GASTROENTEROLOGY
AND GI SURGERY
2014 YEAR IN REVIEW
Dear Colleagues and Friends,

We are delighted to share with you this report on the achievements of the NYU Langone Medical Center Gastrointestinal (GI) Disease Service Line, reflecting the combined efforts of the Division of Gastroenterology and the Department of Surgery in addressing benign and malignant GI disease.

Over the past year, we have advanced our research program, our clinical mission, and our exemplary tradition of education, outreach, and service to our community and its underserved populations. We continue to work collaboratively to help forge a better future with more effective options in the screening, prevention, diagnosis, and treatment of esophageal, gastric, hepatic, pancreatic, intestinal, and colorectal diseases.

In research, we have built on a robust foundation in basic science and translational investigation and a clinical research initiative with more than 60 active clinical trials in GI and hepatobiliary cancer and other disease. One of our major areas of focus is the human microbiome and its role in numerous disease states—including obesity, inflammatory bowel disease, colorectal cancer, and pancreatic cancer—to reveal mechanisms and markers that can be targeted for intervention.

In the clinical arena, we deliver integrated, patient-centered, multidisciplinary care. Our evaluation of the latest scientific and technological advances leads us to the most optimal diagnostic and treatment options for our patients, including full-spectrum endoscopy, endoscopic cuff-assisted colonoscopy, and capsule colonoscopy for colon cancer screening; WATS3D brush biopsy for detection of Barrett’s esophagus; and 3D high-resolution manometry for the diagnosis of esophageal motility disorders.

When treatment is needed, we offer the most advanced interventions—from newly approved medical therapies to innovative, minimally invasive endoscopic and surgical technologies and techniques—and clinical trials that may provide even more promising options. Recent developments include a new interferon-free hepatitis C protocol, laparoscopic and robot-assisted surgery for GI cancers, hyperthermic therapy for colorectal cancer, a laparoscopic approach to the Whipple procedure for pancreatic cancer, advanced endoluminal treatments (POEM, ESD, etc.) and partial pancreatic resections. In addition to these ongoing advances, our faculty are contributing to the field through their leadership in professional societies, on editorial boards, and in collaborations with local, regional, and national community-based organizations.

With these developments, our care quality measures have been enhanced, including lower risk-adjusted mortality and length of stay than any of the New York institutions rated by the University HealthSystem Consortium (UHC®). We are proud that the multidisciplinary care provided by our gastroenterologists, hepatologists, oncologists, GI surgeons, and other specialists leads to optimal outcomes and experience for patients suffering from the most complex and debilitating GI and hepatobiliary conditions.
NYU Langone was among the first institutions in the United States to offer:

- Full-spectrum endoscopy
- Cuff-assisted colonoscopy
- Colon capsule endoscopy
- 3D, high-resolution esophageal manometry

20,000 endoscopy procedures annually

53% of surgical residents perform clinical or basic science research

144 gastroenterologists and hepatologists, including salaried and voluntary faculty

12 gastroenterology and hepatology practice locations

93% of graduating surgical residents go into fellowships

60+ active clinical trials are under way in gastrointestinal disease, liver disease, and liver transplant

>50% of gastroenterology fellows over the last seven years are now in advanced fellowships or academic practice

*Numbers represent FY14 (Sept 2013-Aug 2014) unless otherwise noted
NYU Langone Medical Center

Ranked #1 for Two Years in a Row
in overall patient safety and quality, among leading academic medical centers across the nation that participated in the University HealthSystem Consortium Quality & Accountability Study.

Ranked #15 on “Best Hospitals” Honor Roll
and nationally ranked in 13 specialties by U.S. News & World Report.

Ranked One of the Top 20 Medical Schools

Magnet Designation for Third Consecutive Term
for Tisch Hospital and Rusk Rehabilitation, an honor achieved by only 2% of hospitals in the country. NYU Langone’s Hospital for Joint Diseases received its first Magnet recognition in 2012.
NEW & NOTEWORTHY

Transformation through Growth and Innovation

RESEARCH

NYU Langone Receives Significant Research Funding for Pancreatic Disease

*Investigating biochemical mediators responsible for pancreatic tumor progression.* George Miller, MD, associate professor of surgery and director of the S. Arthur Localio Laboratory, has received a National Institutes of Health (NIH) $1,250,000 R01 grant for a study of “Toll-like Receptor Regulation of Pancreatic Tumor Genesis.” Postulating that ligation of toll-like receptors within the inflammatory tumor stroma drives both stromal advancement and epithelial mutagenesis via novel signaling mechanisms, the research protocol is designed to reveal whether blocking toll-like receptors is a promising approach to experimental therapeutics in pancreatic cancer.

*Necroptosis as a central mechanism governing pancreatic cancer cell demise?* Funded by a $200,000 2014 Pancreatic Cancer Action Network-AACR Innovative Grant, Dr. Miller is also investigating whether necroptosis is a central mechanism governing pancreatic cancer cellular demise. The research is intended to advance the understanding of pancreatic cancer cell biology and related development of novel therapeutics.

*Pioneering study of the oral microbiome and related pancreatic cancer risk.* Dr. Miller is the co-investigator on a $90,000 National Cancer Institute R01 grant for a “Prospective Study of Oral Microbiome in Pancreatic Cancer.” The research will investigate the latest genomic microbiome and transcriptome assays for assessing oral and pancreas microbiota, and their possible role in pancreatic cancer.

*Exploring the gut microbiome and pancreatic cancer.* Dr. Miller is co-investigator of research funded by an $840,000 Lustgarten Foundation grant to study the role of the gut microbiome in the development of pancreatic carcinogenesis.

APPOINTMENT

Laparoscopic GI Surgeon Specialist Joins NYU Langone

NYU Langone named Paresh C. Shah, MD, chief of the Division of General Surgery and vice chair of quality and innovation in surgery. He specializes in laparoscopic Whipple surgery for pancreatic cancer, other GI resections, and therapeutic endoscopy techniques such as per-oral endoscopic myotomy (POEM) and endoscopic submucosal dissection (ESD). Dr. Shah is recognized internationally as a leader in minimally invasive surgery and gastrointestinal disease. Dr. Shah serves on the board of governors of the Society of American Gastrointestinal and Endoscopic Surgeons and on the editorial review boards of *Surgical Endoscopy, Journal of the American College of Surgeons,* and *Surgery of Obesity & Related Diseases.*
EDUCATION

Potential New Funding for Research Training for GI Oncology

NYU Langone has received highly favorable scores on a recent grant application to fund “Research Training for Physician-Scientists in Gastrointestinal Oncology” from the NIH.

Gastrointestinal Oncology Research Fellowship Program among First in the Country

The new Bernard and Irene Schwartz Gastrointestinal Oncology Fellowship Program, launched in 2014, will be among the first in the country dedicated to training physician-scientists in gastrointestinal cancer research. Focus areas will include the pancreatic cancer tumor microenvironment, the molecular basis of cancer development, bacteria and viruses that influence cancer development, and gastrointestinal inflammation that can lead to cancer.

EXPANSION

Gift Propels Growth of Cancer Center

Benjamin G. Neel, MD, PhD, assumed the directorship of the Laura and Isaac Perlmutter Cancer Center (formerly NYU Cancer Institute) in January 2014. A world-renowned cancer biologist, Dr. Neel previously directed the Toronto-based Ontario Cancer Institute, Canada’s largest cancer research center. The Perlmutter Cancer Center is poised for growth following a gift in excess of $50 million from the Laura and Isaac Perlmutter Foundation to advance cancer research and treatment at NYU Langone.

O U T R E A C H

Providing Evidence for the Adverse Effects of Antibiotics

Missing Microbes: How the Overuse of Antibiotics Is Fueling Our Modern Plagues by Martin Blaser, MD, was published in 2014 and was favorably reviewed by The New York Times. The book provides evidence for the adverse effects of antibiotics, and tells what can be done to avoid catastrophic health problems in the future. Dr. Blaser is the Muriel G. and George W. Singer Professor of Translational Medicine and director of the Human Microbiome Program.

Gastroenterology Fellowship Program Produces IBD iBook

With support from an American Gastroenterological Association education grant, Sophie M. Balzora, MD, assistant professor of medicine; Lisa Malter, MD, assistant professor of medicine; and Martin Wolff, MD, senior gastroenterology fellow, developed the new iBook, NYU Langone Gastroenterology Fellowship Training Program Pocket Guide: Key Concepts in Managing Patients with Inflammatory Bowel Disease (IBD). The new resource is designed to be used on iPads or smart-phones in the management of Crohn’s disease and ulcerative colitis. The changing landscape of therapeutics makes treating patients with IBD complex, so it’s increasingly important for gastroenterology fellows to understand the complete care of IBD patients. The “pocket guide” was created to supplement gastroenterology fellowship education by providing a comprehensive, case-based, quick reference to managing IBD. The iBook was created in collaboration with the NYU School of Medicine Institute for Innovations in Medical Education. The iBook can be downloaded at iTunes, https://itunes.apple.com/us/book/key-concepts-in-managing-patients/id915394601?mt=11.
OUTREACH

Engaging with the Media to Promote Colon Cancer Screening

According to the American Cancer Society, colon cancer incidence has decreased by 30 percent over the last decade in large part due to an increase in colon cancer screening. However far too many people still forgo screening. NYU Langone is committed to helping everyone understand how screening saves lives.

*Sandra Turns 50* is a short animation developed by NYU Langone and funded by a New York Society for Gastrointestinal Endoscopy Florence Lefcourt Award designed to dispel misperceptions about colon cancer and encourage screening. Using engaging graphics and easy-to-follow narration, the video is the newest tool in NYU Langone’s robust community outreach program, and can be viewed on YouTube.

In another novel approach to community education and outreach, Jonathan LaPook, MD, the Mebane Professor of Gastroenterology and CBS News chief medical correspondent, hosted a Google+ Hangout with Mark B. Pochapin, MD, the Sholtz/Leeds Professor of Gastroenterology and director of the Division of Gastroenterology, and Gina Mileo, RN. The trio took questions from participants about the importance of colon cancer screening recommendations and options.

As a frequent contributor to Fox News, *Today*, CNN, and ABC News, Roshini Rajapaksa, MD, associate professor of medicine, is also spreading the word about the importance of colon cancer screening. She specializes in women’s health issues and has published several studies related to colon cancer screening.

PARAESOPHAGEAL HERNIAS

Repairing 100 Percent of Paraesophageal and Hiatal Hernias Laparoscopically

All repair of paraesophageal and hiatal hernias is performed laparoscopically at NYU Langone, helping to reduce length of stay and improve patient experience. Paraesophageal hernias are on the rise, and NYU Langone is also a high-volume center, performing close to 50 repairs a year.
Awards and Recognitions

- **Dafna Bar-Sagi, PhD**, senior vice president, vice dean for science, and chief scientific officer, received a 2014 Pancreatic Cancer Action Network - AACR Innovative Grant to study whether anatomical location in the pancreas can dictate the course of tumor development. In 70 to 80 percent of cases, pancreatic ductal adenocarcinoma develops in the pancreas head and uncinate process regions, leading to speculation about the importance of location in tumor development.

- **Russell S. Berman, MD**, associate professor of surgery, won the 2014 Alpha Omega Alpha Alumni Award and was appointed chairman of the Society of Surgical Oncology SCORE Committee. He is also an associate examiner for the American Board of Surgery, associate editor of the *Journal of the National Cancer Institute*, and a member of the National Cancer Institute’s PDQ® Adult Treatment Editorial Board.

- **Mitchell A. Bernstein, MD**, associate professor and director, colon and rectal surgery, and **Harvey G. Moore, MD**, assistant professor of surgery, are collaborating with principal investigator Cynthia G. Leichman, MD, to examine the “Gene Methylation Profile of Rectal Cancer and its Predictive Value for Response to Neoadjuvant Chemoradiation Therapy.”

- Audio-Digest Foundation’s General Surgery Board Review will feature a course on Anal Cancer by **Mitchell A. Bernstein, MD**.

- **Martin J. Blaser, MD**, the Muriel G. and George W. Singer Professor of Translational Medicine and director of the Human Microbiome Program, received the Pancreatic Cancer Action Network-AACR Innovative Award.

- **Lea Ann Chen, MD**, instructor in medicine, was elected vice chair of the New York Crohn’s and Colitis Organization and serves on the organization’s executive council.

- **Ilseung Cho, MD**, assistant professor of medicine, received a 2014 Clinical Scientist Development Award from the Doris Duke Charitable Foundation. The award will support Dr. Cho’s research into the role of the human microbiome in the development of colon cancer. He hypothesizes that the human microbiome may cause hypermethylation of specific DNA repair genes, impairing the body’s ability to repair damaged cells and leading to precancerous and cancerous lesions. Dr. Cho's previous research revealed possible links between the human microbiome and obesity, and was published in *Nature* and *Cell*.

- **Donnele Daley, MD**, teaching assistant in the Department of Surgery, received the Schwartz GI Fellowship for her research work under the mentorship of George Miller, MD.
NEW & NOTEWORTHY

George A. Fielding, MD, the J. Ira and Nicki Harris Family Professor of Surgery and Bariatric Medicine, was named one of the 30 most influential members of the American Society of Metabolic and Bariatric Surgery over the last 30 years.

Fritz François, MD, associate professor of medicine, was named recipient of the American College of Gastroenterology’s Minority Digestive Health Care Award. The judges cited his active involvement in clinical practice/clinical research and efforts to improve the digestive health of a minority group or underserved population.

Adam J. Goodman, MD, assistant professor of medicine and director of endoscopy at Bellevue Hospital Center, has been named vice president of the New York Society for Gastrointestinal Endoscopy. He will become the society’s president in 2015.

Seth A. Gross, MD, associate professor of medicine and gastroenterology section chief, was appointed an associate editor of the American Society for Gastrointestinal Endoscopy (ASGE) journal Gastrointestinal Endoscopy. He also serves on the ASGE practice management committee, and on the American College of Gastroenterology (ACG) training committee, and educational affairs committee. He is editor of ACG Universe and is the ACG’s American Board of Internal Medicine liaison.


Seymour Katz, MD, clinical professor of medicine, was named to the New York Crohn’s and Colitis Organization executive council.
Harvey G. Moore, MD, assistant professor of surgery, received the “Works in Progress Award” from the American Society of Colon and Rectal Surgeons Research Foundation for his paper, “Novel Inhibitors of WNT/β-Catenin Responsive Transcription Augment Response of HCT116 CRC Cells to Radiation In Vitro and In Vivo.” He was also named a total mesorectal excision-credentialed surgeon by the Alliance for Clinical Trials in Oncology and serves on the Fundamentals of Rectal Cancer Surgery Committee of the American Society of Colon and Rectal Surgeons.

H. Leon Pachter, MD, the George David Stewart Professor of Surgery and chair of the Department of Surgery, serves on the editorial boards of Annals of Surgery and The Journal of Trauma and Critical Care.

Mark B. Pochapin, MD, the Sholtz/Leeds Professor of Gastroenterology and director of the Division of Gastroenterology, has been reappointed to the steering committee of the National Colorectal Cancer Roundtable.

He also serves on the board of trustees of the American College of Gastroenterology (ACG) and as director and treasurer of the ACG and American Society for Gastrointestinal Endoscopy’s collaborative GIQuIC quality initiative.

Paresh C. Shah, MD, professor of surgery and vice chair of quality and innovation in surgery, was the recipient of the Excellence in Medical Leadership Award from the Society of American Gastrointestinal and Endoscopic Surgeons.

Alejandro Torres-Hernandez, MD, postdoctoral fellow under the mentorship of Dr. George Miller, was awarded the “Emerging Liver Scholar Award” from the American Association for the Study of Liver Diseases.

Lewis W. Teperman, MD, associate professor of surgery, was named Physician of the Year in 2014 by the American Liver Association Greater New York Division.
NYU Langone researchers are dedicated to fully understanding the gut, the immune system’s largest sensory organ; gut microbiome; and its role in gastrointestinal disease, prevention, and treatment.
Cultivating Insights from the Microbiome

One Cause of Obesity May Be Microbiome Alterations

Bacteria living in the human gastrointestinal tract outnumber human cells by a factor of 10—and the aggregate genetic information contained within those bacteria is several magnitudes greater than that found in the host human genome. This emerging field of research is revealing that perturbing our resident microbial communities at critical time points can have damaging—and lasting—consequences. Martin J. Blaser, MD, the Muriel G. and George W. Singer Professor of Translational Medicine and director of the Human Microbiome Program, is leading a research team to shed new light on how antibiotics can profoundly reshape the microbial communities that live within us and contribute to chronic conditions.

According to this research, conducted by Ilseung Cho, MD, assistant professor of medicine, these alterations in the gut microbiome may be driving certain cases of obesity. Sub-therapeutic antibiotics are regularly given to animals in the agricultural industry to promote growth by allowing feed to be more thoroughly digested and absorbed. Those antibiotics subsequently enter the food chain and may promote similar effects in humans. There may also be a link between obesity and the over-prescription of therapeutic antibiotics in humans for various childhood infections. “We’ve developed a murine model to demonstrate that exposure to low-dose antibiotics can permanently change the gut microbiome, leading to weight gain and altered body composition,” says Dr. Cho. NYU Langone is dedicated to fully understanding the gut, the immune system’s largest sensory organ; gut microbiome; and its role in gastrointestinal disease, prevention, and treatment.

Investigating Gut Microbiome Changes in Pediatric Patients with C. difficile Colitis

According to the Centers for Disease Control and Prevention, about 14,000 Americans die each year from Clostridium difficile, or C. diff, infection. Antibiotics often can be ineffective in treating this infection, and fecal microbial transplant has been demonstrated in most studies to date to be more than 90 percent effective in treating C. diff cases in patients who do not respond to conventional antibiotic therapies.

In a collaborative effort with the Johns Hopkins School of Medicine, NYU Langone’s Lea Ann Chen, MD, instructor of medicine, is investigating the gut microbiome of pediatric patients ages 6 to 17 with C. diff colitis who have failed conventional therapies, observing changes following fecal transplant. Each patient serves as his or her own control; researchers collect stool samples before and after fecal transplant. As a second control, researchers collect stool samples from fecal transplant donors (usually an adult family member).

As she explains, “We’re evaluating the differences between the gut microbiome of healthy donors and children who have recurrent C. diff infections requiring fecal transplant, to better understand why the transplants work and why certain patients, such as those with inflammatory bowel disease, are at increased risk for recurrent C. diff infections.”
THE HUMAN MICROBIOME

Linking the Microbiome, Pancreatic Inflammation, and Cancer

George Miller, MD, associate professor of surgery and director of the S. Arthur Localio Laboratory, is studying inflammatory conditions, such as pancreatitis, that represent well-known risk factors for pancreatic cancer. In the May/June 2014 issue of Cancer Journal, our researchers reported that a substantial amount of preclinical and clinical evidence suggests that bacteria are likely to influence this process by activating immune receptors and perpetuating cancer-associated inflammation. Recent investigations of the human microbiome have highlighted how perturbations of commensal bacterial populations can promote inflammation and disease processes, including cancer. Revealing the interplay between inflammation and the microbiome in the context of pancreatic cancer will provide novel targets for prevention and treatment.

EVIDENCE SHOWS GUT VIRUSES ALSO PLAY ROLE IN INTESTINAL ECOSYSTEM

NYU Langone microbiologists have what may be the first strong evidence that the natural presence of viruses in the gut—or the “virome”—plays a health maintenance and infection-fighting role similar to that of intestinal bacteria. In a series of experiments reported November 19, 2014 in Nature Online, researchers found that infection with the common murine norovirus helped mice repair intestinal tissue damaged by inflammation and restore the gut’s immune defenses after its microbiome had been wiped out by antibiotic therapy. They also report that murine norovirus bolstered the immune system. “Our research offers compelling data about the mutually supportive relationship between viruses and bacteria in the mouse gut, and lays the groundwork for further research on precisely how the virome supports the immune system,” concludes Ken Cadwell, PhD, assistant professor of microbiology and principal investigator of the Cadwell Laboratory.
Radiologic imaging plays an essential role in supporting all of the medical and surgical specialties at NYU Langone and throughout the community. With quality and safety at its core, our model of patient-centered care includes a highly focused program of process improvement along with the ongoing investment in the technology and resources necessary to sustain excellence in patient care, research, and education.
Our clinicians are leading the way in the use of novel approaches to the prevention, diagnosis, and treatment of gastrointestinal conditions.
Reducing a Preventable Burden

Among the First to Offer and Evaluate New Colonoscopy Technologies

Colonoscopy remains a gold standard in colon cancer screening, and NYU Langone gastroenterologists are among the first in the nation to offer the latest colonoscopy technologies and techniques. “The focus remains always on quality in endoscopy,” says Mark B. Pochapin, MD, the Sholtz/Leeds Professor of Gastroenterology and director of the Division of Gastroenterology, “along with a positive patient experience for this life-saving screening.”

- **Full-spectrum endoscopy technology.** While traditional colonoscopy provides a 170-degree view of the colon, the new full-spectrum endoscopy technology allows for a 330-degree visual field. This new, expanded optical view offers promise in enhancing the endoscopist’s ability to spot potentially hidden polyps and thus increase polyp/adenoma detection rates.

- **Endoscopic cuff-assisted colonoscopy.** With endoscopic cuff-assisted colonoscopy, a soft, flexible projection is attached to the end of the colonoscope. During withdrawal, the tiny flexible fingers of the cuff help grip the colon wall to mechanically flatten folds and enhance visualization of potentially hidden polyps.

- **New FDA-approved colon capsule endoscopy.** NYU Langone gastroenterologists offer the new, Food and Drug Administration (FDA)-approved colon capsule endoscopy for the small subgroup of patients who undergo an incomplete colonoscopy. The camera pill is utilized to capture images from the area of the colon that could not be viewed during the original colonoscopy procedure.

- **A non-oral, same-day prep regimen.** NYU Langone offers select patients the option of colonic irrigation—a bowel prep technique for patients whose co-morbidities contraindicate the use of the oral prep, who cannot tolerate the oral prep regimen, or for whom the oral prep is insufficient to allow for effective visualization of the colon. This technique offers a non-oral, same-day prep regimen for patients in need of this option.

- **Balloon-assisted colonoscopy.** Balloon-assisted colonoscopy is being evaluated for effectiveness by NYU Langone gastroenterologists. With this technique, the colonoscopy is fitted with an integrated, reusable balloon. Upon reaching the cecum, the balloon is inflated. As the colonoscope is withdrawn, the balloon acts to smooth out folds on the colon wall. In a recent multicenter tandem study presented at national and international conferences, Seth A. Gross, MD, associate professor of medicine and gastroenterology section chief; Mark B. Pochapin, MD, the Sholtz/Leeds Professor of Gastroenterology and director of the Division of Gastroenterology; and colleagues compared balloon-assisted with traditional colonoscopy, finding improved polyp and adenoma detection rates with the balloon-assisted technology.
Minimally-invasive Approaches Preserve Function and Shorten Recovery

NYU Langone is at the forefront of minimally invasive surgery (including the TAMIS transanal minimally invasive technique), with the vast majority of colorectal surgeries performed laparoscopically compared to approximately 20 percent nationally. NYU Langone was the first medical center in New York City to perform colorectal surgery robotically over a decade ago. Experts at the Robotic Surgery Center are international leaders in performing a wide range of minimally invasive procedures with robotic assistance. “The robot can be helpful particularly with colorectal cancer situated in the lower rectum,” explains Elliot Newman, MD, professor of surgery, “where the robot’s precision and maneuverability help preserve normal bowel function and can avoid the need for permanent colostomy.” Surgeons perform more than 1,600 robot-assisted surgeries each year in dedicated operating rooms using one of five state-of-the-art surgical systems that include advanced infrared imaging, dual consoles, and the latest da Vinci® Si and Xi surgical systems. NYU Langone gastroenterologists also use minimally invasive colonoscopic techniques, including endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) to remove large polyps and early-stage cancer of the rectum without a major operation. “Within the context of personalized patient care,” says Dr. Newman, “NYU Langone offers a full range of minimally invasive surgical and endoscopic procedures for colorectal cancer when they are appropriate and may result in faster recovery and reduced length of stay.”

Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Plus Cytoreductive Surgery Applied to Colorectal Tumors

NYU Langone has an active program to treat peritoneal surface malignancy. Under certain circumstances, gastrointestinal tract malignancies and other types of tumors can spread along the linings of the intra-abdominal organs and the inner lining of the abdominal wall itself. Sometimes, this is more gelatinous or liquid than solid. This process is commonly called carcinomatosis or pseudomyxoma (if more gelatinous). With colorectal and appendiceal cancers, and even appendiceal tumors that are not clearly cancer, this type of spread can be treated by debulking the tumor strips or masses through cytoreductive surgery followed by direct installation of heated chemotherapy (hyperthermic intraperitoneal chemotherapy, or HIPEC) into the abdominal cavity during surgery. This approach may also be an option for other types of cancers. By delivering chemotherapy directly, HIPEC enables drug-to-tumor contact, increases efficacy, allows for a much higher chemotherapy concentration than would be possible with intravenous therapy, and minimizes side effects, notes Russell S. Berman, MD, associate professor of surgery.

Promoting Colon Cancer Screening in the African American Community

Focusing on barriers to care in the African American community, particularly in relation to increasing colon cancer screening, Joseph Ravenell, MD, assistant professor of medicine, has identified intrinsic and extrinsic barriers to health and primary healthcare use among African Americans in a low-income, urban area. Expanding on community-based research models that Dr. Ravenell and Olugbenga G. Ogedegbe, MD, professor of population health and medicine and director of NYU Langone’s Center for Healthful Behavior Change, developed around hypertension, Dr. Ravenell is leading National Institutes of Health (NIH)-funded research utilizing a faith-based approach to colon cancer screening in the New York City African American community. As part of this cluster-randomized controlled trial, Dr. Ravenell’s team has provided educational interventions about colorectal cancer in 89 churches and mosques, reaching nearly 3,380 black men age 50 and older and enrolling 451 participants in the study. Additionally, they have trained over 100 lay health workers at these churches to deliver colorectal cancer screening information to their congregations. The researchers hope this program will serve as a new model for evidence-based education/outreach and linking faith-based settings to the healthcare system, thereby increasing colon cancer screening in African American men nationwide.
At the weekly Multidisciplinary Gastrointestinal and Hepatobiliary Cancer Patient Case Conference, NYU Langone physicians present complex patient cases for discussion. Together, gastroenterologists, hepatologists, surgeons, medical oncologists, radiation oncologists, interventional radiologists, transplant specialists, and others confer to develop a team recommendation for these patients’ treatment plans. Importantly, appropriate clinical trials and clinical support services are also discussed to optimize care.
New Hope for Those at Risk

A New Hepatitis C Treatment Offers Nearly 100 Percent Cure

An estimated 3.2 million people in the United States have chronic hepatitis C infection, and approximately 75 percent of them are baby boomers. With such a large number affected, finding better, less toxic medical therapies is crucial. A study conducted by Samuel Sigal, MD, associate professor of medicine and clinical director of hepatology, has shown promising results for a new hepatitis C treatment recently approved for use by the Food and Drug Administration (FDA). The international, phase 3 study reported in The New England Journal of Medicine demonstrated the efficacy of an interferon-free, all-oral antiviral therapy for previously untreated patients with HCV genotype 1 infection and without cirrhosis. “We now have a treatment shown to deliver close to 100 percent cure with minimal side effects, and that’s a hepatitis C game changer,” says Dr. Sigal.

NYU Langone’s liver disease program is a model of advanced, integrated care provided by leading specialists, including hepatologists, transplant hepatologists, interventional radiologists, GI surgeons, surgical oncologists, transplant surgeons, and medical oncologists. They employ a full range of modalities to diagnose and treat liver disease, including minimally invasive robotic and laparoscopic surgery, ablation for lesions not amenable to direct resection, and directed radiation therapy to deliver microspheres directly into a tumor’s arterial supply. A robust research program offers patients the opportunity to participate in the latest clinical trials as NYU Langone scientists work to develop new treatments and, eventually, prevent liver disease. As part of NYU Langone’s liver disease program, The Mary Lea Johnson Richards Organ Transplantation Center provides liver transplant, non-transplant hepatobiliary surgery, and liver cancer resection. Lewis Teperman, MD, associate professor of surgery and director of the Mary Lea Richards Organ Transplantation Center says, “The liver transplant program has been at the forefront of treating hepatitis C, pre- and post-transplantation. Our most recent study has shown a better than 90 percent success rate for post-transplant hepatitis C using the recently approved FDA medications.” Although hepatitis C can be cured, prudent surveillance for hepatocellular carcinoma (HCC) is mandatory. HCC remains the primary indication for liver transplantation at our institution.

Serving Asian American Communities at Risk

With 1.1 million Asian American residents, New York City is home to the largest population of Asian Americans in the United States. Unfortunately, liver disease is a leading cause of death in this population, and Asian Americans have the highest incidence of liver cancer of any racial/ethnic group. NYU Langone’s Asian Liver Disease Program is focused specifically on the needs, diagnosis, and treatment of Asian Americans, providing multidisciplinary medical, surgical, and support services. James Park, MD, assistant professor of medicine and director of the Asian Liver Disease Program, explains, “By focusing on this population, we hope to reduce the morbidity and mortality associated with liver cancer and other liver disease in Asian Americans.”
Although the understanding of cellular and biochemical factors underlying liver fibrosis is still rudimentary, an NYU Langone research study being funded by a 2014 K08 award and an R03 award from the National Institute of Diabetes and Digestive and Kidney Diseases promises to lead to a new area of experimental therapeutics. George Miller, MD, associate professor of surgery and director of the S. Arthur Localio Laboratory, is studying the role of dendritic cells in the pathogenesis of liver fibrosis. Dr. Miller’s preliminary data show that in hepatic fibrosis, dendritic cells are remarkably effective at engaging both innate and adaptive immunity. Moreover, dendritic cells are entirely responsible for the elevated hepatic cytokine milieu in the fibrotic liver. The increased inflammation and enhanced stimulation of T cells and NK cells by dendritic cells in liver fibrosis is contingent on their elevated production of TNF-α. Researchers hope to determine whether dendritic cells convert from inert inducers of tolerance to potent immune stimulators in liver fibrosis, determine the contributory role of dendritic cells in the pathogenesis of fibrosis and their direct role in hepatic stellate cell activation, and determine whether blockade of the immunogenic function of dendritic cells can mitigate the fibrogenic response to liver injury.
A Better Biopsy for Detecting Barrett’s Esophagus

Wide-area transepithelial sampling (WATS®) brush biopsy with computer-assisted tissue analysis increases detection of Barrett’s esophagus, according to new research presented at the May 2014 international Digestive Disease Week conference and led by Seth A. Gross, MD, associate professor of medicine. Traditional forceps biopsy alone can leave tissue not sampled that could harbor advanced dysplasia or neoplasia. By contrast, in a study of 2,559 patients who underwent upper endoscopy, the addition of WATS® identified an additional 258 instances of Barrett’s esophagus—increasing detection by 68.4 percent. WATS® also detected an additional 10 cases of dysplasia and one cancer missed by forceps biopsy. Adjunctive use of WATS® increased dysplasia/neoplasia detection by 64.7 percent. “In light of recent changes to Barrett’s esophagus management guidelines,” says Dr. Gross, “improved dysplasia detection is critical—and the WATS® approach offers promise in this area of medicine.” When further treatment is needed, NYU Langone employs a range of endoscopic interventions, including endoscopic submucosal dissection (ESD), endoscopic mucosal resection (EMR), radiofrequency ablation, and cryotherapy.

NYU Langone’s Center for Esophageal Disease brings together specialists highly experienced in the prevention, diagnosis, and treatment of the full range of esophageal disease, including chronic gastroesophageal reflux disease (GERD), hiatal hernia, swallowing disorders, Barrett’s esophagus, and esophageal cancers. The center offers the newest diagnostic tests, including high-resolution manometry, pH and impedance testing, endomicroscopy, endoscopic and surgical ultrasound, and upper endoscopy as well as advanced endoscopic interventions.
New Manometry Technologies Offer Promise in Esophageal Motility Disorders

NYU Langone is studying the latest technologies in the diagnosis and treatment of reflux disease, achalasia, and other swallowing disorders. One example of this research initiative includes evaluation of new three-dimensional (3D) high-resolution manometry for esophageal disease. “The 3D component has been found to be useful in anorectal manometry testing, and we are now investigating the application and potential benefits of this technology for esophageal disease, including achalasia and upper esophageal sphincter dysfunction,” says Abraham Khan, MD, assistant professor of medicine. “We’re offering the new 3D technology in addition to the high-resolution component of esophageal manometry, which allows for simultaneous testing of pressures from the pharynx to stomach, thus ensuring a complete profile and accurate diagnosis of any potential motility disorder.”

Lymph Node Ratio Affects Prognosis in Gastroesophageal Cancer

Depth of invasion and the presence or absence of lymph node metastasis are the most important prognostic factors in gastroesophageal cancer. But according to research being conducted by NYU Langone, presented during the American College of Surgeons Clinical Congress in Washington, DC, in October 2013, the ratio of the number of nodes harboring metastatic cancer to the total number of lymph nodes examined may affect survival after esophageogastric resection. While classification of lymph node status in patients with gastric cancer remains controversial, researchers are looking to see if a higher lymph node ratio correlates with adverse pathologic features and is a negative prognostic factor in patients undergoing radical resection for gastroesophageal cancer.

Minimally Invasive Interventions for GERD and Achalasia

NYU Langone is one of the first medical centers in New York State to offer LINX for the treatment of GERD resulting from a weak lower esophageal sphincter (LES). LINX is a small flexible band of interlinked titanium beads with magnetic cores. The magnetic attraction between beads helps the LES resist opening to gastric pressures, preventing reflux from the stomach into the esophagus. Treatments for achalasia include pneumatic dilation laparoscopic Heller myotomy as per-oral endoscopic myotomy (POEM).
**Fighting a Difficult Cancer On Every Front**

**CLINICAL CARE**

**Experienced Team Improves Outcomes for Patients with Complex Pancreatic Disease**

According to the National Cancer Institute, approximately 1.5 percent of men and women will be diagnosed with pancreatic cancer at some point during their lifetime, based on 2009-2011 data. NYU Langone is among the top 10 performers in the nation in General Surgery in terms of mortality, according to the University HealthSystem Consortium.

NYU Langone surgeons are experts in performing Whipple surgery, or pancreaticoduodenectomy—a complex operation involving removal of the head of the pancreas and portions of the duodenum, gallbladder, bile duct and stomach—that has dramatically improved outcomes for eligible patients. Pancreatic resection and Whipple provide important options for eligible patients and the opportunity for long-term survival. Regardless of stage, we offer a full spectrum of options including surgery, chemotherapy, radiotherapy, biologic therapy, and clinical trials at the Laura and Isaac Perlmutter Cancer Center at NYU Langone.

For patients eligible for Whipple surgery, a subset of cases may warrant a laparoscopic approach. "Most patients leave the hospital in four to six days following laparoscopic Whipple surgery compared with eight to 10 days following conventional Whipple surgery," says Paresh C. Shah, MD, professor and chief of the Division of General Surgery, who specializes in the procedure and is considered an international leader in minimally invasive surgery for pancreatic cysts and tumors.

Research at NYU Langone has shown that Whipple surgery can also improve outcomes for octogenarian patients with pancreatic adenocarcinoma. While some studies have found acceptable morbidity and mortality in patients over age 70, there is little data on outcomes of Whipple surgery for patients over age 80. Marcovalerio Melis, MD, associate professor of surgery, studied short-term outcomes and long-term survival in patients aged 80 or older, and demonstrated that pancreatic resection for pancreatic adenocarcinoma or other malignancy can be performed safely and with acceptable complication rates in well-selected octogenarians. "Multidisciplinary treatment planning and careful selection for surgery is critical," said Dr. Melis. "But the opportunity for cure should not be denied to people past 80 with pancreatic adenocarcinoma based solely on age."

**Pancreaticoduodenectomy outcomes of patients aged 80 and older show that the procedure can be performed safely in this group**

NYU Langone researchers have found a biological weakness in the workings of the most commonly mutated gene involved in human cancers, mutant K-Ras. The gene has long been suspected of being the force behind more than a third of all cancers, including colon, lung, and a majority of pancreatic cancers. Ras cancers are unusually aggressive and have resisted every previous attempt to stall their growth. Reporting online February 10, 2014 in *Cancer Cell*, researchers in the laboratory of Dafna Bar-Sagi, PhD, senior vice president, vice dean for science, and chief scientific officer, led by Elda Grabocka, PhD, post-doctoral fellow, found that K-Ras tumor growth was highly dependent on the cells’ constant need to check and mend their DNA. This opens the door to development of chemotherapies designed to thwart K-Ras.

**Stalling the Growth of Previously Untreatable K-Ras Cancers**
Experts are using endoscopic ultrasound combined with endomicroscopy to study and better characterize pancreatic cysts and their potential to progress malignancy.

Improving Pancreatic Cyst Understanding and Management

The best approach to the monitoring and treatment of pancreatic cysts continues to be an area of study and discussion. To collect important data in this area of care, NYU Langone gastroenterologists, surgeons, radiologists, and other specialists have developed a patient registry from among the approximately 900 pancreatic cysts detected at the Medical Center each year. In addition, they have developed a Medical Center-specific clinical algorithm to better risk-stratify patients who have pancreatic cysts. Over the next decade, they will be studying data gleaned from the patient registry and clinical algorithm with the goal of contributing to the knowledge base around pancreatic cysts, factors that may predict malignancy, and effective monitoring and treatment options. This multidisciplinary team is also employing innovative new approaches and technologies to optimize outcomes for patients with pancreatic cysts. For example, Seth A. Gross, MD, associate professor of medicine and gastroenterology section chief, is using endoscopic ultrasound combined with endomicroscopy to study and better characterize pancreatic cysts and their potential to progress to malignancy.
Research

We continue to build upon our robust foundation in basic science and translational investigation.
Select Active Research Grants

National Institutes of Health / R01 CA168611
04/01/13–03/31/17
George Miller, MD (Principal Investigator)
“Toll-like Receptor Regulation of Pancreatic Tumorigenesis”

National Institutes of Health / R03 DK098303
02/15/13–02/14/15
George Miller, MD (Principal Investigator)
“Effect of dendritic cell lipid content on hepatic inflammation and NASH pathogenesis”

National Institutes of Health / K08 DK085278
01/01/10–12/31/14
George Miller, MD (Principal Investigator)
“Role of dendritic cells in the pathogenesis of liver fibrosis”

National Institutes of Health / R03 DK098303
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George Miller, MD (Principal Investigator)
“Role of dendritic cells in the pathogenesis of liver fibrosis”

National Institutes of Health / R01 CA168611
04/01/13–03/31/17
George Miller, MD (Principal Investigator)
“Toll-like Receptor Regulation of Pancreatic Tumorigenesis”

National Institutes of Health / R24 OD18340
03/01/14–02/28/16
David Levy (Principal Investigator)
“Restoring Biospecimen Research Resources Lost Due to Superstorm Sandy”

National Institutes of Health / R01 CA164964
09/01/14–06/30/18
Jiyoung Ahn, PhD (Principal Investigator)
“Prospective Study of Oral Microbiome with Pancreatic Cancer”

American Liver Foundation Postdoctoral Fellowship Award
07/01/14–06/30/15
Lena Tomkoetter, MD (Principal Investigator)
“The role of γδ T cells in pancreatic tumorigenesis”

German Research Foundation (Federal Career Development Award)
09/01/14–08/31/17
Lena Tomkoetter, MD (Principal Investigator)
“The role of γδ T cells in pancreatic tumorigenesis”

Lustgarten Foundation Grant
01/01/14–06/30/18
Jiyoung Ahn, PhD (Principal Investigator)
“Prospective Study of Oral Microbiome with Pancreatic Cancer”

Pancreatic Cancer Action Network-AACR Innovative Grant
07/01/14–06/30/16
George Miller, MD (Principal Investigator)
“Regulation of Pancreatic Tumorigenesis by Necroptosis”

Ralph S. French Charitable Foundation
05/01/14–04/31/15
George Miller, MD (Principal Investigator)
“Role of the intestinal microbiome in promoting pancreatic carcinogenesis”

Schwartz Research Fellowship in GI Oncology
Donnele Daly, MD (Principal Investigator)
“The role of γδ T cells in pancreatic tumorigenesis”

Doris Duke Charitable Foundation
07/01/14–06/30/17
Ilseung Cho, MD (Principal Investigator)
“Hypermethylation as a Microbiome-Mediated Epigenetic Phenomenon in CIMP(+) Colorectal Cancers”

DoD - Peer Reviewed Medical Research Program (PRMRP)
09/01/14–08/31/15
George Miller, MD (Principal Investigator)
“Divergent Effects of Dendritic Cells on Pancreatitis”
SELECT PUBLICATIONS


Hochberg MS, Berman RS, Kalet AL, Zabar SR, Gillespie C, Pachter HL. The surgical Apgar score is associated with the need for post-operative ICU admission. *J Gastrointest Surg*. 2013;17(2):141-146.


LOCATIONS

1. NYU Langone Gastroenterology Ambulatory Care Center,
   240 East 38th Street, New York, NY

2. NYU Langone Hepatology
   530 First Avenue, Suite 4J, New York, NY
   NYU Langone Colorectal Surgery
   530 First Avenue, Suite 7V, New York, NY
   NYU Langone General and Pancreas Surgery
   530 First Avenue, Suite 6C, New York, NY

3. Laura and Isaac Perlmutter Cancer Center
   160 East 34th Street, Ninth Floor, New York, NY

4. Joan H. Tisch Center for Women’s Health
   207 East 84th Street, New York, NY

5. Preston Robert Tisch Center for Men’s Health
   555 Madison Avenue, Second Floor, New York, NY

6. NYU Langone at Trinity Center
   111 Broadway, Second Floor, New York, NY

7. NYU Langone Ambulatory Care Center-West Side
   355 West 52nd Street, Sixth Floor, New York, NY

8. NYU Langone Transplant
   403 East 34th Street, Third Floor, New York, NY

9. NYU Langone East 35th Street
   245 East 35th Street, New York, NY

10. NYU Langone at Columbus Medical
    97-85 Queens Boulevard, Rego Park, NY

11. NYU Langone at Great Neck
    488 Great Neck Road, Great Neck, NY

12. NYU Langone Nassau Gastroenterology
    1000 Northern Boulevard, Great Neck, NY

13. NYU Langone Brooklyn Gastroenterology
    1630 East 14th Street, Brooklyn, NY
    NYU Langone Brooklyn Endoscopy and Ambulatory Surgery Center
    1630 East 14th Street, Brooklyn, NY

14. NYU Langone Levit Medical–Midwood
    1220 Avenue P, Brooklyn, NY

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NYU LANGONE MEDICAL CENTER
by the numbers*

1,069
Total Number of Beds

1,408
Full-Time Faculty

4,000+
Publications

650
MD Candidates

77
Operating Rooms

1,047
Part-Time Faculty

550,000
Square Feet of Research Space

70
MD/PhD Candidates

35,666
Patient Admissions

2,500+
Voluntary Faculty

$245MM
NIH Funding

252
PhD Candidates

1,061,552
Hospital-Based Outpatient Visits

120
Endowed Professorships

$285MM
Total Grant Funding

415
Postdoctoral Fellows

5,422
Births

2,515
Physicians

2,053
Inventions

1,155
Residents and Fellows

2,000,000
Faculty Group Practice
Office Visits

2,953
Registered and Advanced
Practice Nurses

936
US Patents Issued

475
US Patents Licensed

550+
Allied Health Professionals

*Numbers represent FY14 (Sept 2013-Aug 2014); inventions/patents are cumulative through Aug 31, 2014