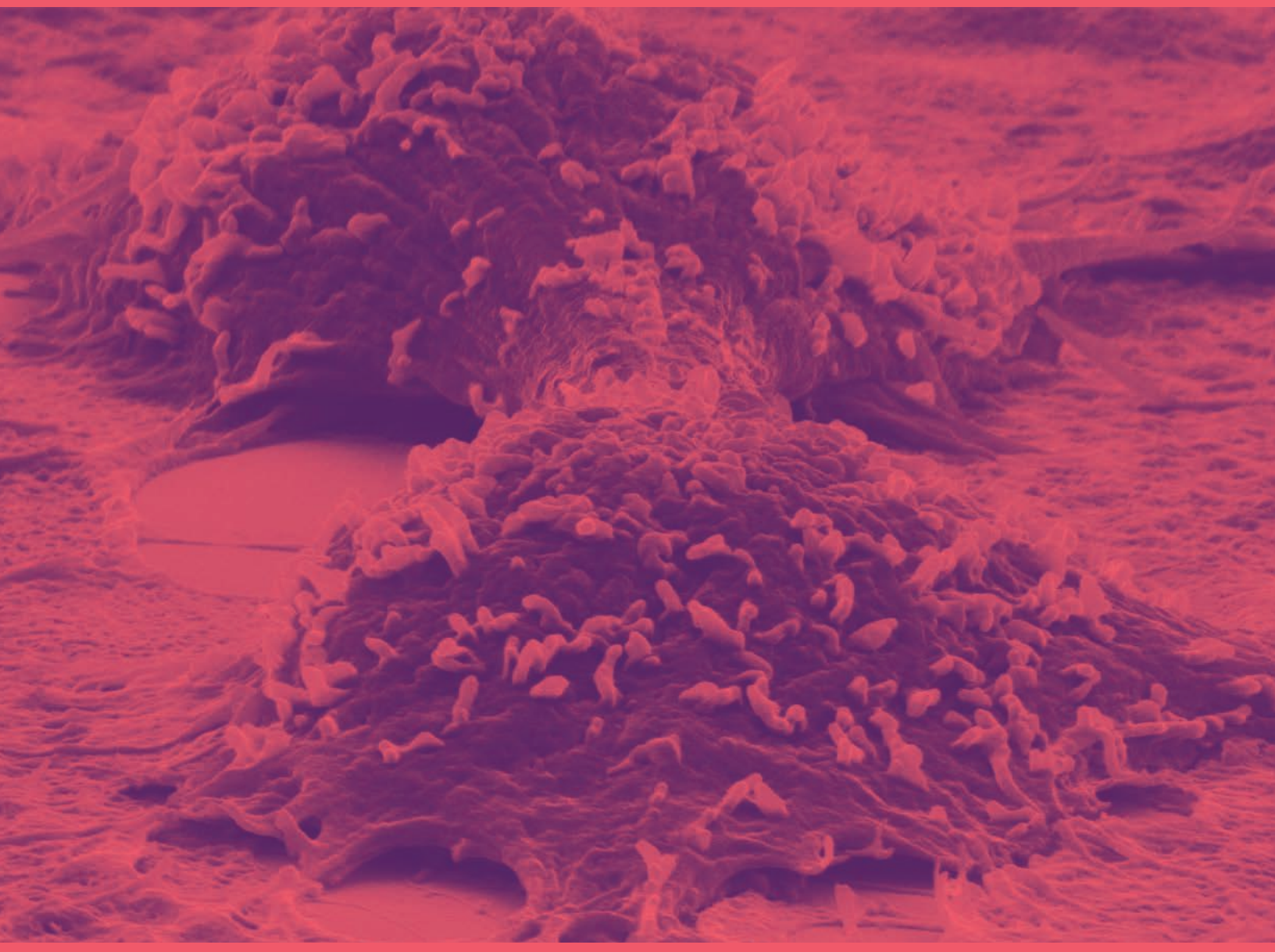
NYU Langone Health

Gastroenterology & GI Surgery

2017 YEAR IN REVIEW



556
IBD SURGERIES IN 13 MONTHS

38,000+
ENDOSCOPY CASES

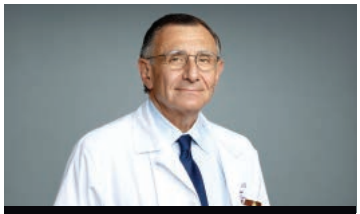
Leading
PANCREATIC RESEARCH

Contents

On the cover: Colon cancer cells

MESSAGE FROM LEADERSHIP

Dear Colleagues and Friends:



H. LEON PACHTER, MD

George David Stewart Professor of Surgery

Chair, Department of Surgery

MARK B. POCHAPIN, MD

Sholtz/Leeds Professor of Gastroenterology

Director, Division of Gastroenterology

Vice Chair, Clinical Affairs Department of Medicine

We are delighted to share with you this report on the recent achievements of NYU Langone's Division of Gastroenterology and Department of Surgery in addressing benign and malignant gastrointestinal disease.

We have added a number of renowned experts to our multidisciplinary teams and broken new ground in research and treatment aimed at understanding and more effectively treating complex esophageal, gastric, hepatic, pancreatic, intestinal, and colorectal diseases.

Building on the already considerable strengths of our teams, we were excited to welcome pancreatic cancer surgeon and renowned researcher Diane M. Simeone, MD, the Laura and Isaac Perlmutter Professor of Surgery, professor of pathology, and associate director of Translational Research, as director of our new Pancreatic Cancer Center. We were also thrilled to welcome internationally renowned liver specialist Ira M. Jacobson, MD, who is widely respected for his groundbreaking research in developing antiviral therapies, as professor of medicine and director of our hepatology program.

Feza H. Remzi, MD—one of the world's foremost practitioners of pelvic pouch surgery, re-do pouch surgery, and reconstruction—was recruited last year to lead the Inflammatory Bowel Disease (IBD) Center. In this report, we share some of Dr. Remzi's research findings on risk factors that affect clinical decisions about pouch surgery after colectomy. Dr. Remzi served as a course director, along with David P. Hudesman, MD, and Lisa B. Malter, MD, for this year's annual Big Gut Seminars: Focus on Complex IBD continuing medical education course, featuring national IBD leaders and drawing attendees from across the country.

Our bariatric surgery program, led by Christine J. Ren-Fielding, MD, continues to advance the field in research and treatment. Over the past year, investigators have delved into bariatric outcomes in specific patient populations, including those with type 2 diabetes.

Our faculty are also helping to increase screening and access to care through national leadership and community outreach initiatives. For example, as chair of the American College of Gastroenterology (ACG) Committee on Minority Affairs and Cultural Diversity, Renée L. Williams, MD, advocates for earlier screening and other strategies in an effort to decrease colorectal cancer mortality rates among African Americans.

On the education front, Gregory B. Haber, MD, served as a course director of the advanced endoscopy live demo of the New York Society for Gastrointestinal Endoscopy annual conference from NYU Langone, and Abraham R. Khan, MD, hosted the live procedure demo at NYU Langone for the American Neurogastroenterology and Motility Society's annual postgraduate course. In addition, the Division of Gastroenterology has expanded its advanced fellowship programs to include two advanced endoscopy fellows and a transplant hepatology fellow.

The Department of Surgery's innovative professionalism curriculum, conceived and effectuated by Mark S. Hochberg, MD, Russell S. Berman, MD, and H. Leon Pachter, MD, has become a national model for surgical residency programs and has been incorporated into the American Board of Surgery's SCORE national curriculum for residents. The "Gastroenterology Fellowship Program Director's Toolkit: Utilizing OSCEs to Teach and Evaluate Fellows' Performance," developed under the leadership of Elizabeth H. Weinshel, MD, in collaboration with the ACG, was featured in a national ACG training webinar and is available on the ACG website.

We are proud to collaborate with our colleagues nationwide to contribute to the advancement of scientific knowledge, the development of future physician leaders, and the provision of advanced, state-of-the-art clinical care for patients with complex and debilitating conditions.

FACTS & FIGURES

Gastroenterology & GI Surgery

PATIENT CARE

38,000+

ENDOSCOPY CASES ANNUALLY

194

GASTROENTEROLOGISTS, HEPATOLOGISTS, AND GI SURGEONS

including voluntary faculty

90%

SUCCESS RATE

for referred re-operative pouch surgeries performed by Feza H. Remzi, MD September 2016–October 2017

RESEARCH

9

PANCREATIC CANCER RESEARCHERS AT PERLMUTTER CANCER CENTER

selected to lead and collaborate in a Cancer Interception Translational Research Team by Stand Up to Cancer and the Lustgarten Foundation for Pancreatic Cancer Research

PERLMUTTER CANCER CENTER IS

1 of 12

NATIONAL SITES

participating in the Pancreatic Cancer Action Network's Precision Promise, a large-scale precision medicine trial

47+

OPEN CLINICAL TRIALS

EDUCATION

100%

OF SURGICAL RESIDENTS

perform clinical or scientific research

440

APPLICANTS

for four gastroenterology fellowship slots

1,350

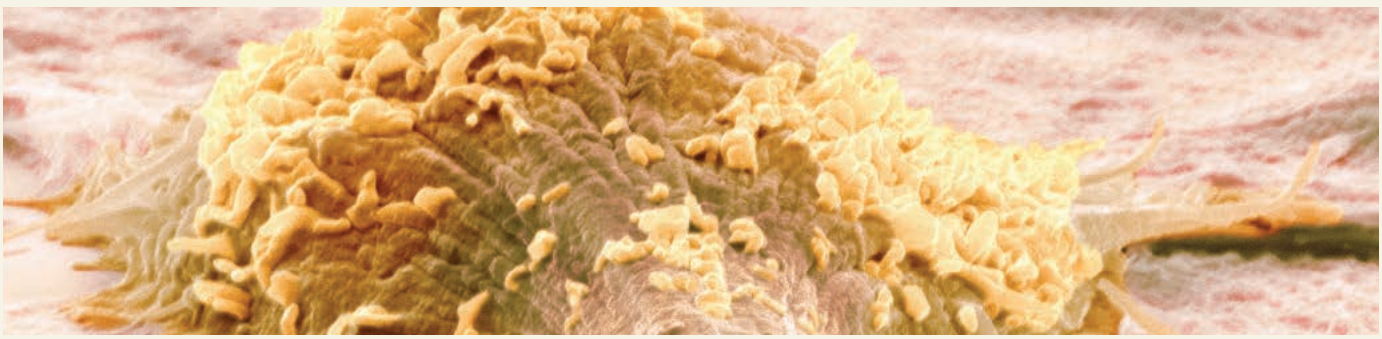
APPLICANTS

for seven general surgery residency slots

New

ADVANCED FELLOWSHIP PROGRAMS

in transplant hepatology and advanced endoscopy



Colon cancer cells

NYU Langone Health

View of NYU Langone Health's main Manhattan campus, including renderings of the new Science Building (left) and the Helen L. and Martin S. Kimmel Pavilion (right), both set to open in 2018.
(Image credit: Ennead Architects)

BEST HOSPITALS U.S.News & World Report HONOR ROLL 2017-18

#19

IN THE NATION

and nationally ranked in 12 specialties: Rehabilitation, Orthopedics, Rheumatology, Neurology & Neurosurgery, Geriatrics, Urology, Cardiology & Heart Surgery, Gastroenterology & GI Surgery, Diabetes & Endocrinology, Pulmonology, Cancer, and Nephrology

BEST GRAD SCHOOLS U.S.News & World Report MEDICAL RESEARCH 2018

#12

IN THE NATION
BEST MEDICAL SCHOOLS FOR RESEARCH

and a leader in innovation in medical education, including accelerated pathways to the MD degree

Bernard A Birnbaum, MD Quality Leadership Award 2017 Winner vizient

Leader

IN QUALITY CARE AND PATIENT SAFETY

For the past four years, NYU Langone has received top rankings for overall patient safety and quality of care from Vizient, Inc., formerly the University HealthSystem Consortium. In 2017, NYU Langone received two significant awards from Vizient—the Bernard A. Birnbaum, MD, Quality Leadership Award and the Ambulatory Care Quality and Accountability Award for demonstrated excellence in delivering high-quality, patient-centered outpatient care.

5 Star Rating

FROM CMS HOSPITAL COMPARE

NYU Langone Health is the only full-service hospital in New York State and one of 9 percent of hospitals nationwide to receive a five-star rating from the Centers for Medicare and Medicaid Services (CMS). The rating reflects overall safety, quality, and patient experience.

2017 IN BRIEF

Shifting Paradigms Enhance Patient Care, Research, and Education

Christine J. Ren-Fielding, MD, and Holly F. Lofton, MD

Weight Management Program Accredited for Care of Adults and Adolescents

NYU Langone's Weight Management Program, whose surgeons' expertise in performing laparoscopic adjustable banding makes them among the best in the nation, earned accreditation from the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP). The Weight Management Program is now designated an MBSAQIP Accredited Center—Comprehensive with Adolescent Qualifications, as awarded by the American College of Surgeons and the American Society for Metabolic and Bariatric Surgery. "With a commitment to optimizing quality outcomes and patient satisfaction, the program offers patients a comprehensive approach to weight management that includes a variety of tailored surgical options," says George A. Fielding, MD, the J. Ira and Nicki Harris Family Professor of Surgery and Bariatric Medicine.

A New Pancreatic Cancer Center Focusing on Research and Early Detection

Building on a strong framework of collaboration, Perlmutter Cancer Center created a new multidisciplinary Pancreatic Cancer Center in July 2017. Renowned pancreatic cancer surgeon and researcher Diane M. Simeone, MD, the Laura and Isaac Perlmutter Professor of Surgery, professor of pathology, and associate director of Translational Research, leads the combined effort, which leverages insights and expertise from across the institution. The centers are tackling long-standing questions about pancreatic cancer diagnosis, treatment, and prevention, and expanding on recent research insights into—and potential solutions to—pancreatic cancer's ability to evade the immune system.

Read more on **PAGE 11**

New Insight into Bariatric Surgery Outcomes

Research at NYU Langone has demonstrated the potential long-term benefits of bariatric surgery for patients who are unable to maintain weight loss through other methods. Over the past year, investigators have delved further into the risks and benefits of different surgical techniques in specific patient populations, including those with type 2 diabetes. Christine J. Ren-Fielding, MD, professor of surgery and chief of the Division of Bariatric Surgery, reports on the impact of surgery on other factors such as lipid profiles and knee osteoarthritis pain.

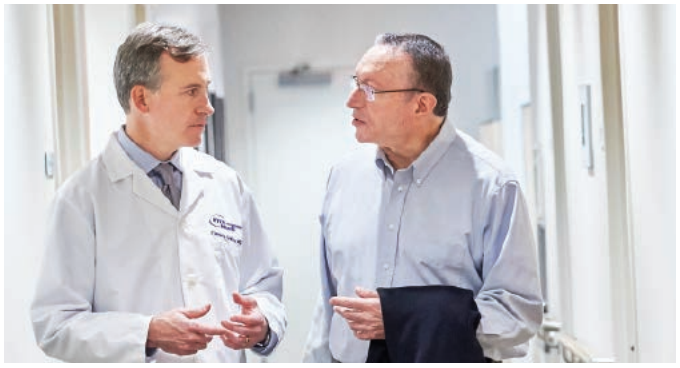
Read more on **PAGE 14**

Research Suggests New Way to Treat Inflammatory Bowel Disease and Prevent Rejection of Bone Marrow Transplants

A new study, published online on October 31, 2017, in the *Journal of Experimental Medicine*, demonstrates that *ATG16L1* in the intestinal epithelium is essential for preventing loss of Paneth cells and exaggerated cell death in animal models of virally triggered Inflammatory Bowel Disease (IBD) and allogeneic hematopoietic stem cell transplantation. Intestinal organoids lacking *ATG16L1* reproduced this loss in Paneth cells and displayed tumor necrosis factor (TNF) alpha-mediated necroptosis, a form of programmed cell death. Researchers at NYU School of Medicine and collaborators found that in both applications, the drug infliximab (marketed as Remicade®) blocks the contribution of the protein TNF alpha to problem-causing inflammation. TNF alpha increases the rush of immune cells to the site of an infection, where these cells seek to destroy foreign invaders such as bacteria. However, these same inflammatory responses can become part of a disease if they mistakenly target the body's own cells, such as occurs in autoimmune conditions like Crohn's disease.

The researchers found that infliximab prevents TNF alpha from speeding up the death of Paneth cells, which protect the gut from microbes. The team also found that the gene *ATG16L1* kept TNF alpha–driven inflammation from triggering the destruction of an excessive number of Paneth cells by an explosive process called necroptosis. "Our study results are the first to argue that we may be able to treat inflammatory bowel disease and protect against transplant-associated disease not only by blocking TNF alpha as is done currently but also by stimulating *ATG16L1* to prevent the early death of cells lining the gut," says senior investigator Ken H. Cadwell, PhD, associate professor of microbiology at NYU School of Medicine and NYU Langone Health's Skirball Institute of Biomolecular Medicine. Dr. Cadwell cautions that this strategy must await further evidence to confirm the theory that this trend in Paneth cell death occurs in people deficient in *ATG16L1,* who are, like his animal models, prone to higher risk of inflammatory disease and transplant-associated disease.

Ira M. Jacobson, MD



Theodore H. Welling, MD (on left)

Renowned Faculty Bolster Liver Disease Programs

NYU Langone has recruited renowned experts in liver disease to enhance care for patients with liver and biliary diseases. Ira M. Jacobson, MD, professor of medicine, known globally for his groundbreaking work in developing antiviral therapy for hepatitis, came on board as director of Hepatology in the Department of Medicine's Division of Gastroenterology. Theodore H. Welling, MD, associate professor of surgery, took the helm of the newly launched multidisciplinary Liver Tumor Program at Perlmutter Cancer Center. Both experts work closely with NYU Langone's Transplant Institute, where specialists provide advanced care for patients with end-stage liver disease. The Transplant Institute has also produced new research on the state of living donor liver transplantation.

Read more on **PAGE 16**

Sharing Inflammatory Bowel Disease Expertise at the 2017 AIBD Conference

NYU Langone researchers presented new research and led key discussions at the 2017 Advances in Inflammatory Bowel Diseases Conference in Orlando. Conference topics ranged from the importance of collaborative disease management to emerging data on readmission after pouch surgery and treating postoperative ileus. A study by postdoctoral research fellow H. Hande Aydinli, MD, and Feza H. Remzi, MD, professor of surgery and director of the Inflammatory Bowel Disease (IBD) Center, found that surgical site infections (SSIs) are a leading reason nationally for readmission following ileal pouch anal anastomosis (IPAA) for medically refractory ulcerative colitis. Analysis of three years of American College of Surgeons National Surgical Quality Improvement Program data revealed that a fifth of patients were readmitted within 30 days of IPAA. To improve outcomes, measures aimed at improving SSI rates and reducing postoperative dehydration should be considered.

NYU Langone researchers, led by Shannon Chang, MD, assistant professor of medicine, also presented findings on the use of alvimopan in patients with IBD as prophylaxis against postoperative ileus after bowel resection. IBD patients undergoing bowel resection with the use of alvimopan were found to have a significantly shorter length of stay when compared to those who did not receive alvimopan. Gastrointestinal recovery time was significantly faster across the board for patients receiving alvimopan.

Several IBD faculty also led discussions in the conference's surgical and clinical tracks, including Dr. Remzi, David P. Hudesman, MD, associate professor of medicine and medical director of the IBD Center, and Seymour Katz, MD, clinical professor of medicine and director of the center's IBD Outreach Programs.

Seymour Katz, MD

Lisa B. Malter, MD, associate professor of medicine and director of the Inflammatory Bowel Disease Program at NYC Health + Hospitals/Bellevue, shared the impact of use of a multimodal educational intervention to improve healthcare maintenance of IBD patients in a gastroenterology fellow–managed setting in a large urban medical center. After the intervention, the rate of healthcare maintenance measures addressed overall increased from 37 percent to 52 percent ($P < .001$). The intervention yielded statistically significant findings for bone health, vaccinations, and therapy-specific measures.

Dr. Remzi is known for tackling the most complex IBD cases and is a world leader in the performance of pouch surgery. His team's work and vision for the IBD Center are featured in the fall 2017 issue of *NYU Langone Health Magazine*. The full article is available at nyulangone.org/publications.

Feza H. Remzi, MD, and H. Leon Pachter, MD

Selecting Patients for Pouch Surgery

Pouch surgery is often successful in experienced hands, but the complex operation may not be appropriate for all patients. Feza H. Remzi, MD, professor of surgery, recently co-wrote a study led by Shannon Chang, MD, assistant professor of medicine, examining several diseases and characteristics that may put patients at higher risk of postoperative pouch dysfunction or failure. Using an aggressive but reasoned approach to patient selection, however, the team at NYU Langone has been able to expand the pool of eligible patients.

Read more on **PAGE 18**

Continuing Medical Education Courses on Complex Inflammatory Bowel Disease, Pancreatic Disease, and Liver Disease

MARCH 9, 2018

Big Gut Seminars: Focus on Complex Inflammatory Bowel Disease

Course directors:
David P. Hudesman, MD
Lisa B. Malter, MD
Feza H. Remzi, MD

SEPTEMBER 28, 2018

Big Gut Seminars: Focus on Complex Pancreatic Diseases

Course directors:
Seth A. Gross, MD
Gregory B. Haber, MD
Elliot Newman, MD
Paresh C. Shah, MD
Diane M. Simeone, MD

NOVEMBER 30, 2018

Big Gut Seminars: Focus on Complex Liver Diseases

Course directors:
Nabil N. Dagher, MD
Ira M. Jacobson, MD
George Miller, MD
James S. Park, MD
Hillel Tobias, MD, PhD

For more information, visit **nyulmc.org/cme.**

Lisa B. Malter, MD

Seth A. Gross, MD

Elliot Newman, MD

Paresh C. Shah, MD

Closing the Racial Gap: Renewed Focus on African Americans and Recommendation for Earlier Colorectal Cancer Screening

Although increased screening, treatment advances, and other factors have resulted in reduced colorectal cancer (CRC) incidence and mortality among African Americans, significant racial disparities persist. The remaining differences in incidence and mortality have led many organizations to look at factors—including age at diagnosis and age at first screening—that may be contributing to these disparities. Renée L. Williams, MD, assistant professor of medicine and chair of the American College of Gastroenterology Committee on Minority Affairs and Cultural Diversity, offers a perspective on recommendations that CRC screening for African Americans begin at age 45 rather than at age 50, the current recommendation for average-risk individuals.

Read more on **PAGE 20**

Sharing Expertise

NYU Langone faculty provide state-of-the-art expertise in all areas of gastrointestinal care, with specialized clinical, educational, and research programs in advanced and therapeutic endoscopy, inflammatory bowel disease, liver disease, pancreatic cancer, esophageal disease, and colorectal cancer screening and prevention.

Demonstrating Expertise Through Live Endoscopy Cases

Experts from our Divisions of Gastroenterology and GI Surgery hosted several live-streamed events from NYU Langone this past year, including:

- Live demonstration of manometry and other highly specialized procedures as part of the American Neurogastroenterology and Motility Society's annual course, held on August 4–6, 2017. Abraham R. Khan, MD, assistant professor of medicine and director of the Center for Esophageal Disease, hosted the demonstration.
- Precision Endoscopy: The Scope of the Future, the New York Society for Gastrointestinal Endoscopy's 41st Annual New York Course, held on December 14–15, 2017. Gregory B. Haber, MD, professor of medicine, chief of Endoscopy, and director of Advanced Therapeutics and Innovation, was one of the two live endoscopy course directors. Brian P. Bosworth, MD, professor of medicine, Jonathan Cohen, MD, clinical professor of medicine, and Adam J. Goodman, MD, associate professor of medicine, were the annual course consultants.

Gregory B. Haber, MD

Abraham R. Khan, MD

Pathway Improves Elective Colon and Rectal Surgery Efficiency and Patient Experience

In the Division of Colorectal Surgery, evidence-based plans of care for all patients undergoing elective colon and rectal surgery come in the form of the Colon Pathway, a tool fully integrated into NYU Langone Health's electronic health record (EHR) system.

Read more on
PAGE 23

Alexis L. Grucela, MD

Advanced Fellowships

PROGRAM EXPANSION

Under the new leadership of Gregory B. Haber, MD, professor of medicine, and Ira M. Jacobson, MD, professor of medicine, we have launched and expanded our advanced fellowship programs this year.

Sonja K. Olsen, MD, clinical assistant professor of medicine, has been named director of the recently launched Transplant Hepatology Fellowship Program.

David M. Poppers, MD, PhD, clinical associate professor of medicine, has been named director of the Advanced Endoscopy Fellowship Program. The program was expanded in 2017 to include two fellows.

SPICE Curriculum Is a National Model for Teaching Professionalism

Our Department of Surgery's innovative curriculum on professionalism has become a model for surgical residency programs across the country. Known by its acronym SPICE (Surgical Professionalism and Interpersonal Communication Education), the curriculum consists of seven 1-hour interactive seminars on developing advanced communication and interpersonal skills, and delineates areas of competence expected of all surgical residents.

The SPICE format is easily transferable to other institutions, note the authors of a 2017 article in *Advances in Surgery*, outlining the specific goals, skills, and learning objectives of the curriculum. Topics include teamwork; ethical choices and reasoning; delivering bad news; working through language and cultural barriers; recognizing signs of stress, depression, and burnout; and managing one's career. The Surgical Council on Resident Education (SCORE®), a consortium of U.S. surgical organizations that includes the American Board of Surgery and the American College of Surgeons, incorporated the course into its national surgical curriculum in 2015.

Russell S. Berman, MD (on right)

Evaluations of the curriculum show that interns demonstrate significant improvement in professionalism skills as they progress through their five-year residency, says Mark S. Hochberg, MD, professor of surgery and lead author of the article, which was co-written by Russell S. Berman, MD, associate professor of surgery and program director of the General Surgery Residency, and H. Leon Pachter, MD, the George David Stewart Professor of Surgery and chair of the Department of Surgery.

"What we have learned is that not only can we change our surgical residents' attitudes about professionalism, we can change the entire culture of professionalism in our department," says Dr. Hochberg. And he adds, "In today's increasingly diverse healthcare environment, how surgeons conduct themselves with colleagues, trainees, hospital staff, and patients may well determine their surgical success far more than their clinical and technical abilities."

OSCE Toolkit Provides Training Resource for National Fellowship Program Directors

Under the leadership of Elizabeth H. Weinshel, MD, the Division of Gastroenterology and the Division of General Internal Medicine and Clinical Innovation's Program for Medical Education Innovations and Research have collaborated with the American College of Gastroenterology (ACG) to provide an online educational resource: "Gastroenterology Fellowship Program Director's Toolkit: Utilizing OSCEs to Teach and Evaluate Fellows' Performance." According to the Accreditation Council for Graduate Medical Education requirements, simulation must be a part of the fellows' training in meeting key milestones and competencies. The toolkit includes challenging clinical scenarios and all needed instructions to allow users to organize and host OSCE trainings for their fellows at their own institutions. The toolkit was featured in an ACG national training webinar and is available on the ACG website to fellowship program directors nationwide.

Elizabeth H. Weinshel, MD

2017 IN DEPTH

Leading the Way in Clinical Care and Groundbreaking Research

Lidong Wang, PhD, and Diane M. Simeone, MD

Immunological and Molecular Clues Reveal New Insights to Pancreatic Cancer

From revealing genetic underpinnings to testing new clinical protocols, Perlmutter Cancer Center research teams are targeting pancreatic cancers in innovative ways.

Building on its robust research and strong clinical framework, Perlmutter Cancer Center launched its new, multidisciplinary Pancreatic Cancer Center in July 2017. Renowned pancreatic cancer surgeon and researcher Diane M. Simeone, MD, the Laura and Isaac Perlmutter Professor of Surgery, professor of pathology, and associate director of Translational Research, directs this combined clinical and research effort, leveraging insights and expertise from across the institution. The center is tackling long-standing questions about pancreatic cancer diagnosis, treatment, and prevention, and expanding on the recent research findings described below.

STRESS GRANULES PROTECT PANCREATIC CANCER CELLS

Pancreatic cancer cells protect themselves by producing stress granules that lessen the effects of chemotherapy, according to research from the laboratory of Perlmutter Cancer Center investigator Dafna Bar-Sagi, PhD, professor of biochemistry and molecular pharmacology and medicine, senior vice president and vice dean for Science, and chief scientific officer. Dr. Bar-Sagi and collaborators reported in the December 2016 issue of *Cell* that cancer cells with mutations in the *KRAS* gene make six times more stress granules than cells without the mutations when exposed to radiation or the chemotherapy agent oxaliplatin. The team also produced the first-ever images of stress granules inside human pancreatic tumors.

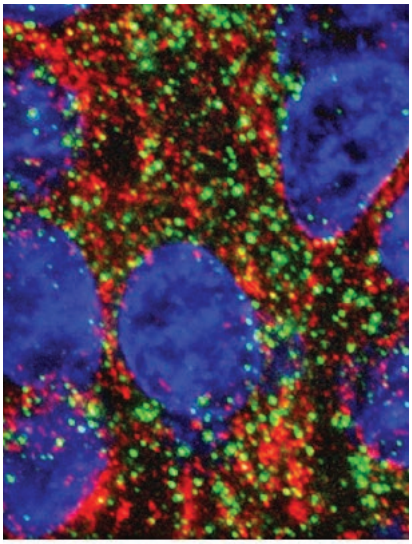
"Our results explain why *KRAS* mutant cells are so good at resisting treatment and suggest a way to make them many times more vulnerable to existing chemotherapies," says Dr. Bar-Sagi. "Given the lack of good treatments for these patients, the ability to interfere with this coping mechanism would be revolutionary."

IMMUNE ACTION REVEALED IN EXISTING THERAPY

Researchers have revealed a second, previously unappreciated mechanism of action for a decades-old cancer drug. Initially designed to prevent cancer cells from multiplying, nab-paclitaxel (Abraxane®) can also stimulate the immune system to attack pancreatic tumors, according to research in Dr. Bar-Sagi's laboratory.

By studying a mouse model of pancreatic cancer and laboratory-grown macrophage cells, the research team showed that the drug causes macrophages in the tumor microenvironment to transition to an immune-activating state. The team reported their findings in February 2017 in *Cancer Immunology Research*.

"Our study reveals a previously unappreciated role for Abraxane® in tumor immunology," says Dr. Bar-Sagi. "In doing so, it suggests ways to improve the drug and argues for its inclusion in new kinds of combination treatments."



Pancreatic cancer cells (red) form stress granules (green) near their nuclei (blue) to protect their genetic messages and resist chemotherapy

GEORGE MILLER, MD, RECEIVES RUTH LEFF SIEGEL AWARD FOR EXCELLENCE IN PANCREATIC CANCER RESEARCH

George Miller, MD, received the 2017 Ruth Leff Siegel Award for Excellence in Pancreatic Cancer Research for his groundbreaking research on immune suppression of pancreatic cancer. Dr. Miller's Perlmutter Cancer Center colleague Dr. Alec Kimmelman, MD, PhD, received the Ruth Leff Siegel Award in 2014.

"This work highlights how metabolically adaptive pancreatic cancers are, offering us the opportunity to understand these adaptations and hopefully develop effective therapeutic combinations."

—Alec Kimmelman, MD, PhD

PERLMUTTER CANCER CENTER IS

1 of 12

NATIONAL SITES

participating in the Pancreatic Cancer Action Network's Precision Promise, a large-scale precision medicine trial led by Diane M. Simeone, MD

TWO PROTEINS HELP PANCREATIC CANCER EVADE IMMUNE SYSTEM

In complementary research, George Miller, MD, the H. Leon Pachter, MD Professor of Surgery, professor of cell biology, and co-leader of Perlmutter Cancer Center's Tumor Immunology Program, and his team revealed molecular interactions that can prevent the immune system from attacking pancreatic tumors. High levels of two proteins—Dectin-1 and Galectin-9—in pancreatic tumors and surrounding immune cells, were found to prevent macrophages from triggering reactions that kill cancer cells. The research team compared mice with pancreatic cancer that made Dectin-1 to mice engineered to not make the protein and found that the mice without Dectin-1 lived longer. The team also found that treating mice with an antibody that blocked Galectin-9 from interacting with Dectin-1 dramatically reduced tumor size and increased survival. Dr. Miller's team reported their findings in *Nature Medicine* in May 2017.

"Our results have potentially broad implications because macrophages with Dectin-1 on their surfaces, and cells expressing Galectin-9, infiltrate many cancer types," says Donnele A. Daley, MD, chief resident in the Department of Surgery and former postdoctoral fellow in Dr. Miller's lab.

SEVERING PANCREATIC CANCER'S FUEL LINES

Pancreatic cancers are known to have adaptive metabolic networks that sustain their proliferation, and exploiting this difference from normal cells could reveal new therapeutic targets, according to a collaborative study led by Alec Kimmelman, MD, PhD, professor of radiation oncology, the Anita Steckler and Joseph Steckler Chair of Radiation Oncology and co-leader of the Cancer Cell Biology Research Program.

The researchers, whose results were published in July 2017 in *Nature Communications*, found that simply shutting down a novel metabolic pathway they had previously identified causes pancreatic ductal adenocarcinoma cells to shift their metabolic networks to sustain themselves with available nutrients. Building on this discovery, the team conducted a series of proteomic and metabolomic analyses to identify promising combination therapies that can target more than one metabolic pathway.

"This work highlights how metabolically adaptive pancreatic cancers are, offering us the opportunity to understand these adaptations and hopefully develop effective therapeutic combinations," says Dr. Kimmelman.

George Miller, MD; Donnele A. Daley, MD; Vishnu R. Mani, MD; and Atsuo Ochi, DDS, PhD

RESEARCHERS SELECTED TO CO-LEAD AND COLLABORATE IN PANCREATIC CANCER TRANSLATIONAL RESEARCH TEAM

Nine pancreatic cancer researchers from Perlmutter Cancer Center have been selected to lead and collaborate in a Cancer Interception Translational Research Team by Stand Up To Cancer (SU2C) and the Lustgarten Foundation for Pancreatic Cancer Research.

The team, co-led by Alec Kimmelman, MD, PhD, professor of radiation oncology, the Anita Steckler and Joseph Steckler Chair of Radiation Oncology, and co-leader of the Cancer Cell Biology Research Program, and David P. Ryan, MD, of Massachusetts General Hospital, was awarded $2.6 million to develop novel approaches to treat and evaluate early pancreatic cancer. In particular, they will assess the benefits of adding certain drugs to chemotherapy treatments, in the hopes of minimizing disease recurrence.

"Not only do we believe that this clinical trial has the potential to change the standard of care for how we approach this deadly disease, the analysis of clinical specimens collected from the initiative will be quite powerful in informing future trials and further improving patient outcomes," said Dr. Kimmelman. "For example, our group will look at how tumor cell metabolism is impacted by treatment using our newly created Metabolomics Core Resource Laboratory, which is led by Drew Jones, PhD, and Michael Pacold, MD, PhD."

Dafna Bar-Sagi, PhD, and Benjamin G. Neel, MD, PhD

"The selection of our group as a Cancer Interception Translational Research Team by SU2C and the Lustgarten Foundation is a tremendous honor," says Dafna Bar-Sagi, PhD, professor of biochemistry and molecular pharmacology and medicine, senior vice president and vice dean for Science, and chief scientific officer. "It underscores our commitment to push the boundaries of pancreatic cancer research so that we can provide patients with this relentless disease access to the most innovative treatments and world-class care."

In addition to Dr. Kimmelman, the Perlmutter Cancer Center team includes:

- **Dafna Bar-Sagi, PhD,** professor of biochemistry and molecular pharmacology and medicine, senior vice president and vice dean for science, and chief scientific officer
- **Pratip Chattopadhyay, PhD,** associate professor of pathology and director of the Precision Immunology Laboratory in the Division of Advanced Research Technologies
- **Deirdre J. Cohen, MD,** assistant professor of medicine
- **Kevin L. Du, MD, PhD,** assistant professor of radiation oncology and director of the Radiation Oncology Residency Program
- **George Miller, MD,** the H. Leon Pachter, MD Professor of Surgery, professor of cell biology, and co-leader of Perlmutter Cancer Center's Tumor Immunology Program
- **Michael E. Pacold, MD, PhD,** assistant professor of radiation oncology and chair of the Faculty Advisory Committee for the Metabolomics Core Resource Laboratory
- **Diane M. Simeone, MD,** the Laura and Isaac Perlmutter Professor of Surgery, professor of pathology, associate director of Translational Research, and director of Perlmutter Cancer Center's Pancreatic Cancer Center
- **Kwok-Kin Wong, MD, PhD,** the Anne Murnick Cogan and David H. Cogan Professor of Oncology and director of the Division of Hematology and Medical Oncology

Bridging the Gap Between Bariatric Procedures and Obesity-Related Complications

When all other methods have failed, bariatric surgery and endoscopic procedures have been shown to help many patients achieve and maintain weight loss. Further, past research at NYU Langone Health has revealed that these weight management benefits are often sustained over the long term, enabling patients to enjoy better health throughout their lives. Yet, until recently, few data existed on the outcomes of bariatric procedures in specific patient populations, such as those with diabetes.

Although bariatric surgery is generally considered safe if performed by experienced surgeons in high-volume centers, there have been concerns about its effects in certain patients. Over the past year, NYU Langone researchers have led major studies that help to shed light on some of these questions. "These recently published studies are also providing more in-depth data on the interrelationship between bariatric and endoscopic procedures and obesity-related complications, such as hypertension, hypercholesterolemia, and arthritis," says Christine J. Ren-Fielding, MD, professor of surgery and chief of the Division of Bariatric Surgery.

Here are some of the highlights of their findings.

Christine J. Ren-Fielding, MD

LAPAROSCOPIC SLEEVE GASTRECTOMY IN DIABETIC PATIENTS

Although laparoscopic sleeve gastrectomy (LSG) is a commonly performed bariatric procedure, there is some uncertainty about its risks for diabetic patients. For example, some smaller studies have suggested higher risks for mortality and anastomotic leaks among diabetics, whereas larger studies have not found such a correlation.

A recent study led by Dr. Ren-Fielding analyzed data on more than 6,000 obese adults who underwent LSG in 2012. Of those, 78 percent were non-diabetic, 15.5 percent had type 2 diabetes, and 6.5 percent had type 1 diabetes. No higher risk of postoperative complications was found among type 2 diabetics compared with non-diabetic patients, although the 30-day complication rate was slightly higher among those with type 1 disease. The findings were published in the February 2017 issue of *Surgical Endoscopy*.

"Compared to more invasive procedures, LSG offers several advantages that may promote faster recovery," says Dr. Ren-Fielding. "For example, unlike gastric bypass, LSG does not create any new anastomoses, decreasing the risk of ischemic complications. In addition, LGS is less likely to result in wound infections than open surgery."

Laparoscopic gastric band

POSTSURGICAL CHANGES IN LIPID PROFILE

Dr. Ren-Fielding and colleagues in NYU Langone's Department of Medicine and the Leon H. Charney Division of Cardiology conducted a study examining changes in lipid profiles before and after surgery in obese adults who underwent Roux-en-Y gastric bypass (RYGBP), adjustable gastric banding, biliopancreatic diversion (BPD), or sleeve gastrectomy. The meta-analysis, which includes 178 studies and more than 25,000 patients, found significant improvements in cholesterol levels and triglycerides at the one-year mark, although the magnitude of improvement varied by the type of surgery. Only RYGBP led to sustained improvements in all lipid parameters compared to controls, the authors note. This disparity in long-term results may be explained by differences between RYGBP—which bypasses part of the intestines—and wholly restrictive procedures such as sleeve gastrectomy, which leave the gastrointestinal tract intact. RYGBP and BPD have been shown to improve insulin sensitivity—and, in turn, triglycerides—beyond the improvement expected from weight loss alone. The findings are published in the September 2016 issue of *The American Journal of Medicine*.

"Bypassing part of the intestines results in changes in gut hormones that can result in metabolic changes amenable to improving diabetes mellitus, hyperlipidemia, and hypertension. These insights may help us better match patients to the appropriate surgical technique," says Dr. Ren-Fielding.

LONG-TERM OUTCOMES AFTER BILIOPANCREATIC DIVERSION

To observe long-term outcomes of BPD, a research team led by Dr. Ren-Fielding followed patients who underwent BPD with or without duodenal switch (DS) over a 12-year period. The retrospective review, published in the November 2016 issue of *Surgery for Obesity and Related Diseases*, found that both BPD and BPD/DS resulted in sustained excess weight loss, with averages of 65 percent at two years, 64 percent at five years, and 68 percent at 10 to 15 years. However, greater improvements were seen among patients with baseline body mass indexes of less than 50 kg/m^2 and among those who underwent BPD/DS versus BPD. Although side effects including nutritional deficiencies and postoperative complications were common, almost 95 percent of patients reported satisfaction with the results. "However, despite the effectiveness of BPD and BPD/DS and their potential to resolve comorbidities—such as diabetes and hypertension—these procedures remain underused because of concerns about their technical difficulty and potential nutritional complications," says Dr. Ren-Fielding.

METABOLIC OR MECHANICAL BASIS FOR IMPROVEMENTS IN KNEE OSTEOARTHRITIS?

A collaborative study by NYU Langone researchers in the Departments of Medicine, Surgery, Neurosurgery, and Radiology, published in April 2017 in *Osteoarthritis and Cartilage*, examines improvements in knee osteoarthritis pain and symptoms following different bariatric surgery procedures. A small but significant improvement in knee pain was observed at one- and two-year follow-up among the 150 patients who underwent surgery of any type, the authors report, with most of the improvement occurring during the first month following surgery, before patients had achieved much weight loss. These findings suggest that improvements may be due to the metabolic impact of surgery, as well as to reduced load on the joints after weight loss. In addition, the authors found that the concentration of leptin in the blood closely mirrored pain relief, suggesting that leptin may be a key biomarker contributing to knee pain relief.

Renowned Specialists to Lead Liver Disease Programs

Two physician scientists joined NYU Langone Health last year to lead programs to enhance care for patients with liver disease. Internationally renowned Ira M. Jacobson, MD, joined the Division of Gastroenterology as director of Hepatology, and Theodore Welling, MD, joined NYU Langone to lead Perlmutter Cancer Center's new Liver Tumor Program. Dr. Jacobson and Dr. Welling also work closely with NYU Langone's Transplant Institute, which offers state-of-the-art surgical care for patients with end-stage liver disease.

A PIONEER IN THE TREATMENT OF LIVER DISEASE

Dr. Jacobson is a highly distinguished clinician and researcher widely respected for his groundbreaking research in developing antiviral therapy for hepatitis. He has been involved in more than 100 clinical trials testing novel, direct-acting antiviral drugs. He was also lead investigator for the national WIN-R trial, which established the role of weight-based ribavirin dosing in the treatment of hepatitis C infection in African Americans. Dr. Jacobson, who previously served as chair of the Department of Medicine at Mount Sinai Beth Israel in New York City, will maintain an active hepatology, gastroenterology, and endoscopy practice at NYU Langone.

"Dr. Jacobson's work has helped transform hepatitis C infection from a chronic disease to one that can be cured, benefiting countless individuals across the globe," says Mark B. Pochapin, MD, the Sholtz/Leeds Professor of Gastroenterology, director of the Division of Gastroenterology, and vice chair of Clinical Affairs in the Department of Medicine. "He greatly enhances our ability to treat patients, strengthens our understanding of liver disease through research, and broadens our education of the next generation of physicians."

NEW MULTIDISCIPLINARY LIVER TUMOR PROGRAM TARGETS LIVER CANCER

Cancers affecting the liver and the bile ducts are the target of the new Liver Tumor Program at NYU Langone's Perlmutter Cancer Center. The program is designed to provide multidisciplinary clinical care and to rapidly translate research breakthroughs into treatments at the Center.

The program brings together many specialists—hepatologists, oncologists, surgeons, interventional radiologists, radiation oncologists, researchers, nurses, and others—with the shared goal of implementing a comprehensive, evidence-based approach to researching and

Ira M. Jacobson, MD, and Mary C. Olson, NP

> "Dr. Jacobson's work has helped transform hepatitis C infection from a chronic disease to one that can be cured, benefiting countless individuals across the globe."
>
> **—Mark B. Pochapin, MD**

HIGHLIGHT ON THE ASIAN LIVER HEALTH PROGRAM: THE IMPORTANCE OF COMMUNITY OUTREACH

People of Asian descent are at increased risk for liver diseases and have higher death rates from these conditions than any other racial group. This is why the Asian Liver Health Program (ALHP) is dedicated to providing outreach in the communities where it's needed most. Under the leadership of James S. Park, MD, the ALHP team offers specialized care throughout the year and periodic free educational seminars and free hepatitis screenings. In 2017, 112 individuals received hepatitis screening through the program. "We believe it's essential to provide this outreach to the Asian American communities that are at increased risk for liver disease. With appropriate education and screening, conditions such as hepatitis B and C can be detected and treated early, before advanced liver disease develops," says Dr. Park.

treating liver and biliary cancers. This team also works closely with NYU Langone's Transplant Institute to provide patients the option of a liver transplant when appropriate.

Nationally recognized for his advances in liver transplantation, laparoscopic liver surgery, and surgery requiring expertise in bile-duct and hepatic-vascular resection and reconstruction, NYU Langone recruited surgeon and researcher Theodore H. Welling, MD, associate professor of surgery, to Perlmutter Cancer Center to lead the new program. Dr. Welling joined NYU Langone in July 2017 after serving as co-director of the multidisciplinary liver tumor program at the University of Michigan Health System.

"A disease this complex needs to be approached from all angles to provide the best possible patient care," says Dr. Welling. "The Liver Tumor Program at Perlmutter Cancer Center offers patients a highly personalized and efficient treatment model—each patient has a team of experts behind them to address their particular needs." At NYU Langone, Ira M. Jacobson, MD, will collaborate closely with Dr. Welling on the Liver Tumor Program as the medical center's new director of hepatology.

LEFT LOBE GRAFTS DECREASE DONOR RISK FOR LIVING DONOR LIVER TRANSPLANTS

NYU Langone Transplant Institute features state-of-the-art diagnosis and advanced treatment for patients with end-stage liver disease. With the worldwide shortage of deceased donor organs, NYU Langone experts are also at the forefront of improving outcomes and reducing risks associated with living donor transplants.

Enthusiasm for living donor liver transplants declined following adoption of the Model for End-Stage Liver Disease (MELD) organ allocation system in the United States, as well as heightened concern for donor safety, Nabil N. Dagher, MD, associate professor of surgery, director of Abdominal Transplant Surgery, and director of the Transplant Surgery Fellowship at NYU Langone, notes in an article published in the April 2017 issue of *International Anesthesiology Clinics*. He goes on to cite evidence suggesting that living donor liver transplant should be reconsidered for select patients.

At NYU Langone and other highly specialized centers, there has been a trend toward using smaller left lobe grafts, which is less risky for donors but which, Dr. Dagher notes in his article, has traditionally raised concerns about small-for-size syndrome. Dr. Dagher then points to evidence suggesting that left lobe procedures can lead to good outcomes for both donors and recipients when performed in experienced centers and using careful selection criteria. "Having clear policies and protocols in place is essential," says Dr. Dagher. "Left lobe grafts can be a better option in some cases, based on certain criteria, including patient MELD score and the graft-to-recipient weight ratio."

George Miller, MD, the H. Leon Pachter, MD Professor of Surgery, professor of cell biology, and co-leader of Perlmutter Cancer Center's Tumor Immunology Research Program, directs one of the only training programs in the country in gastrointestinal oncology that is funded by the National Institutes of Health. Dr. Miller, a highly skilled and experienced hepatobiliary surgeon, is also vice chair of surgical research.

George Miller, MD

Expertise and Shared Decision Making Optimize Pouch Surgery Selection Criteria

For most patients with ulcerative colitis (UC) and some patients with Crohn's disease (CD), pouch surgery can offer relief and long-term improvement in quality of life. Under the leadership of IBD Center Director Feza H. Remzi, MD, professor of surgery and a world-renowned expert in pelvic pouch surgery and reconstruction, and David P. Hudesman, MD, associate professor of medicine and medical director of the IBD Center, pouch surgery may become an option for certain groups previously considered ineligible for the procedure.

The Inflammatory Bowel Disease (IBD) Center at NYU Langone Health is known for handling even the most complex cases. Although pouch surgery performed by experienced surgeons is often successful, the operation is complex and may not be appropriate for all patients, notes Dr. Remzi. Shannon Chang, MD, assistant professor of medicine at the IBD Center, led a study examining several diseases and characteristics that might put patients at higher risk of postoperative pouch dysfunction or failure. Dr. Remzi, another study investigator, notes that by taking an aggressive but rigorous approach to patient selection, carefully weighing the pros and cons of surgery, individual profile factors that might affect outcomes, and patient preference, the team at NYU Langone has been able to expand the pool of eligible patients. "Our findings confirm that thoughtful patient selection by an experienced team and shared decision making with patients are essential to successful long-term pouch outcomes," says Dr. Remzi.

Shannon Chang, MD, and David P. Hudesman, MD

WHEN NOT TO POUCH

For patients who undergo colectomy due to UC and for some patients with CD, selectively performed ileal pouch–anal anastomosis (IPAA) is the preferred surgical treatment. IPAA creates a reservoir as a substitute for the removed rectum, thereby providing an alternative to permanent ileostomy that enables patients to store and pass stool.

Although IPAAs are associated with great outcomes overall, certain patient factors may elevate the risk of postoperative issues such as fecal incontinence. In addition, persistent pouch dysfunction may increase the risk of pouch failure and diminish patients' quality of life.

"Patients with potential risk factors such as obesity, sphincter dysfunction or damage, advanced age, previous radiation therapy, and Crohn's disease need to be carefully counseled with regard to pouch surgery," notes Dr. Remzi.

According to the study, published in *Gastroenterology & Hepatology* in August 2017, the following risk factors deserve special consideration.

- **Obesity.** Although obesity does not necessarily preclude pouch surgery, a body mass index of 30 or more is associated with several possible postoperative complications, including incisional hernias and pouch dysfunction. In addition, obese patients may have longer operating times, prolonged hospital stays, and higher risks for wound infection and anastomotic leak. Also, excess weight may necessitate the performance of additional surgical steps, such as a tension-free anastomosis hookup in order for the IPAA to reach the anal canal. Morbidly obese patients who are considering IPAA can participate in a weight loss program and/or, in certain cases, undergo bariatric surgery to lose sufficient weight to make IPAA feasible. In these cases, IBD Center experts work in collaboration with the bariatric team.

90%

SUCCESS RATE

for referred reoperative pouch surgeries performed by Feza H. Remzi, MD, September 2016–October 2017

Feza H. Remzi, MD

- **Sphincter Damage.** IPAA preserves anal sphincter function and normal evacuation and allows for gastrointestinal continuity. The study authors note that advanced age and a history of obstetric injury may be of concern but does not necessarily rule out IPAA. In such cases, NYU Langone's highly skilled surgeons reduce the risks posed by appropriately varying their surgical techniques, such as performing stapled rather than hand-sewn anastomoses.
- **Advanced Age.** Being elderly is not an absolute contraindication to IPAA. Age should be considered in the context of the whole person and the person's health history. Although older patients may be more likely than younger patients to have comorbidities—such as diabetes, hypertension, or chronic obstructive pulmonary disease—and other risk factors that could slow recovery, including gait and mobility issues that interfere with getting to and from the restroom, many elderly patients can safely undergo IPAA with comparable pouch outcomes to younger patients and, despite some reported instances of incontinence, good quality of life.
- **Radiation.** Patients who undergo radiation therapy may be at higher risk for pouch dysfunction following IPAA. The authors cite studies showing that prior or subsequent radiation will likely result in pouch failure and/or morbidity. Other data suggest that pelvic radiation prior to IPAA can lead to chronic pouchitis and pouch failure. It is thus advisable to limit radiation exposure and target narrower fields to minimize such risks in patients who have undergone or plan to undergo IPAA.
- **Crohn's Disease.** Although patients with CD are often ruled out for IPAA because of the risk of pouch failure, recent studies suggest that favorable outcomes are possible if IPAA feasibility is demonstrated following extensive preoperative evaluation and patient counseling. Potential CD candidates for the procedure include patients with minimal anoperineal or small bowel manifestations and patients diagnosed with CD at the time of initial colectomy and prior to pouch creation. A thorough preoperative evaluation should include a perineal exam and imaging to rule out fistulas and small bowel disease.

BOTTOM LINE: CAREFUL PATIENT SELECTION IS KEY TO SUCCESS

Strategic patient selection for IPAA increases the likelihood of long-term improvement in quality of life, notes Dr. Remzi. Favorable outcomes are more likely following a thorough evaluation of individual patients' comorbidities, surgical history, and functional status. In addition, patients should be counseled at length to prepare them for surgery and recovery.

"The decision to undergo IPAA should be made after an extensive discussion among multidisciplinary team members and the patient," says Dr. Remzi. And he adds, "Given the potential for complications, the procedure should be performed in high-volume referral centers with specialized pouch management expertise."

"Our findings confirm that thoughtful patient selection by an experienced team and shared decision making with patients are essential to successful long-term pouch outcomes."

—Feza H. Remzi, MD

Closing the Racial Gap in Colorectal Cancer Screening

Although increased screening, treatment advances, and other factors have resulted in reduced colorectal cancer (CRC) incidence and mortality among African Americans, significant racial disparities persist.

Vineet S. Rolston, MD; Renée L. Williams, MD; and Max Pitman, MD

The remaining gap in incidence and mortality has led the American College of Gastroenterology (ACG) and others to look at factors—including age at diagnosis and age at first screening—that may be contributing to these disparities. In the ACG's update to its 2005 recommendations, published in July 2016 in *Clinical and Translational Gastroenterology*, lead author Renée L. Williams, MD, assistant professor of medicine, and other ACG collaborators note that CRC incidence rates were 25 percent higher and mortality rates were 50 percent higher in African Americans compared with Caucasians between 2006 and 2010. In addition, African Americans were more likely than whites to be diagnosed at an earlier age and with advanced-stage disease. The update upholds the 2005 ACG recommendation that CRC screening for African Americans begin at age 45 rather than at age 50, the current recommendation for average-risk individuals.

EARLIER SCREENING CAN HELP TO ADDRESS DISPARITIES

"African Americans continue to have the highest rate of mortality and the lowest rate of survival when compared with all other racial groups," says Dr. Williams, chair of the ACG Committee on Minority Affairs and Cultural Diversity. "Earlier screening is one way that we can begin to address these disparities."

Compelling data from a variety of studies support the recommendation, notes Dr. Williams. For example, the Microsimulation Screening Analysis Colorectal Cancer Model (MISCAN-Colon microsimulation model) found an increase in life-years and a decrease in disparities in incidence and survival when African American populations started screening six years earlier than white populations.

"We already have guidelines for early screening of patients with a personal history, genetic cancer syndrome, or a family history of polyps or CRC," notes Dr. Williams. "Now, evidence supports recognizing and categorizing African Americans as a high-risk population."

OUTREACH EFFORTS CAN HELP EQUALIZE SCREENING RATES

In addition to the recommendation for a younger screening age, Dr. Williams and colleagues point to other measures that have shown evidence of success. Community interventions have proven effective in reducing disparities in some regions of the country, says Dr. Williams. The Delaware Cancer Consortium, a statewide cancer control program, helped to equalize the screening rates between blacks and whites, while significantly diminishing gaps in mortality, between 2001 and 2009. The program included covering the cost of care for uninsured patients diagnosed with CRC for two years and partnering with community organizations in African American neighborhoods.

In New York, the New York Citywide Colon Cancer Control Coalition (C5) instituted a number of strategies, including public education campaigns and the use of patient navigators in 11 city hospitals and 12 voluntary hospitals, to help patients understand the importance of screening and of completing the bowel preparation and the screening procedure. Colonoscopy in patients over the age of 50 increased to nearly 70 percent in 2013 with the implementation of this program. Furthermore, screening rates equalized across different ethnicities.

At NYU Langone Health's Perlmutter Cancer Center, the Communities Partnering in Navigation in New York City Program helps people in medically underserved areas of New York City access screening for CRC and breast cancer, regardless of their income or insurance status. Patient navigators conduct outreach events at churches, community-based organizations, and local businesses to provide information about and access to affordable screening options. They also offer help with navigating the healthcare system.

As shown by the New York City C5 program as well as by programs offered through the VA New York Harbor Health Care System, providing equal access to screening and treatment options can eliminate disparities, says Dr. Williams. In the VA system, there has been no difference in CRC survival between black and white patients with equal access to care.

Physician education is also needed to address the racial gap effectively, Dr. Williams adds. Studies have shown that African American patients are less likely to be referred for screening and treatment services, which could contribute to lower rates of screening, surgery, radiation, and chemotherapy among this population.

U.S. MULTI-SOCIETY TASK FORCE ON NEW COLORECTAL CANCER SCREENING GUIDELINES

Importantly, in 2017, the U.S. Multi-Society Task Force on Colorectal Cancer—including the ACG, American Gastroenterological Association, and American Society for Gastrointestinal Endoscopy—came together to issue new national colorectal screening guidelines, which include the recommendation that African Americans begin screening at age 45.

"To reduce the racial disparities in colorectal cancer incidence and mortality, we must continue to be vigilant in promoting screening among all populations, including all racial/ethnic groups, all educational levels, and all socioeconomic statuses, as well as among the insured and the uninsured," says Dr. Williams.

"To reduce the racial disparities in colorectal cancer incidence and mortality, we must be vigilant in promoting screening in all populations, including all racial/ethnic groups, all educational levels, and all socioeconomic statuses, as well as the insured and the uninsured."

—Renée L. Williams, MD

Reaching Patients Where They Live

The success of the Men's Health Initiative, based at NYU Langone Health and funded by the National Institutes of Health and the Centers for Disease Control and Prevention, is testament to the potential of community outreach.

Created by Joseph E. Ravenell, MD, MS, associate professor of population health and medicine, director of diversity in research at Perlmutter Cancer Center, and associate dean for diversity affairs and inclusion, and Gbenga Ogedegbe, MD, MPH, the Dr. Adolph and Margaret Berger Professor of Population Health and Medicine and director of the Center for Healthful Behavior Change in the Department of Population Health, the program's healthcare staff guide patients toward colorectal cancer (CRC) screening in a timely fashion and in a familiar community setting.

The idea is for trusted patient navigators from targeted communities to meet patients in settings such as barbershops and churches, where they're likely to be more receptive to advice, says Dr. Ravenell. "If we rely on a traditional clinical approach to improving outcomes for a population known to be less likely to seek healthcare, we'll miss those who most need our help."

These patient navigators identify men who haven't had colonoscopies and guide them—and in some cases accompany them—to screening and follow-up care.

Dr. Ravenell first observed the positive impact of patient navigators on the detection and management of hypertension in African American men in barbershops—an insight he later shared in a TED Talk at the TED2016 Conference.

More recently, Dr. Ravenell and colleagues applied this patient navigation model to CRC screening. The team's randomized trial investigated the impact of patient navigators in barbershops on the CRC screening rates among 731 low-income African American men aged 50 or older in New York City. Patient navigators recruited participants who were then assigned to receive either patient navigation or a more standard screening referral.

Participants in the patient navigator groups received counseling, advice about logistic and psychosocial barriers, and screening appointment reminders. Those in the standard referral group received only printed CRC screening education and a list of screening facilities. After six months, almost 18 percent of patients in the patient navigator groups—even those with limited health literacy or no insurance—had undergone screening for CRC, compared with only 8.4 percent in the standard referral arm. The results were published in the August 2017 issue of the *American Journal of Public Health*.

"Barbershops hold special appeal for community-based intervention trials, as they are cultural institutions that draw large and loyal male clienteles and provide an open forum for discussion of numerous topics, including health," says Dr. Ravenell. "Our results emphasize the importance of basing screening interventions in nonclinical settings."

Navigators

INCREASE COMPLIANCE

African American men teamed with patient navigators were twice as likely to complete colorectal cancer screenings as those who were simply handed a list of screening facilities, according to a study by Joseph E. Ravenell, MD, published in the *American Journal of Public Health*.

Joseph E. Ravenell, MD, MS, speaks with a Harlem barbershop patron about colorectal health

Colon Pathway Improves Elective Colon and Rectal Surgery Efficiency and Patient Experience

The Division of Colorectal Surgery's evidence-based plans of care for all patients undergoing elective colon and rectal surgery come in the form of the Colon Pathway, a technology tool fully integrated into NYU Langone Health's electronic health record (EHR) system.

Mitchell A. Bernstein, MD

STREAMLINING CARE WITH EVIDENCE-BASED BEST PRACTICES

The Colon Pathway was implemented with the primary goals of decreasing length of stay and lowering variable direct cost (VDC).

"Everyone on the care team had a hand in developing this protocol and understanding its value for enhancing delivery of value-based, patient-centered care," says Mitchell A. Bernstein, MD, associate professor of surgery, director of the Division of Colorectal Surgery and a member of Perlmutter Cancer Center. "By streamlining care with evidence-based best practices, we've substantially improved the efficiency and cost of treating patients who undergo elective colon and rectal surgery."

"What sets this pathway apart from many others is that it's embedded in the EHR, with outcomes and variances documented as patients move through their hospitalization," says Dr. Bernstein. "Enabling the care team to see a continuously updated snapshot of their progress has markedly increased compliance."

In a recent analysis, Dr. Bernstein and colleagues reviewed data on 327 patients who underwent surgery from May 2015, when the pathway went live, through June 2016. They found that compared to pre-implementation, the VDC per case consistently decreased by an average of 20.6 percent every quarter, while the length of stay dropped by 17.4 percent.

REDUCING SURGICAL SITE INFECTIONS

The group also analyzed the Colon Pathway's impact on the rate of surgical site infections (SSIs). Following implementation of the pathway, the SSI rate fell from a high of 20.3 percent to 7.6 percent and then dropped even further, to 3.6 percent, after a second pathway targeted at SSI reduction was introduced in 2016. Overall, the pathway has led to an 83 percent reduction in SSIs.

That reduction is impressive, considering that SSIs are much more common in colorectal surgeries compared with other surgical types, says Dr. Bernstein. According to a study published in October 2014 in *JAMA Surgery*, average SSI rates range from 15 percent to 30 percent across all U.S. hospitals, with infections associated with increased morbidity and length of stay, as well as with higher readmission rates.

NEW PROTOCOL HELPS PATIENTS NAVIGATE THE CARE PROCESS

Dr. Bernstein's team is now adding a Guided Patient Services (GPS) protocol to the Colon Pathway. Focused on improving patient satisfaction, the initiative assigns care managers to help patients navigate the entire care process, from preoperative consultation to pre- and post-discharge planning.

The process is designed to avoid potential problems, such as lack of medical clearances preoperatively and patient arrival home post-discharge without appropriate supplies, medications, or other resources because of lack of insurance coordination, says Dr. Bernstein. Its effectiveness will be measured through patient satisfaction surveys.

"The GPS is aimed at reducing the hiccups that can occur as patients move through their hospital stay," says Dr. Bernstein. "In addition to maximizing patient satisfaction, following patients after discharge may help lower readmissions by addressing problems before they turn into emergencies."

Academic Activity

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AWARDS AND HONORS

Sophie M. Balzora, MD, assistant professor of medicine, has been named chair of the Public Relations Committee, American College of Gastroenterology.

Dafna Bar-Sagi, PhD, professor of biochemistry, senior vice president and vice dean for science, chief scientific officer of NYU Langone, was named outstanding investigator by the National Cancer Institute for her fundamental contributions to uncovering the mechanisms that drive cancer, as well as for her stellar record of scientific productivity.

Brian P. Bosworth, MD, professor of medicine, has been named a peer reviewer, National Institutes of Health, Special Emphasis Panel Small Business: Digestive Sciences. He has also been named Governor for Manhattan, American College of Gastroenterology.

Jonathan Cohen, MD, clinical professor of medicine, is chair of the Training Committee, American Society for Gastrointestinal Endoscopy.

Seth A. Gross, MD, Gastroenterology Section chief, Tisch Hospital, director, Clinical Care and Quality, Division of Gastroenterology, NYU Langone Health, associate professor of medicine, is the incoming president of the New York Society for Gastrointestinal Endoscopy and chair of the Educational Affairs Committee, American College of Gastroenterology.

Ira M. Jacobson, MD, professor of medicine and director of Hepatology, received the Peter Sheehan Community Empowerment Award, Peter Sheehan Diabetes Care Foundation.

Alec Kimmelman, MD, PhD, professor of radiation oncology, delivered the 2017 Lori Groetken Memorial Lecture "Identifying Metabolic Dependencies in Pancreatic Cancer" at Washington University School of Medicine, St. Louis, Missouri.

George Miller, MD, the H. Leon Pachter, MD Professor of Surgery and professor of cell biology, received the 2017 Ruth Leff Siegel Award for Excellence in Pancreatic Cancer Research for his groundbreaking research on immune suppression of pancreatic cancer. Dr. Miller was also named editor-in-chief of *Oncogene*.

H. Leon Pachter, MD, the George David Stewart Professor of Surgery and chair of the Department of Surgery, was chosen by the executive committee of the Society of Black Academic Surgeons as the 2015 Honorary Fellow in recognition of both his efforts to promote diversity in the department and his contributions to surgery.

Calvin Q. Pan, MD, clinical professor of medicine, has been chosen to receive the James Bruce Memorial Award from the American College of Physicians and was elected chair of the Online Learning Committee of the American Association for the Study of Liver Diseases.

James S. Park, MD, associate professor of medicine, was named vice president of the Korean American Medical Association and was named to the Medical Advisory Committee of the American Liver Foundation.

Mark B. Pochapin, MD, Sholtz/Leeds Professor of Gastroenterology, was named vice president of the American College of Gastroenterology.

Paresh C. Shah, MD, clinical professor of surgery, chief of the Division of General Surgery, and vice chair of Quality and Innovation in the Department of Surgery, is on the Board of Governors of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) and is the society's appointed AMA House of Delegates Representative.

Renée L. Williams, MD, assistant professor of medicine, is chair of the Minority Affairs and Cultural Diversity Committee, American College of Gastroenterology.

FUNDING HIGHLIGHTS

PI: JIYOUNG AHN, PHD (GEORGE MILLER, MD, CO-INVESTIGATOR)

National Institutes of Health/ National Cancer Institute
5R01CA164964-03
"Prospective Study of Human Oral Microbiome and Pancreatic Cancer"
9/1/2014–8/31/2018

PI: KEN H. CADWELL, PHD

Burroughs Wellcome Fund
PATH Award
"Gene-Microbe Interactions in Inflammatory Disease"
7/15/2015–7/14/2020

National Institutes of Health/National Institute of Diabetes and Digestive and Kidney Diseases
R01 DK093668
"Characterization of a Commensal Enteric Virus"
9/20/2011–5/31/2020

Kenneth Rainin Foundation
Innovator Award
"Isolation of Novel Clostridiales Strains That Can Reverse Dysbiosis"
11/1/2016–10/31/2018

PIs: KEN H. CADWELL, PHD, AND P'NG LOKE, PHD

National Institutes of Health/National Institute of Diabetes and Digestive and Kidney Diseases
R01 DK103788
"Role of Nod2 in Microbial Imbalances"
8/1/2015–7/31/2018

PI: DAN R. LITTMAN, MD, PHD

Boehringer Ingelheim
Strategic Hub for Innovative New Therapeutics Concept Exploration (SHINE) Program
"Exploring the Microbiome"
4/1/2016–3/31/2019

Kenneth Rainin Foundation
Innovator Award
"Use of Massively Parallel Single Cell Transcriptomics to Define Microbial-Regulated Host Circuits That Influence Colonic Inflammation"
10/1/2015–9/30/2018

PIs: DAN R. LITTMAN, MD, PHD, AND RICHARD BONNEAU, PHD

National Institutes of Health
R01
"A Network Model of the Gut Host-Microbe Ecosystem in Inflammatory Bowel Disease"
8/25/2014–6/30/2019

PI: LEA ANN CHEN, MD

Colton Family Foundation Colton Family Scholar
Inflammation and Immunity
7/1/2016–06/30/2018

American Gastroenterological Association
International Research Scholar Award in Gut Microbiome Research
"Microbial Predictors of Clinical Response to Biologic Therapy in IBD"
11/1/2015–10/31/2018

PI: PETER S. LIANG, MD

ReMission Foundation
"Early-Onset Colorectal Cancer and Potential Screening Disparities"
2017–2018

PI: P'NG LOKE, PHD

National Institutes of Health/ National Institute of Allergy and Infectious Diseases
R01
"Interactions Between Helminth Colonization and the Gut Microbiota"
9/1/2017–8/31/2022

PI: GEORGE MILLER, MD

GlaxoSmithKline LLC
"Research Collaboration to Test the Effect of RIP1 Inhibitor in PDA, Effects of Inhibitor on Pancreatic Cancer Cells in Vitro, Knock Down RIP1 Using siRNA and Study Pancreatic Tumor Cell Function in Vitro and in Vivo, Effects on Macrophages (Flow, Depletion, Adoptive Transfer), Effect on T cells, Changes in Cytokine and Chemokine Environment, and Combination Immunotherapy"
5/24/2017–11/23/2018

National Institutes of Health/National Cancer Institute
1R01CA215471-01A1
"Dectin-1 Signaling Drives Pancreatic Oncogenesis by Inducing Macrophage-Mediated Adaptive Immune Suppression
Aim 1: To determine the role of Dectin-1 signaling in pancreatic oncogenesis
Aim 2: To determine whether Dectin-1 signaling induces macrophage-mediated adaptive immune-suppression in PDA
Aim 3: To determine the mechanistic influence of Dectin-1 signaling on human PDA progression"
12/15/2017–11/30/2022

National Institutes of Health/ National Cancer Institute
5R01CA168611-05
"Toll-like Receptor Regulation of Pancreatic Tumorigenesis"
4/1/2013–03/31/2018

National Institutes of Health/National Cancer Institute
5T32CA193111-03
"Research Training for Physician-Scientists in Gastrointestinal Oncology"
7/1/2015–6/30/2020

National Institutes of Health/ National Institute of Diabetes and Digestive and Kidney Diseases
5F01DK106025-02
"Dectin-1 Regulates Chronic Liver Fibro-Inflammatory Disease"
8/1/2016–7/31/2019

PIs: GEORGE MILLER, MD, AND DEEPAK SAXENA, PHD

National Institutes of Health/National Cancer Institute
5R01CA206105-02
"Regulation of Pancreatic Oncogenesis by the Gut Microbiome"
1/1/2017–12/31/2021

PIs: GEORGE MILLER, MD, AND SHOHEI KOIDE, PHD

NYBO Therapeutics, Inc.
1R01CA215471-01A1
"Development of Immune Therapeutics Targeting Gamma Delta T-Cells and Galectin-9 Pancreatic Cancer Immunotherapy Development"

PI: BENJAMIN G. NEEL, MD, PHD

National Institutes of Health/ National Cancer Institute
5P30CA016087-37
Cancer Center Support Grant
12/1/1996–2/28/2018

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1,519
Beds

98
Operating Rooms

172,072
Emergency Room Visits

68,884
Patient Discharges

4,500,000
Outpatient Faculty Practice Visits

9,654
Births

3,633
Physicians

5,104
Nurses

516
MD Candidates

85
MD/PhD Candidates

263
PhD Candidates

418
Postdoctoral Fellows

1,327
Residents and Fellows

5,087
Original Research Papers

549,707
Square Feet of Research Space

$359M
NIH Funding

$364M
Total Grant Revenue

*Numbers represent FY17 (Sept 2016–Aug 2017) and include NYU Langone Hospital—Brooklyn

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