NYU Langone MEDICAL CENTER

2016 / YEAR IN REVIEW

Urology

TOP 10
IN *U.S. NEWS & WORLD REPORT*

PIONEERING
FOCAL ABLATION

TOP 6
IN NIH FUNDING FOR UROLOGY

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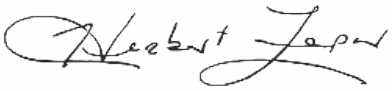
Dear Colleagues and Friends:



HERBERT LEPOR, MD

Professor, Urology and Biochemistry and Molecular Pharmacology

Martin Spatz Chair of the Department of Urology

Chief, Urology

NYU Langone Medical Center

As chair of the Department of Urology at NYU Langone, I take great pride in how we have demonstrated leadership in the urology community over the years. From our outstanding NIH-funded research faculty, to our leadership roles in national professional organizations, to our seats on the editorial boards of major peer-reviewed journals, our faculty is committed to demonstrating excellence in our profession.

This year in particular provided a number of opportunities for our faculty to showcase its leadership at the national level. We—more than a half dozen urology faculty and I—were honored to serve in speaking roles at key plenary sessions and panel discussions at the American Urological Association Annual Meeting in May 2016. Our faculty led sessions on management of kidney cancer, female pelvic issues, and a range of prostate issues. Victor Nitti, MD, professor of urology and obstetrics & gynecology, serves as the director of Education for the American Urological Association, and his innovative approach to continuing medical education is transforming the way urologists stay up to date with fast-moving advances in the field.

Our prominent role at the AUA reflects the drive of both our clinical and our research faculty to continually improve patient care, not just in our New York facilities but in the nation and the world. While we innovate here, we take seriously our mission to reach out to the wider urology community with activities ranging from offering four annual continuing medical education courses to helping set clinical best practices by serving on national society committees. Almost 500 urologists from every state in the union rely on our team for their continuing medical education. Our faculty is also helping to set clinical best practices by serving on national guidelines committees.

We have redoubled our commitment to clinical and translational research. Our faculty initiated or opened several investigator-initiated clinical trials across a range of disease states in 2016. With the assistance of our expanding Clinical Trials Office, our faculty have partnered with pharmaceutical and biotechnology companies to offer cutting-edge treatments available only here at NYU Langone.

We continue to make progress in fulfilling our mission to transform the way urologists screen, image, biopsy, and treat prostate cancer. We pursue a personalized approach to treating prostate cancer, engaging both patients and their partners in deciding whether to pursue active surveillance, focal ablation, or radical prostatectomy. NYU Langone is also a leader in non-prostate urologic oncology, female pelvic medicine and reconstructive surgery, and gender-confirmation surgery.

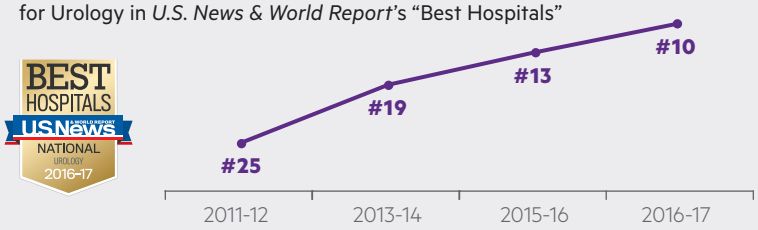
In this 2016 Year in Review, we offer highlights that feature our exceptional clinicians, who are making strides in understanding the basic biology of urological diseases, using evidence-based medicine to shift best practices at the national scale, and partnering across the Medical Center and beyond to continually improve the care we offer our patients.

Urology

#10

IN THE COUNTRY

for Urology in *U.S. News & World Report*'s "Best Hospitals"



2 P01

NCI PROGRAM PROJECT GRANTS

with a focus on molecular tumorigenesis of bladder cancer and urothelial biology

4

UROLOGY CME COURSES

offered annually at NYU Langone

10+

SUBSPECIALTIES

1 IN 8

PRACTICING U.S. UROLOGISTS

have come to NYU Langone for postgraduate education

160+

PUBLICATIONS

produced by Urology faculty in FY16

61

ABSTRACTS

presented at the AUA 2016 meeting

PRIORITIZING DETECTION

OF CLINICALLY SIGNIFICANT PROSTATE CANCER

while helping to preserve men's quality of life

Numbers represent FY16 (Sept 2015–Aug 2016) unless otherwise noted

NYU Langone Medical Center

#10

IN THE NATION
BEST HOSPITALS

and nationally ranked in 12 specialties, including top 10 rankings in Orthopaedics, Geriatrics, Neurology & Neurosurgery, Rheumatology, Rehabilitation, Cardiology & Heart Surgery, and Urology. Nationally ranked in Cancer, Diabetes & Endocrinology, Ear, Nose & Throat, Gastroenterology & GI Surgery, and Pulmonology

#11

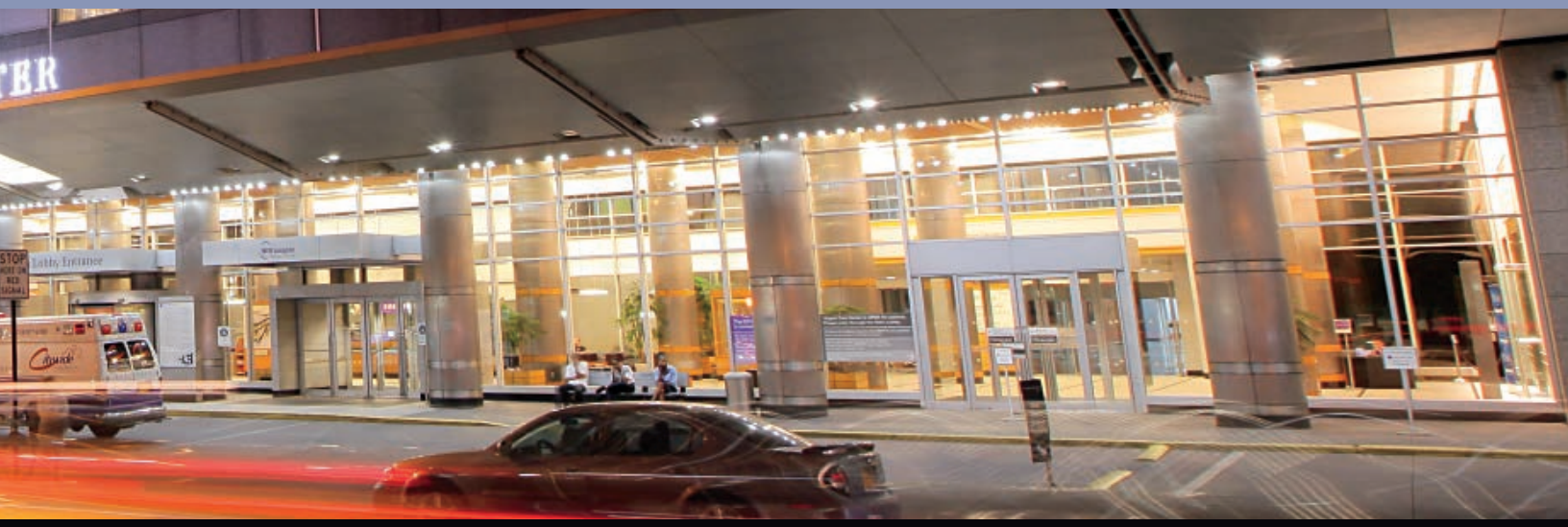
IN THE NATION
BEST MEDICAL SCHOOLS
FOR RESEARCH

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

LEADER

IN QUALITY CARE AND
PATIENT SAFETY

and recognized for superior performance as measured by Vizient's nationwide 2016 Quality and Accountability Study



Leveraging Strengths, Hardwiring Excellence

New Recruits

PHILIP T. ZHAO, MD, assistant professor of urology, brings an interdisciplinary focus on endourology with his background in both urology and biomedical engineering. A specialist in kidney stone disease, upper tract urothelial carcinoma, ureteral stricture disease, and benign prostate disease, and an inventor, Dr. Zhao has developed practical engineering solutions to endoscope visualization and urological surgery. Dr. Zhao received his medical degree from Rutgers Robert Wood Johnson Medical School and his bachelor of science degree in biomedical engineering from Columbia University.

BOBBY B. NAJARI, MD, male infertility and sexual health specialist, has joined the faculty of NYU Langone as assistant professor of urology and population health. Dr. Najari attended medical school at Baylor College of Medicine. He then completed a residency in urology at Weill Cornell Medical College, where he also earned a master's degree in clinical epidemiology. Subsequently, he pursued a combined fellowship in male infertility and male sexual dysfunction at Weill Cornell Medical College and Memorial Sloan Kettering Cancer Center. Dr. Najari is a member of the Division of Male Sexual Health and Reconstruction, where he treats male infertility, testosterone deficiency, and male sexual dysfunction.

↑ Philip T. Zhao, MD (above), and Bobby B. Najari, MD (below)

Sharing Expertise

UROLOGY TEAM FEATURED AT AUA 2016 ANNUAL MEETING

Representing a broad range of subspecialties, NYU Langone's urology team shared their expertise with 16,000 AUA meeting attendees, delivering presentations at more than 60 plenary sessions, scientific sessions, and society meetings. Highlights include:

- Herbert Lepor, MD, spoke to *OncLive* about how MRI-US fusion targeted biopsy better determines prostate cancer significance and risk.
- On an expert plenary panel, Dr. Lepor discussed the case of a patient with an elevated PSA after a negative biopsy.
- The debate over optimal prostate cancer screening strategies continued, with Stacy Loeb, MD, and other panelists energizing the crowd with their lively plenary panel discussion. Dr. Loeb shared her perspective on assaying novel molecular forms of PSA to improve the test's specificity in identifying significant prostate cancers.
- Helping peers choose among focal ablation, hemiablation, or whole gland ablation, Samir S. Taneja, MD, moderated a case panel discussion.
- Joseph P. Alukal, MD, presented take-home highlights from the conference on childhood cancer risk in the relatives of infertile men and on vasectomy and the risk of prostate cancer in the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial.
- Nirit Rosenblum, MD, presented on neurogenic bladder management, highlighting the transition from pediatric to adult care, detrusor underactivity and overactivity, urethral underactivity and overactivity, comparative protocol effectiveness, and surveillance.
- Benjamin M. Brucker, MD, recapped the scientific meeting, summing up research findings on overactive bladder, pelvic organ prolapse, urodynamics, and urinary incontinence.
- Victor W. Nitti, MD, continues to serve as chair of the American Urological Association's Office of Education.

↑ Samir S. Taneja, MD, and Herbert Lepor, MD

Advances in Prostate Cancer

PIONEERING HIFU

For some men with localized prostate cancer, focal therapy is an attractive option for destroying the cancer while minimizing side effects, such as erectile dysfunction and urinary incontinence. NYU Langone Medical Center, a pioneer in focal therapy, is among the first to offer high-intensity focused ultrasound (HIFU) as an energy source for this targeted treatment.

"This technology provides an important treatment for a niche group of men with prostate cancer who otherwise have limited options for care," says Herbert Lepor, MD, professor of urology and biochemistry and molecular pharmacology and the Martin Spatz Chair of the Department of Urology. "Following the procedure, it was rewarding to see our first patient leave our outpatient facility in the afternoon, enjoy dinner with his wife that night, and report no adverse impact on erectile function three days later."

NEW CLASS OF COMPOUNDS DEVELOPED AT NYU LANGONE SHOWS THERAPEUTIC POTENTIAL

A unique cross-campus collaboration among NYU Langone urologists, research biologists, and chemists has developed into an award-winning commercial venture with clinical potential. Susan K. Logan, PhD, associate professor of urology and biochemistry and molecular pharmacology, and Michael J. Garabedian, PhD, professor of microbiology and urology, worked with Kent Kirshenbaum, PhD, professor of chemistry, and colleagues to develop unique peptide-like compounds that show potent anticancer activity in prostate cancer cell lines and animal models. As described in a report appearing in the September 2016 issue of *Cancer Research*, the bioactive compound named multivalent peptoid conjugate 6 (MPC6) suppressed the proliferation of androgen receptor-expressing prostate cancer cell lines, including those that failed to respond to enzalutamide, the current standard of care for castration-resistant prostate cancer. In fall 2016, the BioAccelerate program, which funds NYC-based research with strong commercial potential, announced that it had awarded the MPC6 project $250,000 in seed funding.

Leadership in Bladder Cancer

NIH GRANT SPURS BLADDER CANCER RESEARCH

NYU Langone's urology research program has shown outstanding productivity in 2016, leading the nation in efforts to better understand and treat bladder cancer. The program's five-year, $8.2 million National Cancer Institute program project grant in bladder cancer is the only active grant in the nation that focuses on the fundamental mechanisms underlying the occurrence and progression of bladder cancer. Xue-Ru Wu, MD, the Bruce and Cynthia Sherman Professor of Urological Research and Innovation, professor of urology and pathology, and vice chair of Urological Research, and his team of investigators published more than 20 articles on their research in 2016. The multidisciplinary team includes contributors from urology, pathology, medical oncology, and environmental medicine.

New Angles in Clinical Practice and Education

***WALL STREET JOURNAL* FEATURES INTEGRATION OF RADIOLOGY SERVICES INTO UROLOGIC ONCOLOGY**

A July 11, 2016, feature article in *The Wall Street Journal* highlighted the Urology Department's integration of radiologists into its daily diagnostic routine. NYU Langone introduced the collaborative approach two years ago, when radiologists began virtual rounds that allow them to view images in real time along with urologists and clinicians in other departments. Dr. Huang, newly named co-director of the NYU Langone Robotic Surgery Center and an extensive user of the radiology service "virtual consults," is featured explaining how the interdisciplinary cooperation helps him better serve patients.

COMMITMENT TO POSTGRADUATE UROLOGY EDUCATION

Upcoming courses:
Advances in Prostate Imaging, Detection and Minimally Invasive Ablative Treatment of Prostate Cancer (June 16–17, 2017)
Advanced Robotic Urologic Surgery (October 6–7, 2017)
Surgical Pharmacological and Technological Advances in Urology (December 7–9, 2017)
Advances in Female Pelvic Medicine and Reconstructive Surgery (March 23–24, 2018)

UROLOGY TEAM EXPANDS TO NYU LUTHERAN, NOW OFFERING MRI-FUSION BIOPSY AND ROBOTIC SURGERY

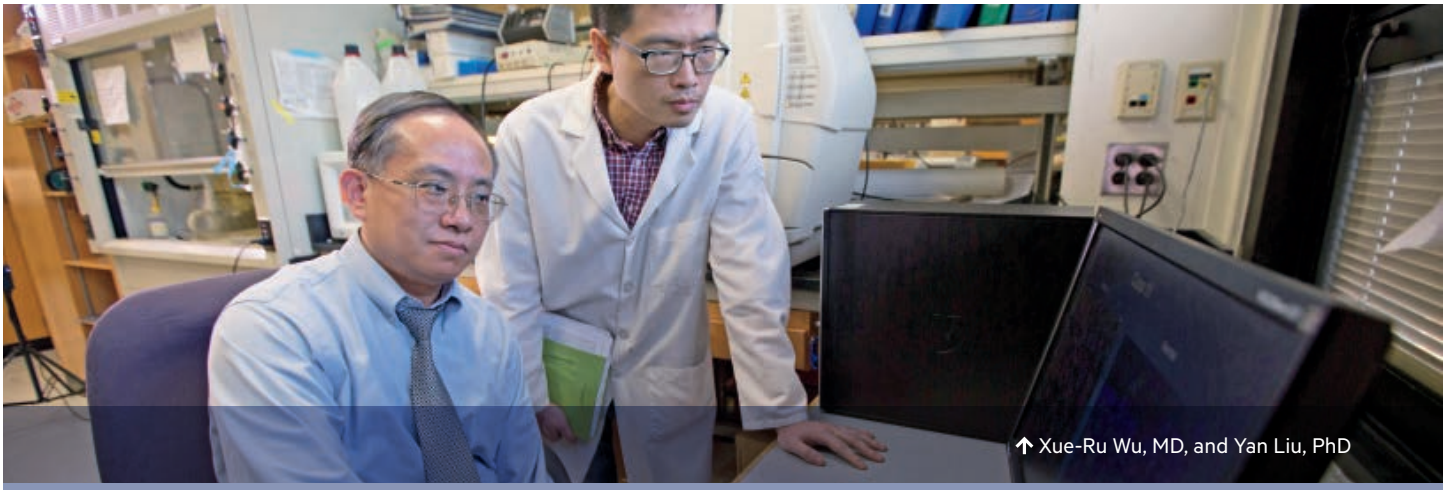
With the expansion of NYU Langone's urology team to NYU Lutheran under the direction of Frederick Gulmi, MD, clinical associate professor of urology, precision targeted biopsy and robotic prostate surgery are now available in Brooklyn. Marc A. Bjurlin, DO, clinical assistant professor of urology and director of Urologic Oncology directs the program.

NYU LANGONE AFFILIATION WITH WINTHROP-UNIVERSITY HOSPITAL

NYU Langone Medical Center and Winthrop-University Hospital on Long Island have reached an agreement to affiliate the institutions' extensive healthcare networks. NYU Langone, with more than 150 ambulatory sites throughout the region, will complement Winthrop-University Hospital's main campus, multiple ambulatory sites, and network of 66 faculty and community-based practices in more than 140 locations extending from eastern Long Island to Upper Manhattan.

The affiliation will further expand NYU Langone's presence on Long Island, while enhancing Winthrop's inpatient and outpatient services with improved access to NYU Langone's wide range of medical and surgical specialties.

"This agreement publicly confirms our confidence that an affiliation will allow both of our institutions to collaborate and share best practices to better meet the healthcare needs of the communities we serve," says Robert I. Grossman, MD, the Saul J. Farber Dean and CEO of NYU Langone. Pending regulatory approval, the institutions are aiming to complete their affiliation in spring 2017.



↑ Xue-Ru Wu, MD, and Yan Liu, PhD

Awards & Recognition

→ **David S. Goldfarb, MD,** holds several leadership positions in the field of nephrology, including associate editor of the *Clinical Journal of the American Society of Nephrology* and president of the Research on Calculus Kinetics (R.O.C.K.) Society.

→ **Herbert Lepor, MD,** has served on the editorial boards of four major urology journals. He is the co-founder and current editor of *Reviews in Urology.*

→ **Stacy Loeb, MD,** is on the editorial boards of *BJU International*, *European Urology*, *Urology Practice*, and *Reviews in Urology*. Dr. Loeb also hosts the Men's Health Show on Sirius XM 81 satellite radio. And she is chair of the Urology Care Foundation's Technology & Publications Committee.

→ **Danil V. Makarov, MD,** is a member of the Society for Medical Decision Making, a Diplomate of the American Board of Urology, and chair of the White Paper Committee on Implementation of Shared Decision Making in Urology of the American Urological Association. He is also a consultant for the FDA's Center for Devices and Radiological Health.

→ **Samir S. Taneja, MD,** is the Consulting Editor for the *Urologic Clinics of North America* and is on the editorial board of *European Urology.*

→ **William C. Huang, MD,** associate professor of urology, has been named co-director of the NYU Langone Robotic Surgery Center. Dr. Huang uses robotic surgical techniques in minimally invasive surgeries to remove kidney, bladder, prostate, and testicular cancers with minimal side effects and improved quality of life for patients. Dr. Huang also serves on national and international committees that recommend guidelines for the management of cancers of the urinary tract.

PIONEERING SURGEON LEADS NEW TRANSPLANT INSTITUTE

Internationally renowned surgeon Robert A. Montgomery, MD, DPhil, whose groundbreaking work in kidney transplantation includes laparoscopic innovations and "domino" multi-way donor transplant exchanges, joined the faculty of NYU Langone Medical Center as director of its newly created Transplant Institute in March 2016. Prior to his appointment at NYU Langone, Dr. Montgomery was chief of the Division of Transplantation at The Johns Hopkins Hospital, where he was professor of surgery and director of the Comprehensive Transplant Center and the Incompatible Kidney Transplant Program. While at Johns Hopkins, he was part of the team that developed laparoscopic procurement of a live kidney donation through small incisions in the abdomen. This approach is now a standard practice for kidney donation worldwide.

Discovery & Practice Transformation

RESEARCH LEADERSHIP ACROSS UROLOGIC SPECIALTIES ADVANCES PATIENT CARE

↑ William C. Huang, MD

Kidney-Conserving Surgery Comes of Age

William C. Huang, MD, was the lead author of the seminal research study published in *Lancet Oncology* establishing partial nephrectomy as the standard of care for localized kidney cancers more than a decade ago. Now, more than 9,000 kidney cancer patients in the United States have been treated using this approach.

MANAGEMENT OPTIONS FOR SMALL KIDNEY TUMORS

In 2015, Dr. Huang, associate professor of urology, chief of the Urology Service at Tisch Hospital, and co-director of the Robotic Surgery Center at NYU Langone, published a retrospective study in *JAMA Surgery*, looking at the evolution and expansion of the management options for small kidney tumors. Dr. Huang, co-author Marc A. Bjurlin, DO, clinical assistant professor of urology and director of Urologic Oncology at NYU Lutheran, and collaborators at other institutions evaluated changes in the use of kidney-sparing approaches and nonsurgical options. They found that the use of partial nephrectomy has risen dramatically but the non-operative management of these cancers has remained stable. For some people, especially the elderly or those who are sick, these masses pose little risk to their longevity. Says Dr. Huang, "Over the past decade, the needle has not moved in either direction. Most tumors are still being removed."

William C. Huang, MD, is a member of several international kidney cancer treatment guideline panels and is participating in the American Society of Clinical Oncology guideline panel for the management of kidney cancer.

Overall survival was excellent, with only 249 patients (4.2 percent) who had surgery and 44 (6.6 percent) who did not have surgery dying of kidney cancer. Says Dr. Huang, "We know many people could be spared surgery, but we don't know how to identify the small number of patients whose tumors will become aggressive."

Today, suspected kidney tumors are one of the few cancers not routinely biopsied. "Right now, kidney tumors are diagnosed on imaging alone," says Dr. Huang, "and the decision to treat is frequently based more on the patient's health and not on the risks of the tumor itself. We want to change that dynamic, pre-operatively identifying which tumors may behave aggressively, prompting treatment." Working at this frontier, Dr. Huang and his colleagues at Perlmutter Cancer Center are studying how to use novel imaging techniques to differentiate malignant tumors from benign tumors and to identify patients who are most likely to benefit from removal of their tumor. At NYU Langone, the same imaging is also used to assess the kidney function of patients with kidney tumors to help predict their kidney functional outcomes following treatment.

3D PRINTED KIDNEY MODEL AIDS SURGICAL PLANNING

Dr. William Huang regularly removes tumors in cases where sparing the delicate nephrons and avoiding the arterial structures are critical. To assist in surgical planning, Dr. Huang has partnered with NYU Langone's Department of Radiology to produce 3D printed models based on MRI or CT scans. These models have been a valuable asset that has altered surgical planning in about half the cases in which they have been used, says Dr. Huang. He adds, "For example, using the models, we can preoperatively determine the best surgical approach and intra-operatively preserve normal healthy renal tissue without compromising cancer control."

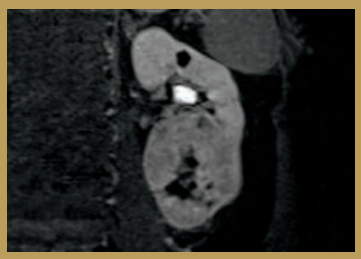
A COMMITMENT TO EDUCATION

NYU Langone offers a live kidney surgery course as part of a large multispecialty robotics course. This year there were more than 360 attendees from 38 states and 11 countries.

"NYU Langone offers advanced renal function imaging, including intraoperative ultrasound, near-infrared fluorescence imaging, and 3D printing."

—Hersh Chandarana, MD

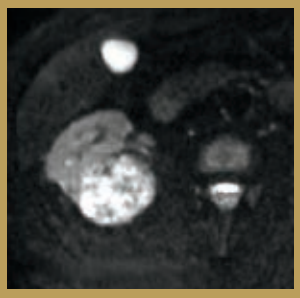
Here, a 59-year-old patient required surgery to remove a tumor the size of a golf ball on his right kidney. With the 360-degree view afforded by the model, Dr. Huang chose to approach the tumor from behind the abdominal cavity instead of in front of it. The model also allowed him to better explain the surgery to the patient and to navigate more easily during the procedure than he could have with an intraoperative ultrasound probe.

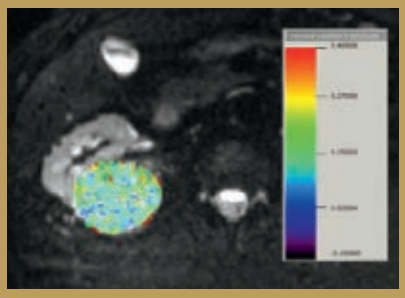


↑ 3D printing (left) and advanced imaging (right)

DISTINGUISHING AGGRESSIVE FROM INDOLENT TUMORS

Advance diffusion weighted imaging (DWI with multiple b-values) was also performed in this patient (Figure 1a, on left). These diffusion data were fitted to an advance (biexponential) diffusion model to generate information about the tumor vasculature without the use of intravenous contrast agent (perfusion fraction map; Figure 1b, on right). NYU Langone researchers are studying how such advance imaging can help discriminate between aggressive and indolent renal tumors.





↑ Figure 1a (left) and Figure 1b (right)

Experience and Evidence Guide
Prostate Care at NYU Langone

Leadership in developing individualized, targeted prostate treatment helps eliminate cancers while preserving function.

Prostate cancer screening continues to be controversial. Historically, men with PSA above the threshold value underwent random TRUS-guided biopsy followed by curative treatment of all screen-detected cancers. This screen, detect, and treat paradigm has decreased prostate cancer mortality by 40 percent. But in the process, many men have been subject to risks associated with unnecessary biopsy and treatment of low-risk lesions. Under the leadership of Herbert Lepor, MD, professor of urology, biochemistry and molecular pharmacology, the Martin Spatz Chair of the Department of Urology, and director of the Smilow Comprehensive Prostate Cancer Center, NYU Langone urologists—including Samir S. Taneja, MD, the James M. Neissa and Janet Riha Neissa Professor of Urologic Oncology, professor of urology and radiology, and director of Urologic Oncology; James S. Wysock, MD, assistant professor of urology; Danil V. Makarov, MD, MHS, assistant professor of urology and population health; and Stacy Loeb, MD, assistant professor of urology and population health—have raised the bar in prostate care. The Department of Urology and Perlmutter Cancer Center are testing novel prostate cancer biomarkers, performing evidence-based MRI-guided target biopsies, as well as teaching others the technique, and pioneering focal ablation of cancers. NYU Langone's motto is "Screen, detect, and treat prostate cancer smarter," with the goal of further decreasing prostate cancer mortality while minimizing the burden of overdiagnosis, overdetection, and overtreatment.

↑ Stacy Loeb, MD

INNOVATIVE BIOMARKERS MAY HELP STRATIFY RISK

While the PSA test remains the standard for prostate cancer risk assessment, the search for more specific and predictive biomarkers continues, with several commercial tests vying to be the next PSA. Dr. Loeb conducted pioneering work on the new biomarker Prostate Health Index *(phi)* a test that combines total, free, and [-2]proPSA into a single score as part of a multivariable risk assessment tool. In a study published in *BJU International* in October 2016, Dr. Loeb and colleagues showed that the *phi* test outperformed the PSA test in predicting which men were more likely to harbor "aggressive" prostate cancers and also which men with low-risk disease were best managed with active surveillance or curative intervention. They developed a nomogram using *phi* values along with other risk factors to predict aggressive prostate cancer. A test called the 4Kscore analyzes PSA-related proteins and calculates the likelihood that a "random" prostate biopsy would find an aggressive cancer. According to Dr. Loeb, *phi* and 4K are two of several tests currently being used in clinical practice to help make biopsy decisions.

MRI-GUIDED BIOPSY PROVES ITSELF OVER TIME

Pioneering work by Dr. Taneja and Andrew Rosenkrantz, MD, associate professor of radiology and urology and director of prostate imaging, has demonstrated the value of MRI in detecting prostate cancers. Because while ultrasound cannot detect the presence of cancer, and a biopsy performed under direct MRI guidance is cumbersome and costly, combining the two has proven benefits. Dr. Taneja, together with James S. Wysock, MD, assistant professor of urology, performed one of the first studies using computer software to co-register and fuse the images of the static MRI to the live ultrasound, which enabled biopsying of the MRI suspicious lesions under ultrasound guidance. The predictive value of negative 3T multiparametric MRI of the prostate on 12-core biopsy results was reported by Dr. Wysock, Dr. Taneja, and colleagues in 2016 in *BJU International*. NYU Langone urologists have performed more than 2,000 of these MRI-fusion targeted biopsies. A robust patient database provides the evidence to refine which patients most benefit from the MRI-fusion biopsy procedure in the detection of prostate cancers.

"Our experience at NYU Langone with MRI-guided biopsy has now been replicated nationwide. The procedure has been shown to provide superior results and better outcomes for patients," says Dr. Taneja.

INTEGRATING NEW BIOMARKERS AND MRI INTO CLINICAL PRACTICE

At a plenary session of the American Urological Association (AUA) 2016 Annual Meeting, Dr. Lepor presented recommendations for integrating new biomarkers, MRI screening and MRI-fusion targeted biopsy into clinical practice. He emphasized the importance of addressing the risks and benefits in a shared decision-making process between the patient and the doctor. For men with a slightly elevated PSA level and no other risk factors for prostate cancer, he typically recommends a biomarker test such as *phi* or 4Kscore. If the risk of an aggressive cancer is greater than 10 percent on these tests, a prostate biopsy is indicated. An MRI is obtained to determine feasibility of performing an MRI-fusion targeted biopsy. By contrast, if the PSA is very high or has been progressively rising, MRI and biopsy should be performed, rendering *phi* or 4K testing unnecessary. In cases with equivocal risk for aggressive cancer based on the PSA level and other risk factors, both a biomarker test (such as *phi* or 4Kscore) and an MRI should be performed. If there is an MRI lesion or the *phi*/4Kscore demonstrates a greater than 10 percent risk of significant cancer, a biopsy is generally recommended. Since MRI does miss some aggressive prostate cancers, if a negative MRI is associated with other significant risk factors, a random biopsy should be performed. These recommendations will likely be subject to continued refinement over time.

$1.1 MILLION AWARD CAPS YEARS OF RESEARCH HELPING VA PHYSICIANS TO "CHOOSE WISELY"

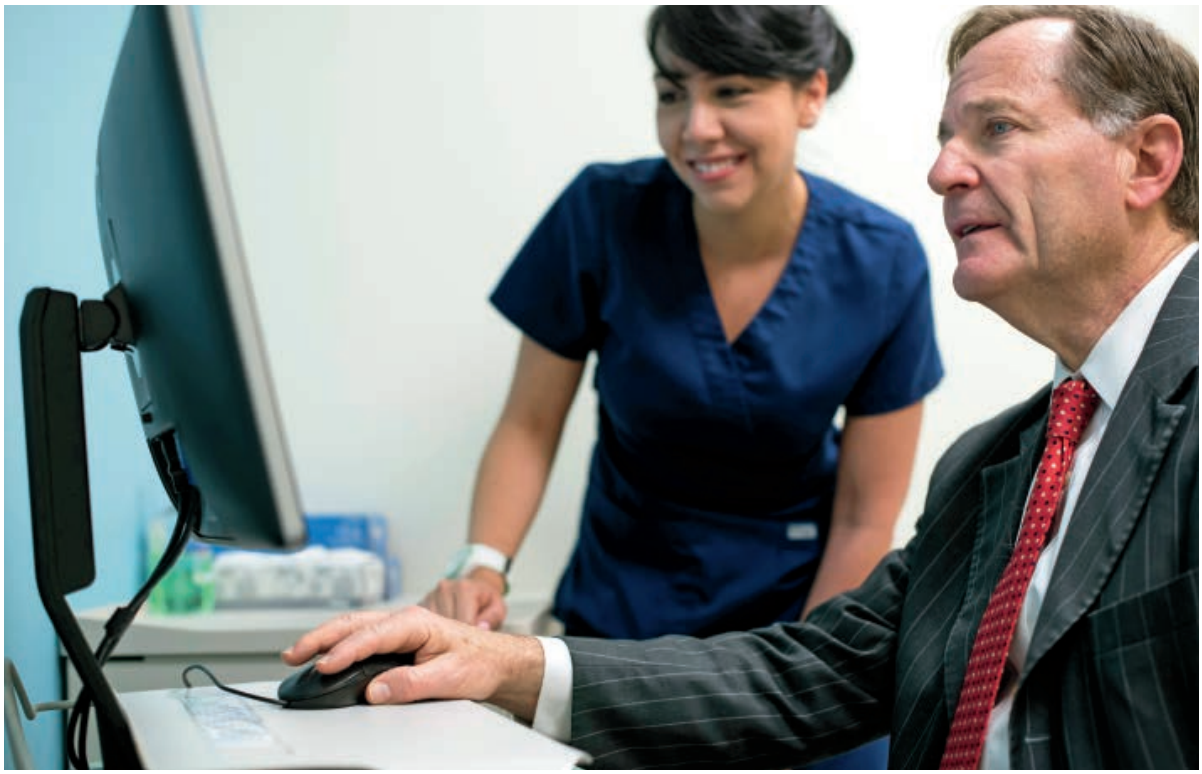
In the days before PSA screening, men used to present with advanced disease and needed advanced imaging to demonstrate that they were candidates for local therapy.

>2,000 Men

treated with MRI-guided prostate biopsy at NYU Langone since pioneering the method in 2010

In the modern era, routine imaging to exclude metastatic disease has become obsolete, since the overwhelming majority of men with clinically localized disease will not have demonstrable metastasis on routine imaging. In spite of guidelines from the AUA and the American Society of Clinical Oncology, up to half of men with localized prostate cancer still undergo unnecessary bone scans, CT scans, and MRIs to stage newly diagnosed disease. To improve guidelines adherence for staging of incident prostate cancer, Danil V. Makarov, MD, assistant professor of urology and population health, has been studying patterns of imaging use among physicians in the Veterans Health Administration (VA) and what generates them. His recent research shows that physicians' attitudes are the primary driver of overutilization, while patients have little interest in this aspect of care. The study, published in 2016 in *Implementation Science*, also suggested that physicians would be receptive to an electronic medical record-linked decision support tool to guide them. This

↓ Herbert Lepor, MD



evidence-based approach underpinned a recently bestowed 10-site, $1.1 million VA Merit Review award to implement just such a tool designed by Dr. Makarov. For this work, Dr. Makarov was named 2016 Choosing Wisely Champion by the AUA and the American Board of Internal Medicine.

TARGETED ENERGY SOURCES ABLATE PROSTATE CANCER WHILE PRESERVING FUNCTION

Approximately one in five men in Dr. Lepor's series of nearly 5,000 men who underwent radical prostatectomy have a single site of prostate cancer. Many others have a single dominant site of cancer co-existing with sites of insignificant cancer. And many of these men are potential candidates for focal ablation, which uses energy sources to eradicate only those regions of the prostate harboring significant cancer. Dr. Lepor, together with several urologists worldwide performed a comprehensive review of the literature on focal therapy. Recently published in *European Urology*, the review included all energy sources used to date to focally ablate prostate cancer, including lasers, cryotherapy, high-intensity focused ultrasound (HIFU), radiation, and photodynamic therapy.

One of the few national cancer centers in the nation with multiple options for targeted prostate cancer treatment, the Smilow Comprehensive Prostate Cancer Center is a leader in personalized, prostate-preserving treatment. "Our real goal is to select the right energy source for the right patient," says Dr. Taneja.

"We are learning that each energy source has different strengths and weaknesses along a spectrum. Because laser treats a small area, Dr. Taneja continues, it carries the risk of undertreatment in the surrounding tissues and may be best targeted to small tumors adjacent to the urethra. On the other hand, cryosurgery is the most reliable in terms of region of destruction, most appropriate for larger tumors away from the nerves and the rectum. HIFU may be most appropriate for larger tumors located in the posterior half of the prostate, near the rectum.

↑ James Wysock, MD, and Samir S. Taneja, MD

HIFU, approved by the FDA in fall 2015 and employed since early 2016 at NYU Langone—the second U.S. academic institution to employ it—is used in patients with intermediate-risk prostate cancer. "This technology provides important, minimally invasive outpatient treatment for a niche group of men with prostate cancer who otherwise have limited options for care," explains Dr. Wysock. "It was rewarding to see our first patient leave our outpatient facility in the afternoon, enjoy dinner with his wife that night, and report no adverse impact on erectile function three days later."

In the December 2015 issue of *European Urology*, Dr. Lepor and colleagues reported no complications or adverse impact of focal laser ablation on quality of life in a longitudinal outcomes study of 25 consecutive cases, underscoring its promise as a targeted therapy. Studies evaluating longer-term cancer control are required to confirm its efficacy.

Dr. Taneja completed a phase II clinical trial of focal bipolar radiofrequency ablation in 21 men with early-stage, localized prostate cancer. In the study, the first in the world completed using a novel device that limits radiofrequency energy to the lumen of a coil placed in the prostate, tumor clearance was confirmed by follow-up imaging and biopsy. The treatment, which resulted in minimal effects on urinary and sexual quality of life, is now being offered as a standard focal treatment in the Smilow Comprehensive Prostate Cancer Center. "We have seen virtually no toxicity with radiofrequency ablation, so we think it is most appropriate for smaller tumors near the nerves, and we are excited to be able to offer this novel approach to our patients in the future," said Dr. Taneja.

LONG-TERM STUDIES INFORM PRACTICE

In 2015, Dr. Taneja and colleagues published the first research data showing that men with low suspicion scores on MRI have very few cancers and may be spared future biopsies. That study also showed that MRI-targeted biopsy detects more high-grade cancers than systematic biopsy, indeed 50 percent more. The MRI-fusion biopsy allows NYU Langone to better assess who can tolerate active surveillance and who needs surgery. Currently, NYU Langone has 250 to 300 men enrolled in its active surveillance program.

The required intensity of active surveillance follow-up is a hot topic for urologists nationwide. NYU Langone is providing leadership on this issue by studying men on active surveillance at NYU Langone and how the method is practiced in the community. Dr. Loeb, along with NYU Langone colleagues Dr. Lepor and Dr. Makarov, recently completed a retrospective analysis of 5,192 patients undergoing active surveillance from 2001 to 2009 using SEER (Surveillance, Epidemiology and End Results)-Medicare data. They found most men are not receiving the recommended frequency of PSA tests or surveillance biopsies. Published in the September 2016 issue of the *Journal of Urology*, the findings highlight the paucity of data on how active surveillance is being practiced at the community level nationwide. To address these issues, Dr. Loeb has an NIH grant to study the best type, sequence, and interval of follow-up testing and create patient education tools for carrying out active surveillance.

Role of Multi-Parametric MRI in Detection of Prostate Cancer

Case presentation: A 62-year-old man presents with a progressively rising serum PSA and two prior negative TRUS-guided systematic biopsies. His brother had undergone radical prostatectomy for an intermediate-risk clinically localized prostate cancer.

Presentation

RELEVANT PRIOR HISTORY AND EVALUATION

PSA history

2013	2.6
2014	3.2 (negative TRUS SB)
2015	5.2 (negative TRUS SB)
2016	9.7

PCA 3

2015	52
2016	75

4KScore

2016	36%

PHYSICAL EXAMINATION

Benign 50 gram prostate

EVALUATION

An mpMRI was obtained and pertinent image shows a large PI-RADS 5 lesion in the left transition zone

The T2 weighted imaging and the diffusion weighted imaging show a low signal intensity lesion in the left anterior transition zone. Dynamic contrast enhancement demonstrates early uptake and rapid washout of the TZ lesion. There was capsular bulging likely associated with extracapsular extension.

PROSTATE BIOPSY

MR fusion target biopsy (MRFTB) was performed using the Artemis ProFuse prostate biopsy system. Four biopsies were directed into the MRI target following co-registration and fusion of the 3D MRI and US images. 12 systematic biopsies were performed using an automatically generated template.

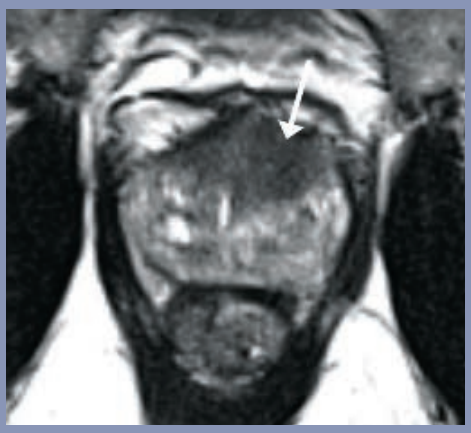
Gleason 7 (4 + 3) prostate cancer was detected in 3 of 4 targeted biopsies. The largest core length was 10 mm. All systematic biopsies were negative.

MANAGEMENT

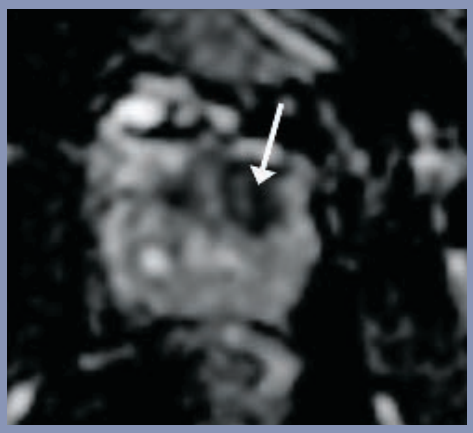
A nerve-sparing RRP was performed. Because of the anterior location of the tumor and negative SB, a nerve-sparing procedure was performed despite the high-risk disease.

COMMENT

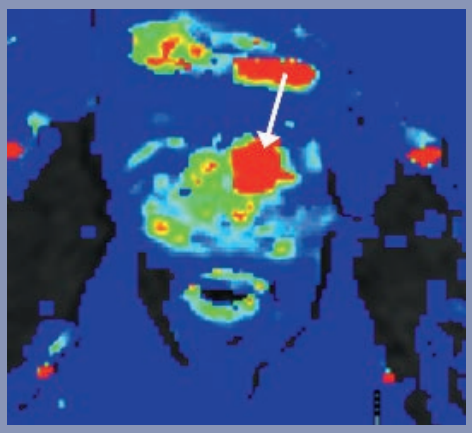
Widespread PSA screening coupled with TRUS-guided random SB and aggressive curative treatment has decreased mortality of prostate cancer by over 40%. This impressive decline in mortality has been accomplished at the expense of over-biopsy and overtreatment. The challenge to the urology community is to screen and detect smarter in order to ultimately treat smarter. In essence, the goal should be to detect and treat only significant cancers. The definition of “significant” disease is controversial and depends on life expectancy. Most agree that significant disease includes Gleason>6 and high-volume Gleason 6 disease.



↑ T2WI



↑ ADC



↑ DCE

There is increasing evidence from our center and others that MRFTB increases detection of significant prostate cancer compared to TRUS-guided SB. For those who have adopted MRFTB, should the SB be performed along with the MRFTB? Our preliminary results suggest the random SB ipsilateral to the MRI target detects a greater proportion of significant disease whereas the random SB contralateral to the MRI target detects almost exclusively insignificant disease. This is consistent with a high negative predictive value of mpMRI for significant disease.

Should the mpMRI be performed prior to the first biopsy or only if the PSA persistently rises after a negative SB? At NYU Langone, we feel the MRI should be performed prior to initial biopsy. Do it right the first time! If the patient has low risk for detecting significant prostate cancer based on risk calculators, one may forgo prostate biopsy if mpMRI shows no suspicious areas. This would significantly decrease risk of detecting incidental cancer.

The prostate health index *(phi)* or 4Kscore assays have been shown to predict risk of detecting significant cancer for men with an elevated PSA. The tests may be useful in avoiding both an MRI and a prostate biopsy for men presenting with low risk of significant prostate cancer based on a risk calculator. In the current case, the progressively rising PSA is indicative of aggressive prostate cancer likely in the TZ, so it's most appropriate to proceed directly to an MRI. In this case, an MRI would have likely identified the cancer on the first biopsy, precluding the additional biopsies and delay in diagnosis.

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Questions Persist about Who Needs Treatment for "Low T"

Although the health benefits of testosterone therapy for most men have not been established, the risks of testosterone therapy to prostate health appear minimal.

Fueled by television advertising, a common health concern among middle-aged men seems to be their testosterone levels. The number of men being treated for "low T" has tripled since 2001, with more than 2 percent of American men in their forties and nearly 4 percent in their sixties taking testosterone. Concurrent with the increase in testosterone use has been the emergence of concern about increasing the risk of prostate cancer among aging men prescribed testosterone.

ASSESSING IMPACT ON PROSTATE CANCER RISK

But a new study of nearly 250,000 men conducted in Sweden and led by NYU Langone urologist Stacy Loeb, MD, assistant professor of urology and population health, suggests that testosterone replacement alone does not increase the risk of prostate cancer and may actually reduce the risk of aggressive disease. Sweden is one of the few countries that collect detailed information on cancer and medication prescriptions for its entire population; no comparable source of data exists in North America. Studying these men over time, the researchers concluded that men taking testosterone replacement for more than a year may reduce their risk of aggressive disease by 50 percent. The findings were presented as a late-breaking abstract in the plenary session at the 2016 annual meeting of the American Urological Association (AUA).

Urologists should use patient concerns about low-T as a gateway to evaluating a range of health concerns in aging men.

"Based on our findings, physicians should still be watching for prostate cancer risk factors—such as being over the age of 40, having African-American ancestry, or having a family history of the disease—in men taking testosterone therapy, but they should not hesitate to prescribe it to appropriate patients for fear of increasing prostate cancer risk," says Dr. Loeb. "Overall, our study suggests that what is best for men's health is to keep testosterone levels balanced and within a normal range." Men with testosterone levels below 350 nanograms per deciliter and symptoms should seek medical advice about whether to consider testosterone therapy, she adds.

Nonetheless, a clear definition of adult-onset hypogonadism (AOH) remains to be established, according to a recent review of testosterone deficiency and its relationship to prostate health by Joseph P. Alukal, MD, clinical associate professor of urology and obstetrics and gynecology, and Herbert Lepor, MD, professor of urology and the Martin Spatz Chair of the Department of Urology.

↑ Joseph P. Alukal, MD

THE ROLE OF TESTOSTERONE IN MEN'S HEALTH

In a special 2016 issue of *Urologic Clinics* guest edited by Dr. Alukal, he and Dr. Lepor reviewed the role of testosterone in men's health throughout life. They discussed the evolution of medicine's understanding of testosterone's role in maintaining health and how testosterone levels intersect with the disease process, particularly prostate carcinogenesis. This timely review suggests the interplay between testosterone levels and prostate cancer is likely more complex than is currently understood. Both prostate cancer and low testosterone levels are common in aging men, the authors point out, but that does not mean that they are causally related.

Dr. Alukal and associates examined the risk of biochemical recurrence in men on testosterone replacement undergoing radical prostatectomy for curative treatment of prostate cancer. Their data, previously presented at the AUA meeting, suggested testosterone replacement to low normal levels was not an independent factor associated with prostate cancer recurrence.

In a foreword to the special issue, Samir S. Taneja, MD, the James M. Neissa and Janet Riha Neissa Professor of Urologic Oncology and vice chair of the Department of Urology, emphasizes the importance for all urologists to use patient concerns about low-T as a gateway to evaluating a range of health concerns in aging men.

At a recent community outreach lecture, Bobby B. Najari, MD, assistant professor of urology and population health and male infertility and sexual health specialist, helped attendees decipher this complex topic.

↑ Bobby B. Najari, MD

0.3% to 1.4%

PER YEAR DECLINE

in men's testosterone levels beginning at age 20 to 30
Source: European Male Aging Study

Reducing Complications in Gender Confirmation Surgery

With the demand for gender confirmation surgery growing, NYU Langone is leading the way in developing and using safer surgical techniques with fewer postsurgical complications.

As recently as 2013, Medicare and most private insurers automatically denied insurance claims for gender-confirming surgeries. But now, as recognition of gender identity dysphoria has come to the forefront via popular culture and mainstream media, the Centers for Medicare and Medicaid Services has reversed its course and even the Department of Veterans Affairs is exploring coverage for gender-confirming surgery. These developments coincide with an increase in demand for these surgeries in the centers that provide them.

PRIORITIZING SAFETY, ADDRESSING COMPLICATIONS

The procedures for such surgeries, both female to male and male to female, can be very complex, often resulting in urological complications such as urethral strictures, fistulas, and stenosis. To address the pressing need for surgical standards that prioritize safety and limit complications, Lee C. Zhao, MD, assistant professor of urology, has pioneered the world's first gender-confirming robot-assisted surgical procedures.

In 2013, CMS estimated that at least 4,098 transgender individuals used services paid for by Medicare, of which 90 percent had confirmatory diagnosis, billing codes, or evidence of a hormone therapy prescription.

Dr. Zhao's practice has long offered many forms of innovative reconstructive surgery, including reconstruction of the urethra after prostate surgery or radiation or after various types of injuries. Because of Dr. Zhao's expertise in complex urinary reconstruction, a growing number of patients experiencing urinary complications after gender confirmation surgery find their way to him. "Because I specialize in revision surgery, I am seeing transgender patients seeking help with urinary tract issues after prior surgery," confirms Dr. Zhao.

LEVERAGING ROBOTICS

In a female-to-male operation, urinary complications often occur when all of the vaginal tissue is not completely removed. These patients are prone to experiencing difficulty fully emptying the bladder, and urine can leak into the remaining vaginal space, causing urinary tract infections. Dr. Zhao's increasing experience in surgically correcting these complications led him to develop a procedure using robot-assisted surgery to prevent these complications from happening in the first place.

To date, Dr. Zhao has performed 15 female-to-male procedures in NYU Langone's Robotic Surgery Center, with excellent outcomes. He works with plastic surgeons Jamie P. Levine, MD, associate professor, Hansjörg Wyss Department of Plastic Surgery, plastic surgery and chief of Microsurgery, and new recruit Rachel Bluebond-Langner, MD, to harvest flaps from the thigh or the forearm to form the penis and uses the robot to completely remove the vaginal tissue. He has also used the robot to successfully remove vaginal remnants in patients who have experienced this complication from prior surgery.

"The robot is very useful for pelvic surgery," says Dr. Zhao. "The pelvis is a deep, narrow space and it's very difficult to remove the very tip of the vagina from a perineal incision because the tip is about six inches away from the skin."

For treating complications of male-to-female surgeries, Dr. Zhao presented his technique for robotic penile inversion vaginoplasty at the World Congress of

Endourology in Cape Town, South Africa, in November 2016. When a vagina is created from penile tissue, patients can experience short vaginal length, vaginal stenosis, or complications related to the perineal dissection. Dr. Zhao's six-hour robot-assisted procedure results in maximal vaginal length in a safe, reproducible manner and with little blood loss. Length of hospital stay is also minimized, with patients usually being discharged home on postoperative day three.

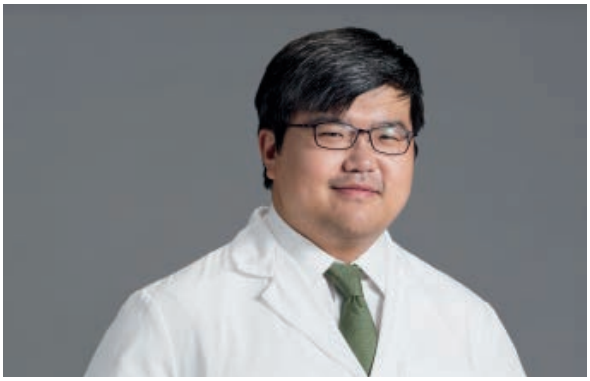
In 2014, Medicare reversed its policy of automatic denial of gender-confirming surgery. It is now determining coverage on a case-by-case basis.

"Other surgeons may be performing similar procedures, but it is rare to see them reporting their outcomes in meeting presentations," says Dr. Zhao. He continues, "My referrals come from across the United States and around the world because we offer patients all the resources of both our urology department and our plastic surgery department in a multidisciplinary team effort to complete these surgeries in a way that minimizes complications while maximizing the desired results."

ACHIEVING THE GOLD STANDARD OF EQUALITY IN HEALTHCARE

The Human Rights Campaign Foundation, the largest civil rights organization in the country working to achieve equality for the lesbian, gay, bisexual, and transgender (LGBT) community, has recognized NYU Langone as a leader in LGBT equality, in its annual Healthcare Equality Index Report.

↓ Lee C. Zhao, MD



1.4 million

individuals in the United States identify as transgender. Therapeutic options for gender dysphoria include behavioral therapy and psychotherapy, hormonal treatments, and gender-confirming surgeries. Source: UCLA School of Law's Williams Institute

Immunotherapy Rapidly Changing Treatment Paradigm for Bladder Cancer

Immune checkpoint inhibitors show promise in both first-line and second-line treatment settings, and biomarkers such as PD-L1 expression have been used to predict which patients are most likely to respond to these options.

In rapid succession, a series of results of immunotherapy clinical trials reported at international oncology meetings by Arjun V. Balar, MD, assistant professor of medicine and director of NYU Langone's Genitourinary Medical Oncology Program, have made waves in the urothelial cancer community.

At the American Society of Clinical Oncology (ASCO) Annual Meeting in June 2016, Dr. Balar presented the first-ever report of the efficacy and safety of programmed death ligand 1 (PD-L1) blockade with atezolizumab, an anti-PD-L1 antibody, as first-line treatment in cisplatin-ineligible patients with metastatic or locally advanced urothelial cancer. On the basis of data from cohort 1 of the IMvigor 210 trial, an international multicenter phase II study, Dr. Balar reported that tumors shrank by at least 30 percent and new tumor growth stalled in 28 of 119 (23 percent) patients. The FDA approved atezolizumab as a second-line treatment for bladder cancer in 2016.

↑ Arjun V. Balar, MD, and Deborah Koeppel, LCSW-R

At the European Society for Medical Oncology (ESMO) October 2016 Congress in Copenhagen, Dr. Balar presented the efficacy and safety of PD-1 blockade with pembrolizumab, another drug in the PD-1 and PD-L1 antibodies class of drugs, in cisplatin-ineligible patients with metastatic or locally advanced bladder cancer. The findings showed that of the first 100 patients enrolled in the KEYNOTE-052 trial, 24 percent had an objective response. Of the 30 patients with 10 percent or greater total PD-L1 expression in immune cells or tumor cells, 37 percent responded to treatment. Dr. Balar reported that the treatment was well tolerated, with very few off-target effects.

"Atezolizumab is the first therapy to be approved in more than three decades for bladder cancer, and is a new standard of care in the second-line setting," says Dr. Balar. "The activity and safety data from these two trials make an argument for this class of drugs to become the new standard of care in first-line metastatic bladder cancer."

Even more dramatic changes are expected in the coming years with the use of immunotherapy in other clinical stages and as combination therapy.

"As an institution, NYU Langone was one of the very first to test this class of drugs, PD-1 and PD-L1 antibodies, in bladder cancer," says Dr. Balar. "Since early 2014, we have led accrual both nationally and internationally on the KEYNOTE-052 and IMvigor 210 trials."

Improving Treatments and Outcomes for Women with Bladder Problems

New evidence shows Botox's effectiveness in long-term relief of overactive bladder, while urodynamics, clinical trials, and new guidelines yield important treatment insights.

Patients seeking help for persistent overactive bladder often struggle when first-line therapies (behavioral modification and pelvic floor exercises) and second-line therapies (beta 3 agonists) fail to relieve their symptoms. Some patients cannot tolerate anticholinergics, and their side effects of dry mouth and constipation lead many to abandon them within months. Because overactive bladder symptoms tend to be chronic and recurring, additional, long-term relief options are needed.

Recently, onabotulinumtoxinA (Botox) injection into the bladder muscle has provided a promising new option. However, FDA approval was based on short-term studies. Victor W. Nitti, MD, professor of urology and obstetrics and gynecology, director of Female Pelvic Medicine and Reconstructive Surgery, and vice chair of the Department of Urology, has joined with a large multinational team to publish the first international study showing the long-term effectiveness of Botox in treating 839 patients over three and a half years. In the study, published in the September 2016 issue of the *Journal of Urology*, only four patients (0.5 percent) discontinued treatment because of adverse events.

1 in 4

women in the United States have pelvic floor disorders
Source: NHANES

URODYNAMICS BEFORE PROLAPSE SURGERY USEFUL MAINLY FOR SLING PLACEMENT

Preoperative urodynamic studies are frequently used to assess urethral and bladder function before pelvic organ prolapse surgery. But a recent retrospective study of the role of urodynamics in patients treated at NYU Langone revealed that for most patients, the results of urodynamic studies did not change perioperative management. The study, led by NYU Langone specialists in female pelvic medicine and reconstructive surgery and presented at the May 2016 American Urology Association meeting, followed 348 patients seen in the Department of Urology between mid-2010 and early 2015. Urodynamic test results led to alteration of the management of 95 (27 percent) of these patients; the most common alteration was the decision to place a mid-urethral sling. However, for other indications, urodynamic studies were less useful.

NEW CLINICAL TRIAL TO EXAMINE NEUROMODULATION FOR PAINFUL BLADDER SYNDROME

Neuromodulation by percutaneous tibial nerve stimulation (PTNS) is an emerging treatment for patients with interstitial cystitis/bladder pain syndrome, which causes urgent, often painful urination. The condition is difficult to diagnose and treat, with patients often abandoning pharmacological interventions because of lack of benefit and/or unmanageable side effects. To test the effectiveness of PTNS in managing this syndrome, NYU Langone's Division of Female Pelvic Medicine and Reconstructive Surgery is performing a unique prospective, single-

↓ Victor W. Nitti, MD

center, double-blind, randomized controlled trial comparing PTNS with sham treatment. This pilot study will evaluate the efficacy of 12 weeks of PTNS. After the study, patients who received sham therapy will have the opportunity to receive 12 PTNS sessions at no charge.

NEW RESEARCH GUIDES MANAGEMENT OF URINARY INCONTINENCE

Urinary incontinence (UI) affects at least half of all women at some point in their lives, but its presentation, duration, and severity vary greatly. Similarly, there are many treatment options, ranging from simple conservative lifestyle changes to technically demanding reconstructive surgery. Several professional organizations, both in the United States and abroad, have issued treatment guidelines for physicians based on published medical information, but guidelines from different organizations are often discordant and do not always match current practice. Raveen Syan, MD, urology resident, and Benjamin M. Brucker, MD, assistant professor of urology and obstetrics and gynecology, conducted a literature review of guidelines for UI that meet criteria established by the Appraisal of Guidelines for Research and Evaluation II (AGREE II).

Their recommendations, published in the January 2016 *British Journal of Urology International*, include:

- Use a stepwise approach to treating both urgency UI and stress UI, starting with conservative therapy and advancing to more invasive procedures as necessary.
- The mid-urethral sling is preferred for uncomplicated stress UI.
- Use urodynamic studies if UI recurs after failure of invasive treatments.

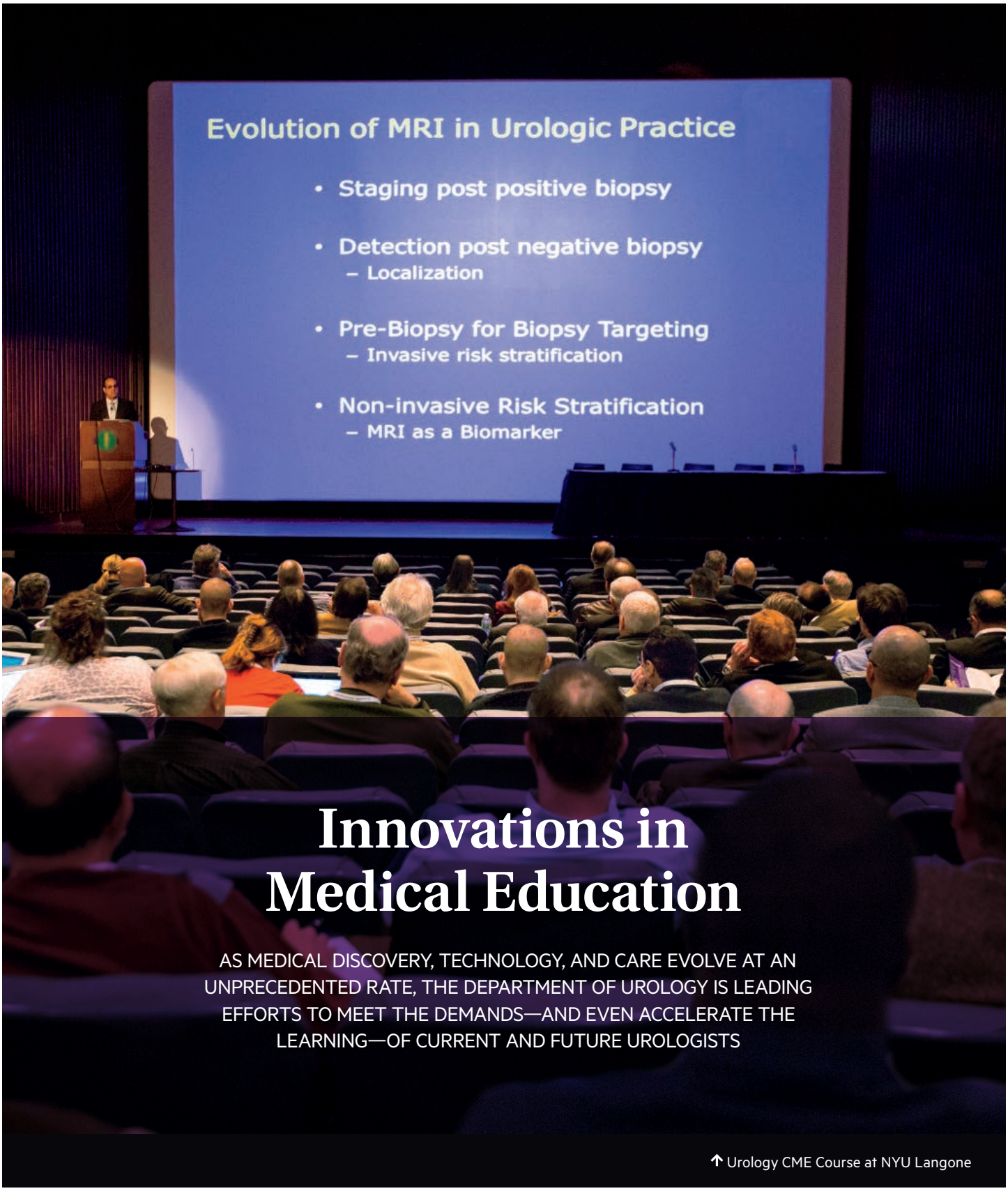
HIGHLIGHTS AND TAKE-HOME MESSAGES FROM THE 2016 ANNUAL AUA MEETING IN SAN DIEGO

Nirit Rosenblum, MD, clinical associate professor of urology and a member of NYU Langone's Center for Female Pelvic Medicine, presented highlights from the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction's guidelines, including a brief recap of neurogenic bladder management. She also highlighted the importance of transitions from pediatric to adult care, detrusor underactivity and overactivity, urethral underactivity and overactivity, and comparative protocol effectiveness and surveillance.

Benjamin M. Brucker, MD, presented take-home messages from the AUA scientific meeting, recapping recent research findings in the areas of overactive bladder, nocturia, pelvic organ prolapse, urodynamics, and urinary incontinence.

50%

of women experience
bladder control problems by age 65
Source: CDC, NHANES



Innovations in Medical Education

AS MEDICAL DISCOVERY, TECHNOLOGY, AND CARE EVOLVE AT AN UNPRECEDENTED RATE, THE DEPARTMENT OF UROLOGY IS LEADING EFFORTS TO MEET THE DEMANDS—AND EVEN ACCELERATE THE LEARNING—OF CURRENT AND FUTURE UROLOGISTS

↑ Urology CME Course at NYU Langone

Mentorship and Continuing Medical Education

PhD Candidate Russell Ledet Credits Mentors for Fellowship Opportunities

PhD candidate Russell J. Ledet, who studies treatment-resistant prostate cancer in the Garabedian Lab, is grateful for the steadfast support, patience, and candor of faculty and staff at NYU School of Medicine's Sackler Institute of Graduate Biomedical Sciences.

Russell arrived in New York City in 2013, after a nine-year career in U.S. naval intelligence, during which he completed undergraduate work in chemistry and biology at Southern University and A&M College in Baton Rouge, Louisiana.

"Since I've been here, I've been awarded a Ford Foundation Predoctoral Fellowship and a Howard Hughes Medical Institute Gilliam Fellowship for Advanced Study. I've also published my first scientific paper," says Ledet. None of this would have been possible, he adds, without Michael Garabedian, PhD, and Susan K. Logan, PhD, whom he says are two of the most supportive mentors he has ever come across.

"They've helped me develop into a better scientist, a better father, a better husband, and a better friend," says Ledet. "I wouldn't be the person I am today without those two, as well as my laboratory mates, who also support me in my training."

1 of 8

urologists in the United States have attended a CME course at NYU Langone

Save the Dates for These Upcoming Courses

Advances in Prostate Imaging, Detection and Ablative Treatment of Prostate Cancer
June 16–17, 2017
Course Director: Herbert Lepor, MD

Advanced Multispecialty Robotic Surgery: A Team Approach Urology Track
October 6–7, 2017
Course Director: William C. Huang, MD

Surgical, Pharmacological, and Technological Advances in Urology
December 7–9, 2017
Course Director: Herbert Lepor, MD

Advances in Female Pelvic Medicine and Reconstructive Surgery
March 23–24, 2018
Course Director: Victor W. Nitti, MD

To learn more about these and other courses, please contact:

212.263.5295
cme@nyumc.org
med.nyu.edu/cme

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1
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2
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207 East 84th Street
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3
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555 Madison Avenue
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160 East 34th Street
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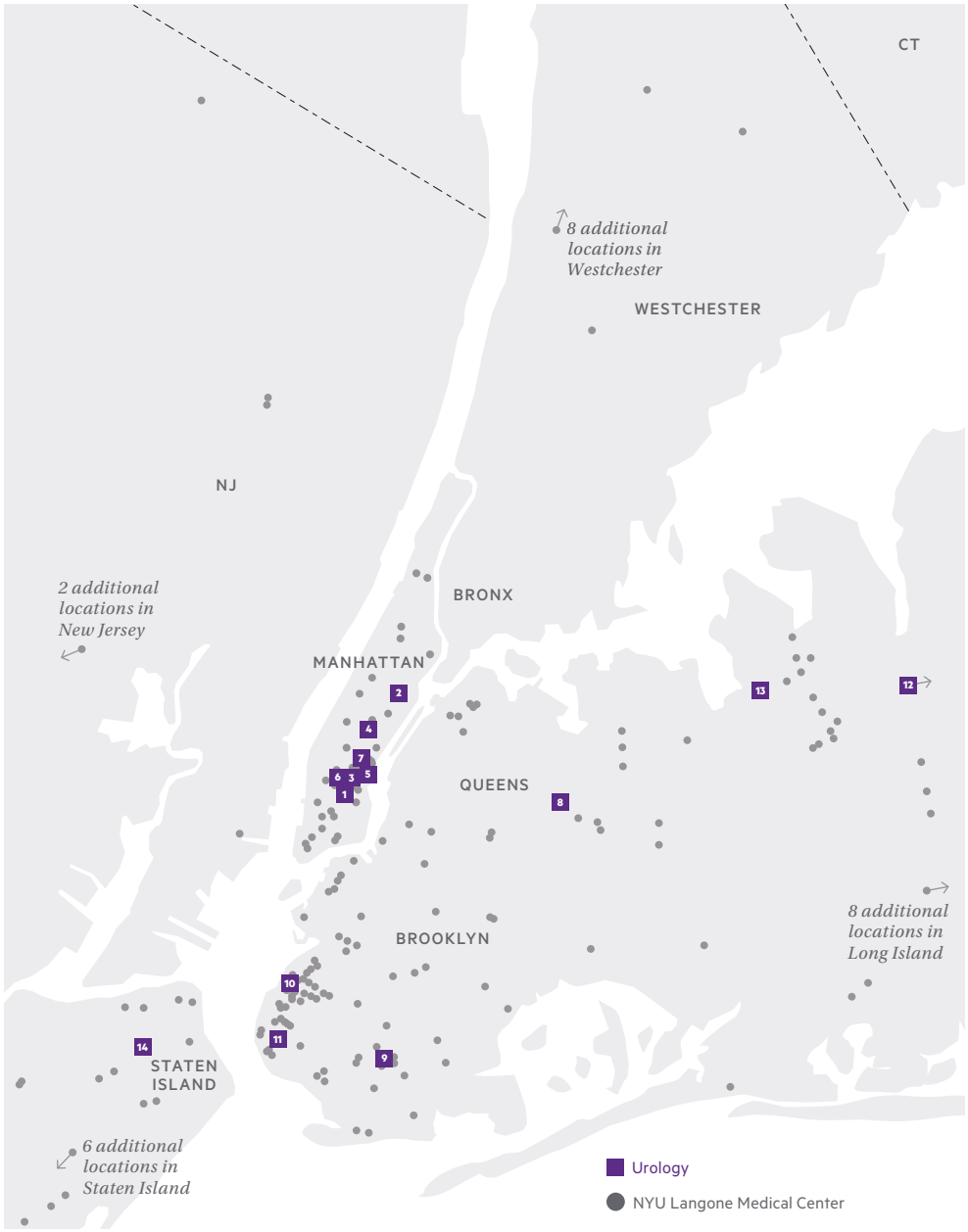

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4,381 Original Research Papers**	**550,500** Square Feet of Research Space	**$334M** NIH Funding	**$328M** Total Grant Revenue

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