Urologic Intervention Pattern. *J Endourol.* 2020 Mar;34(3):373-378. doi: 10.1089/end.2019.0706.
4. Capoccia E, Ziegelmann M, Emmerson J, Lankford J, Ofori-Marfoh C, Levine L. Long-term patient-reported outcomes in men with Peyronie's disease undergoing nonsurgical and nonintralesional injection management. *Int J Impot Res.* 2020 Jan 27. doi: 10.1038/s41443-020-0231-y. [Epub ahead of print]
5. Storm AP, Bowker RM, Klonoski SC, Iantorno SE, Shah AN, Pillai S, Bell J, Patel AL. Mother's own milk dose is associated with decreased time from initiation of feedings to discharge and length of stay in infants with gastroschisis. *J Perinatol.* 2020 Jan 28. doi: 10.1038/s41372-020-0595-3. [Epub ahead of print]
6. Chow AK, Rosenberg BJ, Capoccia EM, Cherullo EE. Risk Factors and Management Options for the Adult Failed Ureteropelvic Junction Obstruction Repair in the Era of Minimally Invasive and Robotic Approaches: A Comprehensive Literature Review. *J Endourol.* 2020 Mar 17. doi: 10.1089/end.2019.0737. [Epub ahead of print]
7. Elist JJ, Levine L, Wang R, Wilson SK. Patient selection protocol for the Penuma[®] implant: suggested preoperative evaluation for aesthetic surgery of the penis. *Int J Impot Res.* 2020 Mar;32(2):149-152. doi: 10.1038/s41443-020-0237-5. Epub 2020 Feb 6. No abstract available.
8. Khorfan R, Shallcross ML, Yu B, Sanchez N, Parilla S, Coughlin JM, Johnson JK, Bilimoria KY, Stulberg JJ. Preoperative patient education and patient preparedness are associated with less postoperative use of opioids. *Surgery.* 2020 Feb 19. pii: S0039-6060(20)30012-X. doi: 10.1016/j.surg.2020.01.002. [Epub ahead of print]
9. Skertich NJ, Tierney JF, Chivukula SV, Babazadeh NT, Hertl M, Poirier J, Keutgen XM. Risk factors associated with positive resection margins in patients with adrenocortical carcinoma. *Am J Surg.* 2020 Feb 22. pii: S0002-9610(20)30121-5. doi: 10.1016/j.amjsurg.2020.02.043. [Epub ahead of print]
10. Bajic P, Wiggins AB, Ziegelmann MJ, Levine LA. Characteristics of Men With Peyronie's Disease and Collagenase Clostridium Histolyticum Treatment Failure: Predictors of Surgical Intervention and Outcomes. *J Sex Med.* 2020 May;17(5):1005-1011. doi: 10.1016/j.jsxm.2020.02.002. Epub 2020 Feb 29.
11. Schadde E. Combined portal vein and hepatic vein embolization- finally the platinum procedure of regenerative liver surgery? *Hepatobiliary Surg Nutr.* 2020 Feb;9(1):92-94. doi: 10.21037/hbsn.2019.09.20. No abstract available.
12. Dirscherl K, Schlpfer M, Roth Z'graggen B, Wenger RH, Booy C, Flury-Frei R, Fatzer R, Aloman C, Bartosch B, Parent R, Kurtcuoglu V, de Zlicourt D, Spahn DR, Beck Schimmer B, Schadde E. Hypoxia sensing by hepatic stellate cells leads to VEGF-dependent angiogenesis and may contribute to accelerated liver regeneration. *Sci Rep.* 2020 Mar 9;10(1):4392. doi: 10.1038/s41598-020-60709-9.
13. Schlund D, Poirier J, Bhama AR, Hayden D, Saclarides T, Orkin B, Favuzza J. Value of an interactive phone application in an established enhanced recovery program. *Int J Colorectal Dis.* 2020 Mar 12. doi: 10.1007/s00384-020-03563-5. [Epub ahead of print]
14. Jazayeri HE, Khavanin N, Yu JW, Wu B, Payne E, Mundinger GS, Patel KB, Peacock ZS, Villa MT, Dorafshar AH. Variability in Current Procedural Terminology Codes for Craniomaxillofacial Trauma Reconstruction: A National Survey. *J Craniofac Surg.* 2020 Mar 11. doi: 10.1097/SCS.00000000000006362. [Epub ahead of print]
15. Jazayeri HE, Khavanin N, Dorafshar AH. Does Early Repair of Orbital Fractures Result in Superior Patient Outcomes? A Systematic Review and Meta-Analysis *J Oral Maxillofac Surg.* 2020 Apr;78(4):e15-e16. doi: 10.1016/j.joms.2019.12.016.
16. Bajic P, Patel PM, Nelson MH, Dornbier RA, Kirshenbaum EJ, Baker MS, Farooq AV, McVary KT, Gupta GN, Bresler L. Penile Prosthesis Implantation and Timing Disparities After Radical Prostatectomy: Results From a Statewide Claims Database *J Sex Med.* 2020 Jun;17(6):1175-1181. doi: 10.1016/j.jsxm.2020.02.022. Epub 2020 Mar 28.
17. Bhama AR, Melnitchouk N, Mizell JS, Sherman KL, Zaghiyan K. Evaluation of practice patterns of chemodenervation for anal fissure of the ASCRS young surgeons *Tech Coloproctol.* 2020 Jun;24(6):611-612. doi: 10.1007/s10151-020-02195-9. Epub 2020 Mar 31.
18. Eswaran S, Chan E. Letter to the Editor: The Dallas Consensus Conference on Liver Transplantation for Alcohol Associated Hepatitis. *Liver Transpl.* 2020 Mar 31. doi: 10.1002/lt.25767. [Epub ahead of print]

19. Lundy SD, Vij SC, Rezk AH, Cohen JA, Bajic P, Ramasamy R. The microbiome of the infertile male *Curr Opin Urol*. 2020 May;30(3):355-362. doi: 10.1097/MOU.0000000000000742.
20. Ziegelmann MJ, Bajic P, Levine LA. Peyronie's disease: Contemporary evaluation and management *Int J Urol*. 2020 Jun;27(6):504-516. doi: 10.1111/iju.14230. Epub 2020 Apr 6.
21. Farrell MR, Ziegelmann MJ, Levine LA. Minimally invasive therapies for Peyronie's disease: the current state of the art. *Transl Androl Urol*. 2020 Mar;9(Suppl 2):S269-S283. doi: 10.21037/tau.2019.08.06. Review.
22. Hontscharuk R, Alba B, Schechter LS. Comment on: Suprapubic pedicled phalloplasty in transgender men: multicentric retrospective cohort analysis *Int J Impot Res*. 2020 Apr 22. doi: 10.1038/s41443-020-0273-1. Online ahead of print.
23. Lopez J, Chen J, Purvis T, Reategui A, Khavanin N, Iyer R, Manson PN, Dorafshar AH, Cohen AR, Redett RJ. Pediatric Skull Fracture Characteristics Associated with the Development of Leptomeningeal Cysts in Young Children after Trauma: A Single Institution's Experience *Plast Reconstr Surg*. 2020 May;145(5):953e-962e. doi: 10.1097/PRS.00000000000006745.
24. Schimpke SW, Larson BM, Veenstra BR, Myers JA, Wojtowicz A, Velasco JM. Do One, Do One, Teach One: Altering the Dogma Using Simulation-Based Training to Maximize Efficiency of Surgical Resident Education *J Am Coll Surg*. 2020 Jul;231(1):140-148. doi: 10.1016/j.jamcollsurg.2020.04.021. Epub 2020 Apr 22.
25. Levine LA, Betcher HK, Ziegelmann MJ, Bajic P. Amphetamine/Dextroamphetamine Salts for Delayed Orgasm and Anorgasmia in Men: A Pilot Study *Urology*. 2020 Aug;142:141-145. doi: 10.1016/j.urology.2020.04.081. Epub 2020 Apr 30.
26. Jochum SB, Legator H, Abraham RR, Bhama AR, Dugan SA, Favuzza J, Jacobs KM, Robinson KR, Saclarides TJ, Hayden DM, Brincat CA. It Takes a Village: The First 100 Patients Seen in a Multidisciplinary Pelvic Floor Clinic *Female Pelvic Med Reconstr Surg*. 2020 Apr 30. doi: 10.1097/SPV.0000000000000884. Online ahead of print.
27. Michael Brunt L, Deziel DJ, Telem DA, Strasberg SM, Aggarwal R, Asbun H, Bonjer J, McDonald M, Alseidi A, Ujiki M, Riall TS, Hammill C, Moulton CA, Pucher PH, Parks RW, Ansari MT, Connor S, Dirks RC, Anderson B, Altieri MS, Tsamalaidze L, Stefanidis D; Pr Safe cholecystectomy multi-society practice guideline and state-of-the-art consensus conference on prevention of bile duct injury during cholecystectomy *Surg Endosc*. 2020 Jul;34(7):2827-2855. doi: 10.1007/s00464-020-07568-7. Epub 2020 May 12.
28. Madoff DC, Odisio BC, Schadde E, Gaba RC, Bennink RJ, van Gulik TM, Guiu B. Improving the Safety of Major Resection for Hepatobiliary Malignancy: Portal Vein Embolization and Recent Innovations in Liver Regeneration Strategies *Curr Oncol Rep*. 2020 May 16;22(6):59. doi: 10.1007/s11912-020-00922-x.
29. Esmaeeli S, Xu TQ, Wiegmann AL, Jaraczewski T, Seu M, Akin J, Dorafshar AH. Global Contributions and Trends in Research within the Top-ranked Plastic Surgery Journal *Plast Reconstr Surg Glob Open*. 2020 Apr 30;8(4):e2712. doi: 10.1097/GOX.0000000000002712. eCollection 2020 Apr.
30. Khusid JA, Weinstein CS, Becerra AZ, Kashani M, Robins DJ, Fink LE, Smith MT Jr, Weiss JP. Well-being and education of urology residents during the COVID-19 pandemic: Results of an American National Survey *Int J Clin Pract*. 2020 Sep;74(9):e13559. doi: 10.1111/ijcp.13559. Epub 2020 Jun 28.
31. COVIDSurg Collaborative (Torquati, Bhama) Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study *Lancet*. 2020 Jul 25;396(10246):238. doi: 10.1016/S0140-6736(20)31350-7. Epub 2020 Jun 9.
32. Skertich NJ, Ingram ME, Ritz E, Shah AN, Raval MV. The influence of prematurity on neonatal surgical morbidity and mortality *J Pediatr Surg*. 2020 Apr 1:S0022-3468(20)30248-7. doi: 10.1016/j.jpedsurg.2020.03.024. Online ahead of print.
33. Aravind P, Siotos C, Bernatowicz E, Cooney CM, Rosson GD. Breast Reduction in Adults: Identifying Risk Factors for Overall 30-Day Postoperative Complications *Aesthet Surg J*. 2020 Nov 19;40(12):NP676-NP685. doi: 10.1093/asj/sjaa146.
34. Khalid SI, Omotosho PA, Spagnoli A, Torquati A. Association of Bariatric Surgery With Risk of Fracture in Patients With Severe Obesity *JAMA Netw Open*. 2020 Jun 1;3(6):e207419. doi: 10.1001/jamanetworkopen.2020.7419.
35. Jochum SB, Tian W, Goczalk MG, Ritz EM, Favuzza J, Govekar HR, Bhama AR, Saclarides TJ, Jakate S, Hayden DM. Exophytic condyloma: are they as benign as we think? *Colorectal Dis*. 2020 Jun 15. doi: 10.1111/codi.15187. Online ahead of print.
36. Gilmore RC, Sebai ME, Psoter KJ, Prasath V, Siotos C, Broderick KP, Jacobs LK, Harvey SC, Habibi M. Analysis of Breast Cancer Patients with T1-2 Tumors and 1-3 Positive Lymph Nodes Treated with or without Postmastectomy Radiation Therapy *Sci Rep*. 2020 Jun 18;10(1):9887. doi: 10.1038/s41598-020-66495-8.
37. Skertich NJ, Schimpke SW, Lee T, Wiegmann AL, Pillai S, Rossini C, Madonna MB, Shah AN. Pediatric Surgery Simulation-Based Training for the General Surgery Resident *J Surg Res*. 2020 Jun 16:S0022-4804(20)30311-5. doi: 10.1016/j.jss.2020.05.038. Online ahead of print.
38. Becerra AZ, Xu Z, Fleming FJ, Temkin SM. Response Letter to the Editor: Retiring Usage of "Debulking Surgery" *J Surg Res*. 2020 Jun 16:S0022-4804(20)30320-6. doi: 10.1016/j.jss.2020.05.047. Online ahead of print.

Publications (continued)

39. Humphries LS, Shakir A, Figueroa AA, Mercuri LG, Dianiskova S, Reid RR, Tragos C. Custom Alloplastic Temporomandibular Joint Reconstruction: Expanding Reconstructive Horizons *J Craniofac Surg*. 2020 Jun 18. doi: 10.1097/SCS.00000000000006595. Online ahead of print.
40. Terranella SL, Poirier J, Chan EY, Hertl M, Olaitan OK. Should Pre-Transplant Hemoglobin A1c Be Used to Predict Post-Transplant Compliance in End-Stage Renal Disease Patients Undergoing Kidney Transplantation? *Ann Transplant*. 2020 Jun 26;25:e924061. doi: 10.12659/AOT.924061.
41. Rhee Y, Chan EL, Eswaran SL, Aloman C, Hertl M, Santos CAQ. Fatal COVID-19 in a Patient with End-Stage Liver Disease Wait-Listed for Liver Transplantation: An Evidence-Based Review of COVID-19 Screening Modalities Prior to Transplant *Clin Liver Dis (Hoboken)*. 2020 Jun 30;15(6):246-250. doi: 10.1002/cld.990. eCollection 2020 Jun.
42. Parikh NN, Heslop DL, Bajic P, Bole R, Farrell MR, Levine LA, Ziegelmann MJ. A Review of Treatment-Related Outcomes in Female Partners of Men With Peyronie's Disease-An Opportunity for Improved Assessment *Sex Med Rev*. 2020 Jul 1:S2050-0521(20)30039-1. doi: 10.1016/j.sxmr.2020.04.003. Online ahead of print.
43. Xu TQ, Wiegmann AL, Jarazcewski TJ, Ritz EM, Santos CAQ, Dorafshar AH. Patient Race and Insurance Status Do Not Impact the Treatment of Simple Mandibular Fractures Craniomaxillofac Trauma *Reconstr*. 2020 Mar;13(1):15-22. doi: 10.1177/1943387520905399. Epub 2020 Mar 4.
44. Jacobson R, Terranella S, Booker C, Khalid S, Torquati A, Omotosho P. The Impact of Perioperative Antibiotic Prophylaxis on Weight Loss Following Laparoscopic Sleeve Gastrectomy *J Laparoendosc Adv Surg Tech A*. 2020 Jul 13. doi: 10.1089/lap.2020.0449. Online ahead of print.
45. Tierney JF, Vogle A, Finnerty B, Zarnegar R, Ghai R, Gattuso P, Fahey TJ 3rd, Keutgen XM. Indoleamine 2,3-Dioxygenase-1 Expression in Adrenocortical Carcinoma *J Surg Res*. 2020 Jul 16;256:90-95. doi: 10.1016/j.jss.2020.06.016. Online ahead of print.
46. Sullivan GA, Skertich NJ, Millikan KW, Madonna MB, Shah AN. Early Diagnosis and Treatment of Chylous Mesenteric Cysts *Am Surg*. 2020 Jun 19;3134820933603. doi: 10.1177/0003134820933603. Online ahead of print.
47. Yamada Y, Ukimura O, Kaneko M, Matsugasumi T, Fujihara A, Vourganti S, Marks L, Sidana A, Klotz L, Salomon G, de la Rosette J. Moving away from systematic biopsies: image-guided prostate biopsy (in-bore biopsy, cognitive fusion biopsy, MRUS fusion biopsy) -literature review *World J Urol*. 2020 Jul 29. doi: 10.1007/s00345-020-03366-x. Online ahead of print.
48. Siotos C, Doscher ME, Hasan JS, Grevious MA. Pulmonary Thromboembolism in a Patient with COVID-19 after Breast Reconstruction *Plast Reconstr Surg*. 2020 Nov;146(5):708e-709e. doi: 10.1097/PRS.00000000000007347.
49. Jochum SB, Bhama AR. Radiographic guidance for Turnbull-Weakley blowhole colostomy *Tech Coloproctol*. 2020 Jul 30. doi: 10.1007/s10151-020-02309-3. Online ahead of print.
50. Petersen MJ, Adams KW, Siparsky NF. Avoiding Opioid Misuse After Surgery in the Era of the Opioid Epidemic : Defining the New Normal *Am Surg*. 2020 Aug 7:3134820939933. doi: 10.1177/0003134820939933. Online ahead of print.
51. Coughlin JM, Bonomo S, Chan EY, Hasan J, Grevious MA, Geissen N. Surgical Management of Bronchobiliary Fistula After Thoracoabdominal Trauma *Am Surg*. 2020 Aug 19:3134820945263. doi: 10.1177/0003134820945263. Online ahead of print.
52. Becerra AZ, Aquina CT, Hayden DM, Torquati AF. The top 100 most disruptive publications in academic surgery journals: 1954-2014 *Am J Surg*. 2020 Aug 15:S0002-9610(20)30501-8. doi: 10.1016/j.amjsurg.2020.07.037. Online ahead of print.
53. Heil J, Schadde E. Simultaneous portal and hepatic vein embolization before major liver resection *Langenbecks Arch Surg*. 2020 Aug 24. doi: 10.1007/s00423-020-01960-6. Online ahead of print.
54. DeCesare L, Xu TQ, Saclarides C, Coughlin JM, Chivukula SV, Woodfin A, Chan E, Booker C, Jacobson R. Trends in Antibiotic Duration for Complicated Intra-Abdominal Infections : Adaptation to Current Guidelines *Am Surg*. 2020 Aug 26:3134820942186. doi: 10.1177/0003134820942186. Online ahead of print.
55. Arnautovic A, Hamidian Jahromi A, Konofaos P. The Financial Impacts of the COVID-19 Crisis on the Practices of Cosmetic/Aesthetic Plastic Surgeons *Aesthetic Plast Surg*. 2020 Sep 10:1-5. doi: 10.1007/s00266-020-01896-8. Online ahead of print.
56. Wrenn SM, Wang TS, Toumi A, Kiernan CM, Solórzano CC, Stephen AE. Practice patterns for surgical management of low-risk papillary thyroid cancer from 2014 to 2019: A CESQIP analysis *Am J Surg*. 2020 Aug 21:S0002-9610(20)30487-6. doi: 10.1016/j.amjsurg.2020.07.032. Online ahead of print.
57. Schadde E, Grunhagen J, Verhoef K, Krzywon L, Metrakos P. Limitations in resectability of colorectal liver metastases 2020 - A systematic approach for clinicians and patients *Semin Cancer Biol*. 2020 Sep 24:S1044-579X(20)30199-1. doi: 10.1016/j.semcancer.2020.09.008. Online ahead of print.

58. Capoccia E, Whelan P, Sherer B, Tsambarlis P, Tan WP, Chow A, Farrell MR, Patel B, Setia S, Wilson BM, Zhang Y, Papagiannopoulos D. The Use of Serum Procalcitonin in the Setting of Infected Ureteral Stones: A Prospective Observational Study *J Endourol*. 2020 Nov 5. doi: 10.1089/end.2020.0308. Online ahead of print.
59. The CODA Collaborative (Price) A Randomized Trial Comparing Antibiotics with Appendectomy for Appendicitis *The New England Journal of Medicine*, 2020-11-12, Vol.383 (20), p.1907-1919
60. Siotos C, Bonett AM, Hansdorfer MA, Siotou K, Kambeyanda RH, Dorafshar AH. Medical device related pressure ulcer of the lip in a patient with COVID-19: Case report and review of the literature *J Stomatol Oral Maxillofac Surg*. 2020 Oct 8;S2468-7855(20)30232-9. doi: 10.1016/j.jormas.2020.09.020. Online ahead of print.
61. Farrell MR, Ziegelmann MJ, Bajic P, Levine LA. Peyronie's Disease and the Female Sexual Partner: A Comparison of the Male and Female Experience *J Sex Med*. 2020 Dec;17(12):2456-2461. doi: 10.1016/j.jsxm.2020.08.010. Epub 2020 Oct 14.
62. Grunvald MW, Jacobson RA, Kuzel TM, Pappas SG, Masood A. Current Status of Circulating Tumor DNA Liquid Biopsy in Pancreatic Cancer *Int J Mol Sci*. 2020 Oct 16;21(20):7651. doi: 10.3390/ijms21207651.
63. Hamidian Jahromi A, Arnautovic A, Konofaos P. Impact of the COVID-19 Pandemic on the Education of Plastic Surgery Trainees in the United States *JMIR Med Educ*. 2020 Nov 17;6(2):e22045. doi: 10.2196/22045.
64. Skertich NJ, Grunvald MW, Sullivan GA, Rossini C, Pillai S, Madonna MB, Schimpke SW, Shah AN. Silo placement in gastroschisis: A pilot study of simulation-based training for general surgery residents *J Pediatr Surg*. 2020 Oct 6;S0022-3468(20)30712-0. doi: 10.1016/j.jpedsurg.2020.09.063. Online ahead of print.
65. Rossi I, Omotosho P, Poirier J, Spagnoli A, Torquati A. Roux-en-Y gastric bypass decreases serum inflammatory markers and cardiovascular risk factors in obese diabetics *Surgery*. 2020 Nov 6;S0039-6060(20)30679-6. doi: 10.1016/j.surg.2020.09.039. Online ahead of print.
66. Klein JJ, Skertich NJ, Shah AN. Appendicitis Within a Pseudocyst: Rare Presentation in a Child With a Ventriculoperitoneal Shunt *Am Surg*. 2020 Nov 11;3134820940628. doi: 10.1177/0003134820940628. Online ahead of print.
67. Terranella SL, Deal RA, Farlow EC, Keen RR, Sheng N. Aneurysm of the anterior tibial artery as a complication of infectious endocarditis *Vascular*. 2020 Nov 11;1708538120969463. doi: 10.1177/1708538120969463. Online ahead of print.
68. Simon DP, Alter K, Bajic P, Levine LA. Device profile of the Ambicor two-piece inflatable penile prosthesis for treatment of erectile dysfunction: overview of its safety and efficacy *Expert Rev Med Devices*. 2020 Nov 18. doi: 10.1080/17434440.2021.1853524. Online ahead of print.
69. Woo LL, Ross JH. Partial orchiectomy vs. radical orchiectomy for pediatric testis tumors *Transl Androl Urol*. 2020 Oct;9(5):2400-2407. doi: 10.21037/tau-19-815.
70. Jochum SB, Becerra AZ, Zhang Y, Santos CAQ, Hayden DM, Saclarides TJ, Bhama AR. I want to go home: should we abandon open surgery for treatment of rectal prolapse? Consideration of discharge destination following surgery for rectal prolapse *Colorectal Dis*. 2020 Nov 28. doi: 10.1111/codi.15466. Online ahead of print.
71. Terranella S, Fefferman M, Zhang Y, Wright K, Hollinger E, Olaitan O, Hertl M, Jensik S, Keen R, Chan E. Economic Evaluation of Suture Versus Clip Anastomosis in Arteriovenous Fistula Creation *J Vasc Surg*. 2020 Nov 26;S0741-5214(20)32484-8. doi: 10.1016/j.jvs.2020.10.076. Online ahead of print.
72. Jochum SB, Venkatramani M, Ritz EM, Favuzza J, Hayden DM, Saclarides TJ, Bhama AR. Surgical Residents' Perspective on Informed Consent-How Does It Compare With Attending Surgeons? *J Surg Res*. 2020 Dec 14;260:88-94. doi: 10.1016/j.jss.2020.10.019. Online ahead of print.
73. Skertich NJ, Lee T, Terranella S, D'Audiffret A, Rossini C. Unilateral Claudication in a Pediatric Patient: An Uncommon Presentation Following a Handlebar Injury *Am Surg*. 2020 Dec 19;3134820956350. doi: 10.1177/0003134820956350. Online ahead of print.
74. Chow AK, Bhatt R, Cao D, Wahba B, Coogan CL, Vourganti S, Cherullo EE, Bhayani SB, Venkatesh RJ, Figenshau RS. A Case Series of Delayed Proximal Ureteral Strictures After Nephron-Sparing Treatment of Renal Masses *J Endourol Case Rep*. 2020 Dec 29;6(4):544-547. doi: 10.1089/cren.2020.0182. eCollection 2020.

