

UROLOGY

AT YALE | 2019



**Getting a Better Look
at the Enemy**

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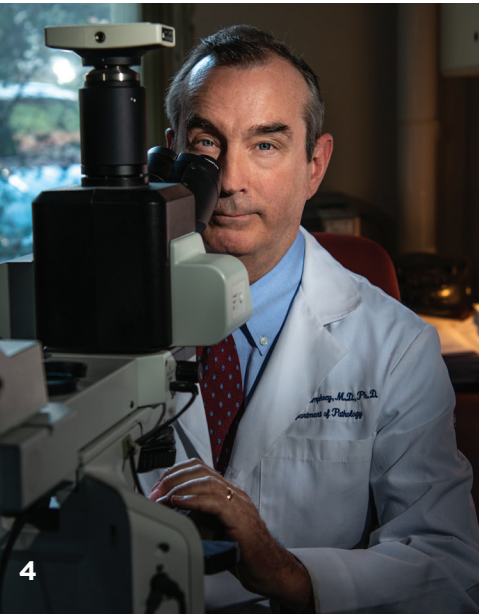
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He was fascinated by pond water under a microscope as a child, but it was not until his third year of medical school that Dr. Peter Humphrey fully realized his interest in pathology. A patient presented with rib pain, its cause was a mystery until a pathologist interpreted a rib biopsy, which revealed metastatic cancer. It was a diagnosis that changed everything for the patient—and for Dr. Humphrey.

7 Specialized Care Helps a Young Family on the Go

William, a five and a half-year-old boy, has experienced a lot in his short life: heart surgery as a baby and now, endless appointments with specialists to manage the extra care he requires having Trisomy 21, also known as Down Syndrome. Thanks to the collaboration of his gastroenterologist and Yale Urology’s Dr. Sarah Lambert and Therese Gardere, APRN, William’s voiding troubles are resolved and two appointments are now combined into one, giving back the gift of time to this young family.

10 Tools to Aid Decision Making for Prostate Cancer

Using a grant from Yale Cancer Center, Dr. Michael Leapman is researching how information from genetic testing of biopsies and MRIs of the prostate impact treatment decisions. Dr. Leapman expects to gain insight into the trends in prostate cancer care through review of national data and care patterns across the U.S., including variations in racial, socio-economic, and geographic disparities.

12 Keeping Prostate Cancer Care Close to Home

The dynamic of urology care has changed since Yale Urology moved in to eastern Connecticut. Men with prostate cancer now benefit from the newly implemented MRI-US fusion biopsy program as well as the experience and skill in robotic surgery that Dr. Joseph Renzulli and Dr. Joseph Brito, III offer, helping patients remain close to home.

14 Hackathons Generate Out-of-the-Box Solutions for Patient Care

Commonly associated with intense coding sessions, hackathons are increasingly used by other fields as a way to generate new ideas. The Center for Biomedical Innovation and Technology (CBIT) at Yale recently hosted a Healthcare Hackathon to find new answers to obstacles in healthcare by bringing together people from disciplines from across the healthcare system to brainstorm solutions.

16 Improving Resident Wellness

Equipping residents with skills to diagnose and treat patients is at the core of every residency program. Yale Urology has taken this one step further by implementing a formal resident wellness program to provide its residents with skills for self-care. By educating residents to identify and cope with stress and mental and physical fatigue, Yale Urology hopes to better prepare the residents as physicians and ultimately, for the care of their patients.

17 Yale Urology Faculty and Clinicians





Making a Difference: Globally

Volunteering time and skills not only benefits the individual or the organization, but it is also personally fulfilling. Woven throughout Yale Urology is the desire of faculty to help others through teaching and providing clinical urologic care to impoverished and underserved communities around the world.

Most recently, Angela Arlen, MD, pediatric urologist, traveled to Ulaanbaatar, Mongolia to volunteer at a free hospital as part of a group from IVUmed, an organization that provides medical and surgical training and care in low-resource areas. Dr. Arlen’s medical team screened 80 patients and performed 28 surgeries over five days, working with five pediatric urologists based at the hospital.

In 2017, Peter Schulam, MD, PhD traveled to Nanyuki, Kenya to finalize an agreement with the Laikipia County Health Department, Nanyuki Teaching and Referral Hospital, and Yale New Haven Hospital to send faculty and residents from Yale Urology for short-term rotations. At the time of the agreement, there were no urologists practicing within Laikipia County, so these rotations provide much-needed clinical urologic care as well as teaching and training of physicians, residents, and students at Nanyuki Hospital.

John Colberg, MD was part of the first team from Yale to volunteer at Nanyuki Hospital. Accompanied by Campbell Bryson, MD, PGY-4, the two operated on local patients, and presented a Grand Rounds lecture on urological trauma to the hospital staff, and another on prostate cancer to local physicians.

“Our efforts are propelled by the realization that each research breakthrough or clinical advance Yale Urology achieves will have global impact on patient care.”

– Peter G. Schulam, MD, PhD

“I am proud our faculty not only believe in caring for our local community, but also for communities around the world.” – Peter G. Schulam, MD, PhD

As we begin 2019, I am pleased to reflect back on an successful year at Yale Urology. We experienced growth: expansion of care into eastern Connecticut and New York, and the addition of new faculty members. We developed new initiatives: an innovative wellness program for our residents and a new fellowship in clinical research and quality improvement. And, we enhanced patient care: a Same Day Access Program for patients with an urgent urologic need.

Our faculty are blazing their own paths forward, leading the way nationally through exemplary research and patient care. In this issue of *Urology at Yale*, world-renowned genitourinary pathologist Dr. Peter Humphrey shares insight into his highly specialized field; Dr. Sarah Lambert and Therese Gardere, APRN help a young patient and his family, while making the most of their pediatric urology appointments; Dr. Michael Leapman explains how diagnostic tools impact treatment decisions for men with prostate cancer; And Dr. Joseph Renzulli and

Dr. Joseph Brito show how their combined skills and experience at a new location in eastern Connecticut bring care to more patients.

The opportunity to share expertise and teach others is a vital part of our role as caregivers. Our faculty are privileged to travel to underserved areas of the world and share our surgical skills and expertise in Kenya, Vietnam, Mongolia and Nepal through short-term rotations in regional hospitals. I am proud our faculty not only believe in caring for our local community, but also for communities around the world.

While we are cognizant of our global reach, we never lose sight of how we can have impact at home, and in particular, right in our front yard. Last year, Yale Urology implemented a wellness curriculum to provide better support to residents and to give them access to the tools needed to manage stress. As our future physicians, we understand it is our responsibility to not only train them as clinicians, but also to give them a foundation to prioritize

their own well-being.

In 2019, Yale Urology will continue to look ahead to innovate, expand, and advance care for our patients. Our efforts are propelled by the realization that each research breakthrough or clinical advance Yale Urology achieves will have global impact on patient care. I look forward to sharing our new advances with you in the year to come.

Most sincerely,

Peter G. Schulam, MD, PhD
Chair, Department of Urology
Yale School of Medicine
Chief of Urology
Yale New Haven Hospital



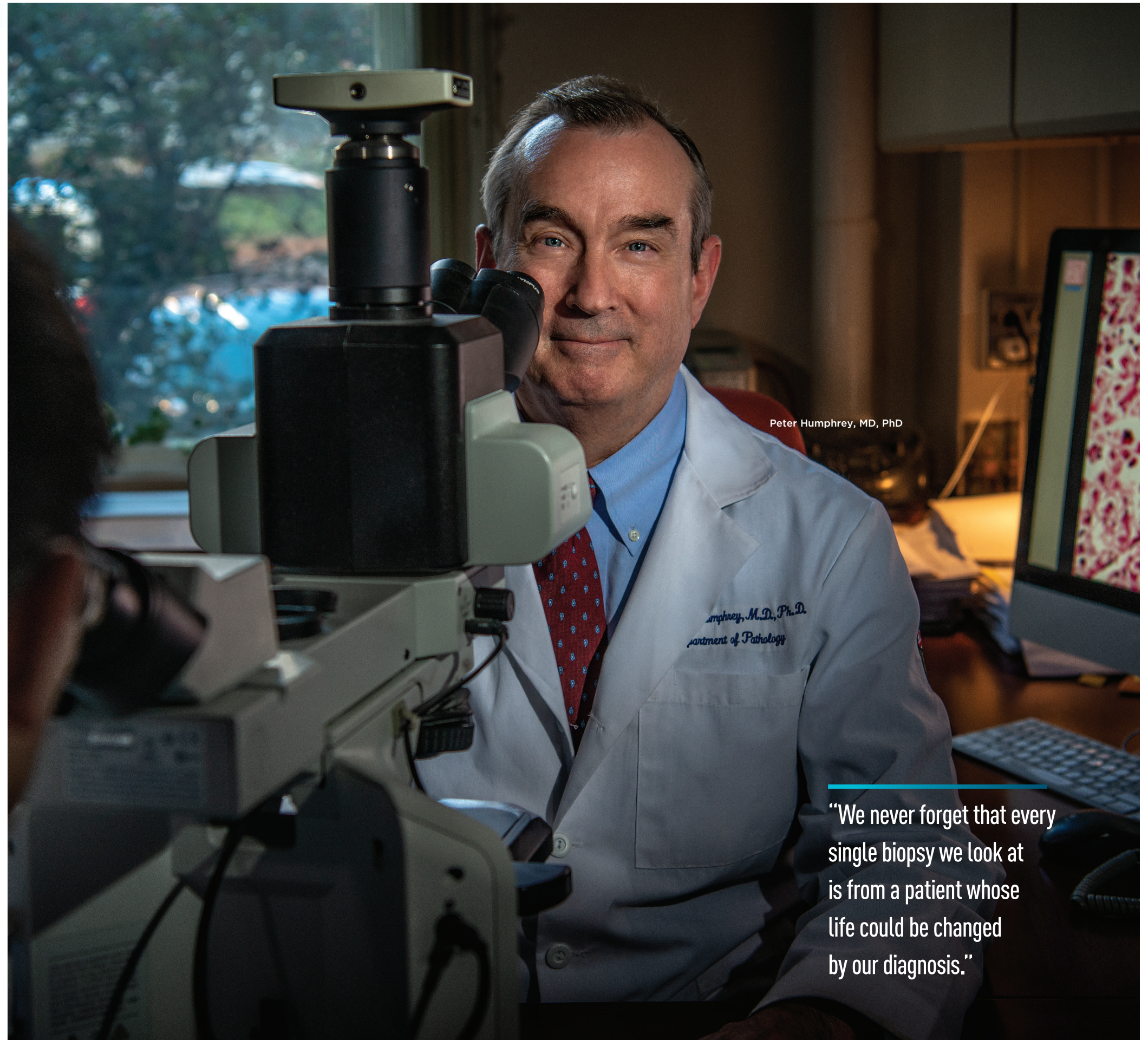
Getting a Better Look at the Enemy to Devise a Battle Plan

For most cancer patients, the pathologist remains a signature at the bottom of a report. But when a patient with an aggressive prostate cancer asked to look at the slides showing the malignancy, Peter Humphrey, MD, PhD, invited him to review his slides at the microscope. After they had finished discussing what they revealed, the patient explained: “I wanted to see the enemy.”

Dr. Humphrey is Director of Genitourinary Pathology, a field in which he is an internationally recognized expert. His goal is the same as that patient’s – to see the enemy. His research efforts have aimed to refine the diagnosis of prostate cancer under the microscope. He also takes it a step further, looking for characteristics of the cancer that can help guide treatment decisions. Dr. Humphrey’s work on grading of prostate cancer has helped to make distinctions between aggressive prostate cancers that require immediate treatment and slowly growing ones that could be considered for “active surveillance.”

After establishing a diagnosis of prostate cancer, based upon examination of biopsy slides under the microscope, pathologists give prostate cancer a “Gleason Grade” that specifies the risk posed by a specific cancer and that can guide management. This grade is one of the most powerful indicators of outcome for patients with prostate cancer. Dr. Humphrey’s work on grading includes continued improvement and applications of the Gleason system, in collaboration with colleagues from around the U.S. and world, through research and publication of journal articles and textbooks. Dr. Humphrey is co-editor of the 2016 *World Health Organization Classification of Tumors of the Urinary System and Male Genital Organs*, which is the worldwide standard for histopathological diagnosis and grading of prostate cancer. He wrote the textbook *Prostate Pathology* and co-wrote the textbook *Gleason Grading of Prostate Cancer*. He is also on the editorial boards of *The American Journal of Surgical Pathology*, *Modern Pathology*, and *Human Pathology*. Additionally, he is a past president of the International Society of Urological Pathology, Association of Directors of Anatomic and Surgical Pathology, and The Arthur Purdy Stout Society of Surgical Pathologists.

At Yale, he has worked to develop a completely subspecialized genitourinary pathology diagnostic service, and to standardize approaches to diagnosis in genitourinary pathology, utilizing regular consensus conferences with genitourinary pathology attendings at a multiheaded microscope, and standardized template reporting. With subspecialization, there is optimization of diagnosis, enhancement of teaching of pathology residents



Peter Humphrey, MD, PhD

“We never forget that every single biopsy we look at is from a patient whose life could be changed by our diagnosis.”

and fellows, and development of lines of research in genitourinary malignancies, including prostate cancer.

A critical goal in prostate cancer research is to identify markers and integrate clinical, radiological, pathological, and molecular features that signal the most aggressive malignancies, according to Dr. Humphrey. These efforts require collaboration between a range of medical specialties and the basic sciences. “Yale is an ideal place to do that work,” he said.

He joined Yale School of Medicine in 2014 with appointments in both the Departments of Urology and Pathology. He was drawn by the commitment here to invest in leading edge technology and by a growing, interdisciplinary team of experts. For example, Yale is a leader in multi-parametric MRI imaging of the prostate. A leading expert on prostate MRI, Jeffrey Weinreb, MD, is a Professor of Radiology and Chief of the MRI service.

“The more I learned, the more I was impressed with the broad commitment by Yale School of Medicine, Yale New Haven Hospital, the Yale Departments of Pathology and of Urology to build and create a superb multidisciplinary foundation focused on urologic diseases and malignancies,” said Dr. Humphrey.

“To be able to contribute at an early phase of that foundation building was something I was seeking for a genitourinary pathology section. It also became clear that there were so many talented and extremely bright physicians at Yale who focused on genitourinary diseases, from many different specialties, including urology, medical oncology, radiation oncology, radiology, and pathology. So the combination of a critical mass of outstanding colleagues and the Yale environment, which encourages cutting-edge work, thinking, and innovation was exactly what our team needed to succeed.”

During her residency, Angelique Levi, MD, had focused her research on prostate cancer, but when she joined the Department of Pathology



at Yale, she focused on other areas. “With Peter’s arrival, I came back to my prostate pathology roots, because it’s too unique an opportunity to work with someone of his stature in the field of urologic pathology, renowned for his contributions at a national and international level,” she said. “Many early career scientists, pathologists, urologists, and trainees are drawn to work with Dr. Humphrey because of his passion for teaching, collaborative style, and modest nature.”

Dr. Humphrey’s road to pathology started humbly enough. “I remember looking at pond water using a microscope,” he recalled. As a boy, he loved microscopes and the hidden worlds they revealed. Though his current equipment is far more sophisticated than those microscopes, the basic principles of the technology have not changed since the 1600s, he said with a smile. He expects that the field will become increasingly digitized, allowing pathologists to do their work on computer screens.

He comes from a family of surgeons but decided in medical school not to go into surgery. His surgeon father had a great appreciation for pathologists, so this offered a window on the specialty. His interest in pathology was strengthened when, as a third-year medical student, he helped care for a patient with rib pain. No one could find the cause. Finally a pathologist interpreted a biopsy of the rib, revealing metastatic cancer, “a diagnosis that changed everything,” he recalled.

That pathologist relied on years of experience visually distinguishing between normal cells and cancer cells. Though there have been significant advances in technology, much still rests on the skills of the pathologist. “Our diagnosis of cancer is an interpretation,” he said.

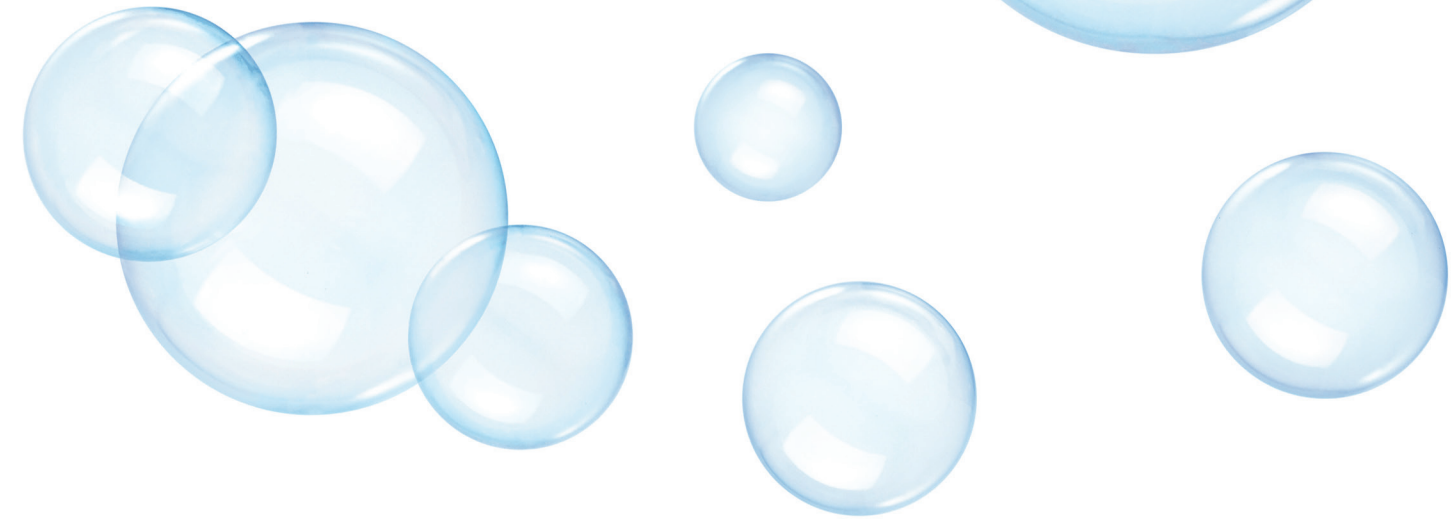
Multiheaded microscopes in the genitourinary pathology area can accommodate four sets of eyes, allowing for attending physicians to train residents and the subspecialty’s fellow and also to confer with each other about diagnoses. The work of the group is growing, as multiple biopsies are now more common in cases of suspected prostate cancer. Again, Dr. Humphrey’s arrival has played a role. “Now we get consult cases from all over just because he’s here,” said Adebowale Adeniran, MD, Director of Cytopathology. In addition to collaborating on the genitourinary pathology service, Drs. Adeniran and Humphrey collaborate on research together. “He has been a great mentor to me,” said Dr. Adeniran, adding that Dr. Humphrey advocates for younger physicians to get blocks of dedicated time to develop their research careers.

Pathologists may only rarely see their patients. But contributing to better outcomes for patients drives the team to find more precise ways to diagnose and characterize cancers. “We never forget that every single biopsy we look at is from a patient whose life could be changed by our diagnosis,” Dr. Humphrey said. **Y**

Specialized Care Helps a Young Family on the Go



Sarah Lambert, MD



If the equivalent of frequent flier miles could be accumulated for time spent in the car driving to doctor's appointments, Laura Andersen and her son, William, would be at Platinum status. Will, 5 ½ years-old, has Trisomy 21, also known as Down Syndrome, a genetic disorder caused when abnormal cell division results in extra genetic material from chromosome 21.

In his short life, Will has undergone open heart surgery and he has numerous health conditions, which require the care of specialists based in multiple locations across southern Connecticut. He visits a dentist in New Haven; an ophthalmologist in Norwalk; an ear, nose and throat (ENT) specialist in Shelton; a cardiologist in Darien; a gastroenterologist (GI) in Greenwich; and his pediatrician is located in Stamford.

In addition, Mrs. Andersen was previously driving Will to a pediatric urologist in Stamford every other day for bladder retention care, occasionally needing to drive to Tarrytown, New York when catheterization was needed. Bowel and bladder dysfunction can affect individuals with Down Syndrome as a result of several factors including decreased muscle tone, hormonal abnormalities, or pelvic floor dysfunction. Not only can it lead to urinary tract or kidney infections, but it can also cause urinary retention that results in extreme discomfort. The extended drive times were neither ideal nor convenient, especially for a little boy.

It was the intervention of Will's GI provider, Dr. Anthony Porto, Director of Pediatric Gastroenterology at Greenwich Hospital, who first connected the Andersen family with Yale Urology in January 2018. At an appointment with the Andersen's, Dr. Porto brought in Therese Gardere, nurse practitioner with Yale Urology, to provide input on Will's bladder

retention. After thorough evaluation, Ms. Gardere determined that Will was a great candidate for Botox, a bladder treatment option, which has had success in patients with urine retention issues.

At a follow up appointment, Mrs. Andersen and Will met Dr. Sarah Lambert, pediatric urologist, who agreed with the recommendation, and surgery was scheduled. In Will's case, he receives a Botox injection in the urethral sphincter every six months, relaxing the muscle and helping to improve his ability to void. Will has had great results with the Botox treatments and continues to see Dr. Lambert for continued care.

"Driving to Stamford before was not only stressful and inconvenient, but I also never received any answers on Will's condition," Mrs. Andersen explained. "With Therese and Sarah, they are so helpful and available by cell phone and text, and they are just phenomenal. Our appointments are now just four minutes away and I cannot emphasize enough how much more convenient it is to have such exceptional care close by."

For Dr. Lambert, this scenario was all too familiar. Formerly a pediatric provider in Philadelphia and Manhattan, she met regularly with families who trekked in to the city from its outskirts, seeking the best care large hospitals have to offer. Now, at Greenwich Hospital, Dr. Lambert has made it her mission to get the word out to families across the southern part of Connecticut and into New York that they don't need to commit to half a day of travel to see a pediatric urology specialist. They can now receive the same level of high-quality urologic care in Greenwich that they would otherwise receive in a large metropolitan area.

Dr. Lambert and her colleagues, Israel Franco,

MD, Therese Gardere, NP, and Cathy Conway, RN comprise Yale Urology's Pediatric Urology Clinic at Greenwich Hospital, the result of a recent expansion of Yale New Haven Health into southern Connecticut through a partnership with Greenwich Hospital. Here, families can now benefit from the shared expertise of the Yale Urology pediatric team in coordination with other pediatric specialists at Greenwich Hospital.

Yale's team works closely with their colleagues at Greenwich Hospital on a case-by-case basis. Dr. Lambert often brings in other providers for combined appointments, inviting GI to consult when managing bowel disorders or gynecology for patients presenting with urogenital issues. Dr. Lambert says this "multidisciplinary approach is new to the area and is a huge benefit for families."

For Mrs. Andersen and Will, having access to a specialist so close to their home in Greenwich has been a godsend. While they still need to commute for his some of his other appointments, they now can see Dr. Lambert on the same day and at the same time as Dr. Porto.

And for other families, Dr. Lambert continues to be committed to a grassroots, boots on the ground approach to keeping the community informed. Her team has personally visited more than 50 offices of local pediatric providers letting them know Yale Urology offers multidisciplinary, highly-skilled care and surgery, locally. She's also active in the community, visiting local schools and other groups.

"While pediatric services are available in this area, our presence now offers families local access to highly-specialized care, including surgery, reducing the need for families to travel," noted Dr. Lambert. "In William's case, convenience and providing multidisciplinary care has been terrific for the Andersen's." **Y**

"Our multidisciplinary approach is new to the area and is a huge benefit for families."



Tools to Aid Decision Making for Prostate Cancer

A diagnosis of prostate cancer does not always necessitate immediate treatment. Each patient and their provider must weigh the treatment options against the diagnosis, and the aggressiveness of the disease. Treating men for slow-growing, non-aggressive prostate cancers can potentially do more harm than good leaving patients with unnecessary side effects to manage. Thus, in recent years, there has been an increasing need to better understand prostate cancer risk and to find ways to more accurately distinguish aggressive from non-aggressive prostate cancers.

Dr. Michael Leapman, Assistant Professor of Urology, is researching how new technologies affect decision making of doctors and their patients who are facing prostate cancer. “Prostate MRIs and forms of genomic testing have been developed in recent years and appear to show promise, but less is known about how they impact decision making,” Dr. Leapman said. “The premise behind our research is to learn about how these tools affect decisions in the real world.”

To facilitate his research, Dr. Leapman recently received a pilot grant from Yale Cancer Center to investigate the impact of new risk assessment technologies for prostate cancer. “I was very fortunate to receive support from Yale Cancer Center towards our efforts,” he said. “It has been an exciting opportunity to perform this work within Yale’s Cancer Outcomes Public Policy and Effectiveness Research (COPPER), a research collaborative focused on improve cancer care and to decreasing the burden of cancer.”

Dr. Cary Gross, Professor of Medicine and co-founder of COPPER who is collaborating with Dr. Leapman on this work, notes one of the important aspects of this study is the examination of new data on a large scale. “Dr. Leapman’s study stands out because he is using very up-to-date data on thousands of patients across the country to investigate whether new tests are having an impact on men with prostate cancer,” Dr. Gross said.

The swift development of new methods of detection, assessment, and treatment poses a challenge for doctors and their patients. “Although new cancer treatments are studied rigorously, that is not always the case with new tests. Hence, although genetic tests and MRIs are both being adopted into prostate cancer care, we still don’t know how they are used and how patients are affected. It’s difficult for doctors and patients to know which ones work and which ones don’t before they are being used in clinical practice,” Dr. Gross explained.

The two tools under study are MRI of the prostate and genomic testing of biopsies. The MRI can provide an idea of the grade of the prostate cancer and its stage. It will also indicate if it has progressed beyond the prostate. This is helpful information in determining whether or not a patient should receive treatment or choose to hold off on treatment and monitor it. For genomic testing, genetic tests are performed on the cancerous tissue. The results can help predict the risk of the cancer, determining how aggressive it is and the possibility that it could metastasize.

“Previously, for men with prostate cancer,

the decision to treat or not treat was based on factors such as the grade of the cancer on the biopsy, the PSA level, and the results of a digital rectal examination (DRE),” Dr. Leapman said. “Recently there has been an expansion of highly promising tools that appear to enhance how these decisions are made, but less is known about their adoption or impact.”

Dr. Leapman will look at data at the national level, using administrative claims for his research. This will allow him to gain a much larger picture of the state of contemporary care patterns in the country. “Most of the literature surrounding these tools comes from relatively small, controlled studies performed at academic medical centers,” Dr. Leapman explained. “We know that care delivered at centers where these technologies are developed might be different than in real-world settings.” To understand the broader data, Dr. Leapman will use information from a variety of sources, including the SEER Medicare database and other private administrative plans.

Beyond examining the different kinds of institutional data available, Dr. Leapman stressed the importance of seeing the whole picture. He noted that in a previously published study looking at the patterns of MRI use in men with prostate cancer, they detected many variations including racial, socio-economic, and geographic disparities. By reviewing all of the data, a clearer understanding of the trends in prostate cancer care will emerge. As Dr. Leapman puts it: “our imperative is to understand and improve how cancer care is delivered for all.” **Y**

Michael Leapman, MD

“Prostate MRIs and forms of genomic testing have been developed in recent years and appear to show promise, but less is known about how they impact decision making.”

Keeping Prostate Cancer Care Close to Home

Since Yale Urology opened a new clinic located at Lawrence + Memorial Hospital in New London, Connecticut in the summer of 2018, its MRI-US fusion biopsy program is one of many firsts that Dr. Joseph Renzulli and Dr. Joseph Brito have introduced to the Lawrence + Memorial community.

Drs. Renzulli and Brito are making full use of the existing expertise and facilities at the hospital, an affiliate of Yale New Haven Health. In particular, they are working closely with the diagnostic imaging department on the implementation of the MRI-US fusion biopsy program. In this two-stage procedure, patients first have an MRI taken of the prostate. At a subsequent biopsy appointment, the MRI images are fused with real-time ultrasound images to guide the urologist to suspicious areas from which to draw tissue samples.

“Until now, patients could have their MRIs done here, but they had to travel up to 50 miles for their biopsy,” Dr. Renzulli explained. “Now they can have both steps done in the same place.”

For Bill Soboslai, it was a 10-minute drive from his home in Quaker Hill to Lawrence + Memorial Hospital for his MRI-US biopsy. Over the last two years, Mr. Soboslai had been experiencing a gradual increase of his PSA levels, which were initially dismissed as age-related. However, as they continued to rise while being checked every six months, Mr. Soboslai became concerned and asked his primary care doctor for a referral to Yale Urology’s Dr. Renzulli. “I didn’t know anything was wrong with me,” he said. “I have felt great and my energy level has always been high, but Dr. Renzulli said I needed the biopsy. Low and behold, he found that I had prostate cancer.”

“I really believe Dr. Renzulli is instrumental in saving my life with his prompt action,” Mr. Soboslai said. “Once hearing the diagnosis (of prostate cancer), you want everything to happen yesterday, but I am so pleased with how everyone has dotted their i’s and crossed their t’s.”

The community response in eastern Connecticut to the new Yale Urology clinic has been overwhelmingly warm and welcoming. “We’ve been well received, not just by the hospital community but the patients as well,” said Dr. Brito. “There’s a big sense of excitement and relief that they can stay close to home and receive high-quality urologic care.”

In particular, their combined experience in performing robotic surgeries has changed the dynamic of urology care in the area. “Between the two of us, we’ve performed more than 1,500 robotic surgeries,” Dr. Renzulli said. “That’s more than most prostate cancer surgeries combined in institutions of this size.”

Since the clinic opened, they’ve completed numerous robotic radical prostatectomies (removal of the prostate gland and surrounding tissues) and radical nephrectomies (removal of the kidney). They’re combining those robotic procedures with the ERAS protocol (Enhanced Recovery After Surgery) to speed patients’ return to health. “ERAS allows patients to have less pain after surgery, leave the hospital sooner and have a quicker return to normal activity,” Dr. Renzulli said. “It’s the same approach patients would receive on our main campus in New Haven.”

Indeed, prostate cancer patients are staying just overnight and kidney patients just one or two nights after robotic surgeries at Lawrence + Memorial Hospital. “Because of the benefits of robotics and the minimal recovery time and

physiological impact, we can offer these surgeries at our community hospital,” Dr. Renzulli said. “Plus, in a smaller hospital environment, it’s easier for us to communicate with the other members of a patient’s care team and to schedule procedures and appointments quicker, with shorter wait times.”

After Mr. Soboslai’s cancer diagnosis, he was referred for follow-up care to the nearby Smilow Cancer Hospital Care Center in Waterford. “It is easy for those practitioners and for us to refer patients back and forth,” Dr. Renzulli said. “We work directly with the oncologists there and take a multidisciplinary approach to treat urologic cancers.”

And for Mr. Soboslai, the proximity to home is a plus. “These facilities at L+M Hospital with Dr. Renzulli and Smilow are only ten minutes from where my wife and I live, and given the circumstance, I am very grateful.”

Dr. Brito echoes his statements, adding, “We wanted to be able to provide more cutting-edge technology and care in the area but still have quality face-to-face interactions with our patients. Being in a community hospital environment gives us that opportunity.”

Both native Rhode Islanders, Drs. Brito and Renzulli first met in Providence, at the Alpert Medical School of Brown University. Dr. Brito trained under Dr. Renzulli during his residency where the two conducted urologic oncology research together. Now, the two are working in step again, serving the New London, Connecticut community. In 2019 they will be joined by a third urologist, Dr. Timothy Tran, who will focus on the care of patients with stone disease, offering additional comprehensive care to patients in the area. **Y**

“Until now, patients could have their MRIs done here, but they had to travel up to 50 miles for their biopsy. Now they can have both steps done in the same place.”

Joseph Renzulli, MD



GENERATE OUT-OF-THE-BOX SOLUTIONS FOR PATIENT CARE

Ayesha Khalid, MD, MBA, walked across the auditorium and raised her microphone. “Are you guys awake?” she demanded.

“Woooo!” came the collective answer to Dr. Khalid, Clinical Director of the Center for Biomedical Innovation and Technology (CBIT) at Yale.

It’s not the usual way that meetings on patient care concerns begin at the Yale New Haven Health System (YNHHS). But there is nothing usual about what happened. This was a Healthcare Hackathon, one of a series sponsored by CBIT. Hackathon is a term coined for marathon coding

sessions where great tech minds gather to solve problems. The intensity and collaboration are the same here as at a tech hackathon, but the goal is improved patient care through creative thinking that the competitive but informal atmosphere is designed to foster. The attendees were charged with finding ways to overcome “The Weekend Effect.”

Nationally, patients admitted on the weekend have worse outcomes and stay in the hospital longer. At night and on the weekends, hospitals have fewer staff and generally offer less access to diagnostic and specialty services. Because fewer patients are discharged on the weekend,

beds can be in short supply.

At this Hackathon, participants worked in teams to develop an innovative strategy to fight the Weekend Effect. Many contributors work for YNHH in clinical or non-clinical roles. Teams also included students from Yale College and the Schools of Medicine, Management, and Public Health. The hackers convened on a Friday evening to hear a speaker and begin networking. Participants were provided with a range of tools: markers, giant Post-it notes, duct tape. “You are supposed to cheat!” Dr. Khalid said, as she encouraged them to use the Internet

while they brainstormed. Mentors, healthcare, and business experts in the YNHHS floated from team to team to ask challenging questions or provide information.

Within a span of 24 hours, participants formed teams, developed a plan – probably changed that plan multiple times in response to comments from expert “mentors” staffing the event – and summarized their idea in a five-minute pitch for a panel of judges. Winning teams took home cash prizes and, more importantly, will have the opportunity to continue developing their idea and see it implemented.

Typically more than 300 people from around the world apply to be part of CBIT’s primary annual hackathon, according to Margaret Cartiera, PhD, Investment and Innovation Director at CBIT. Everyone who participates is on equal footing, whether they are an undergrad or a leading physician.

“We hope they leave their suits and their white coats at the door,” said Peter Schulam, MD, PhD, Chair of Urology and Co-founder of CBIT, along with Mark Salzman, PhD, Chair of Biomedical Engineering. CBIT was founded to catalyze biomedical technology development and commercialization at Yale.

Healthcare hackathons provide clinicians valuable input from people outside the healthcare system. “We all have blinders on,” he explained. “We do the same thing every day.”

Harishwar Patlolla arrived at the Hackathon with his eyes on the sky. He works at YNHHS

as a data intern while he is finishing his master’s degree in industrial engineering. The aviation industry has an extremely low failure rate, he noted, and plans far in advance, right down to a passenger’s seat assignment. Why couldn’t hospitals use data, he asked, to predict demand just as airlines do? “In the hospital, everything is reactive rather than proactive,” he explained.

The airline industry inspired the creation of Team Take Off at the hackathon, who proposed an airport lounge-style area for patients who have been discharged but are not going home for non-medical reasons – most commonly, because they are waiting for a ride. Moving discharged patients to a lounge would improve their experience while freeing up beds. Several teams focused on technology-based solutions, including telemedicine to prevent unnecessary trips to the emergency room and a phone-based system that would let patients know how long the wait for a test or procedure would be.

“Technology offers the possibility to truly reimagine healthcare,” said Patrick Kenney, MD. “If 19th century Americans had access to 21st century technology, healthcare for the sick would likely have evolved differently, perhaps without the need for large hospitals in the first place.” Dr. Kenney is Clinical Vice Chair of Urology and a member of the leadership team for Clinical Redesign, a YNHHS project to improve and standardize patient care. The group is the ultimate consumer for the ideas produced by this Hackathon.

“I used to work in finance,” he explained. “I’ve always been interested in systems.” The ideas that the teams pitch must benefit patient care. They must also make financial sense within a healthcare system where cost pressures are significant. “Successful projects here will be based on reality,” Dr. Kenney said.

Many routines have changed little since those early hospitals, agreed Sumeet Pawar, MD, a clinical fellow in cardiovascular medicine. “We take pride in bringing the latest cutting-edge technology to clinical practice,” he noted, while the logistics of healthcare lag. How do clinicians deal with that? “It’s mainly frustration,” said Dr. Pawar. Of the Hackathon, “Win or lose, it’s been inspiring to spend a day with bright people exploring better ways to organize care,” he said.

In the end, Dr. Pawar’s team, T³, was victorious. The name represents transparency, timeliness, and throughput, all of which they propose to improve by giving patients access to an electronic timeline that will help them understand what to expect while in the hospital and will also improve communication with and between their clinicians. The eight members beamed as they accepted a giant cardboard check for \$1000.

Even within teams that do not finish in the money, there are plenty of group selfies and plans to continue collaborating. “I felt empowered,” said Lori Ryder, perioperative director of ambulatory services at Yale New Haven Hospital. “I felt like my voice could be heard.” **Y**

HEALTHCARE HACKATHONS
PROVIDE CLINICIANS VALUABLE
INPUT FROM PEOPLE OUTSIDE
THE HEALTHCARE SYSTEM.

Improving Resident Wellness

To help equip Yale Urology residents with better tools and techniques to manage stress, our department implemented a resident wellness curriculum to provide better support throughout their training. “We really wanted to implement this program to provide our residents with the tools to help them continue to develop into well-rounded and successful providers,” said Adam Hittelman, MD, PhD, Residency Director. “It is well documented that physicians have very high burnout compared to other professions and recent research has begun focusing less on averting burnout and more on physician wellness.”

A formal curriculum has been developed, integrating activities into existing schedules and prioritizing wellness education as a key piece of the resident experience and training. Using the Wellness Wheel (below)

as a framework to define eight overlapping dimensions of wellbeing, the structure of the program is designed to focus on the holistic resident wellbeing. The Accreditation Council for Graduate Medical Education (ACGME) has included resident wellness in the common program requirements in recognition of the importance this has in the training of newly minted doctors.

By way of Yale’s program design, its goal is to produce well-rounded physicians with enhanced coping skills for future success. “I have enjoyed being a part of this new initiative,” said Cynthia Leung, chief resident, Yale Urology. “Through the activities and unique programs we participate in, I can really see how the skills we are taking away will benefit us – and our patients – in the future.”



INTELLECTUAL WELLNESS The ability to open our minds to new ideas and experiences that can be applied to personal decisions, group interaction and community betterment.



EMOTIONAL WELLNESS The ability to understand ourselves and cope with the challenges life can bring.



OCCUPATIONAL WELLNESS The ability to get personal fulfillment from our jobs or chosen career fields while still maintaining balance in our lives.



ENVIRONMENTAL WELLNESS The ability to recognize our own responsibility for the quality of the environment that surrounds us.



FINANCIAL WELLNESS The ability to identify our relationship with money and skills in managing resources. An intricate balance of the mental, spiritual and physical aspects of money.



SPIRITUAL WELLNESS The ability to establish peace and harmony in our lives.



PHYSICAL WELLNESS The ability to maintain a healthy quality of life without undue fatigues or physical stress.



SOCIAL WELLNESS The ability to relate to and connect with other people in our world.

Yale Urology Residents Fellowship placements (2012-present)

CLEVELAND CLINIC	2012 Christopher Starks, MD Male Infertility/Microsurgery
INDIANA UNIVERSITY SCHOOL OF MEDICINE	2012 Hristos Kaimakliotis, MD Urologic Oncology
NATIONAL CANCER INSTITUTE	2014 Amichai Kilchevsky, MD Urologic Oncology
MEDICAL UNIVERSITY OF SOUTH CAROLINA	2014 Jaimin Shah, MD Urologic Oncology
CITY OF HOPE COMPREHENSIVE CANCER CENTER	2015 Steven Kardos, MD Urologic Oncology
HACKENSACK UNIVERSITY MEDICAL CENTER	2016 Gerald Portman, MD Laproscopy/Robotics
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL	2017 Nnenaya Agochukwu, MD Health Services Research
VANDERBILT UNIVERSITY MEDICAL CENTER	2017 Sophia Delpo, MD Female Pelvic Medicine
EMORY UNIVERSITY SCHOOL OF MEDICINE	2018 Qiaqia (Charlotte) Wu, MD Pediatric Urology
BOSTON UNIVERSITY SCHOOL OF MEDICINE	2018 Shu Pan, MD Reproductive Medicine

Faculty and Clinicians

Alejandro Abello, MD	Sarah Lambert, MD
Kamyar Amirkhiz, MD	Ming Lu, PhD
Angela Arlen, MD	Michael S. Leapman, MD
Ryan Artigliere, PA	Mary Grey Maher, MD
Charlotte Bell, NP	Rafaela Mangino, PA
Leonid Bilenkin, PA	Elizabeth Mann, PA
Marta Boeke, PhD	Darryl Martin, PhD
Lisa Boyd, PhD	Thomas V. Martin, MD
Joseph Brito, III, MD	Kaitlyn Murphy, APRN
Thomas M. Buckley, MD	Piruz Motamedinia, MD
Toby C. Chai, MD	Rebecca Orsulak, PA
John W. Colberg, MD	Marianne G. Passarelli, MD
Kristin Crowley, APRN	Daniel P. Petrylak, MD
Cynthia Curto, APRN	Brian Picciano, PA
Ralph J. DeVito, MD	Gerald Portman, MD
Harris E. Foster, Jr., MD	Victor Quintanilla, PA
Israel Franco, MD	Joseph Renzulli, MD
Therese Gardere, APRN	Leslie M. Rickey, MPH, MD
David G. Hesse, MD	James S. Rosoff, MD
Gillian Hepburn, PA	Peter G. Schulam, MD, PhD
Allister Hirschman, PA	Dinesh Singh, MD
Adam B. Hittelman, MD, PhD	Preston Sprenkle, MD
Asal Hojjat, MD	Ralph F. Stroup, MD
Stanton Honig, MD	Timothy Tran, MD
Marissa Jacko, PA	Lee Venancio, PA
Daniel S. Kellner, MD	Robert M. Weiss, MD
Patrick A. Kenney, MD	



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