For Patients at Risk for Hereditary Cancers, Program Provides Answers

Fueled by dramatic advances in DNA sequencing technology, genetic testing has become much more accessible, with substantial cost reductions along with far more rapid and complete results. In the field of urologic oncology, this has led to the realization that many more cancers than previously believed are inherited.

“Hereditary forms of cancer are increasingly being recognized,” says Brian Shuch, MD, UCLA Urology associate professor, director of the Institute of Urologic Oncology Kidney Cancer Program, and the Henry Alvin and Carrie L. Meinhardt Chair for Kidney Cancer Research. “We used to think they were rare, but the more we have access to genetic testing and counseling services, we learn that up to 10% of patients with urologic cancers can be attributed to a genetic predisposition. And each year, we learn more about particular genetic alterations associated with those predispositions.”

With more known urologic cancer genes, the issue of genetic testing has become more important. “When you have a patient diagnosed with a cancer, you now have to wonder, did it occur spontaneously or was there a strong genetic predisposition - which potentially means they’re not just at risk

continued on page 2
Genetic Testing

for this cancer, but possibly for other cancers, and their children or family members could be at risk as well,” Dr. Shuch says. Many patients can benefit from a genetic risk assessment, Dr. Shuch notes. Not everyone needs one — it depends on factors that include the type of cancer, age at diagnosis, personal and family history, and the disease manifestations. “Getting diagnosed with prostate cancer at age 48 is very different from getting diagnosed at 68 when we’re considering the potential for inherited cancers,” Dr. Shuch explains. “Similarly, having one kidney tumor is different from having multiple kidney tumors.”

All told, approximately 80 genes have now been linked to different cancer predispositions. This has led to changes in national guidelines for when genetic testing is recommended. In prostate cancer, for example, until recently it was rare that patients were genetically tested. “We thought only 1-2% of men diagnosed with prostate cancer had hereditary forms, but now we realize it might be as high as 15% of individuals with advanced disease,” Dr. Shuch says. To meet newly developed guidelines on which patients should be referred for further genetic evaluation and potential testing, tens of thousands of patients with newly or previously diagnosed urologic cancers will need to be evaluated — far more than in the past, he notes.

This increased need for genetic screening has strained the ability of academic centers to perform risk assessment and counseling. Certified genetic counselors are best equipped to conduct genetic risk assessment and counseling prior to the initiation of testing, but there are fewer than 5,000 of them in the U.S., and their capacity to see new patients is limited, with waiting times often as long as several months to begin the process of obtaining information that can be critical to the management strategy for a patient’s cancer. “To address that burden, many physicians have ordered testing on their own, which can lead to inappropriate counseling, testing, and interpretation of results, and potentially a lack of proper follow-up with at-risk family members,” Dr. Shuch says.

To address these unmet needs, Dr. Shuch has developed a pilot program that utilizes telehealth appointments with a collaborating team that employs licensed genetic counselors throughout the United States. When newly diagnosed urologic cancer patients meet criteria, they are referred for immediate access to one of the company’s licensed genetic counselors, who provide counseling services, order the test for patients who opt to proceed, and, in conjunction with the UCLA team, have the blood drawn in the clinic and shipped to the diagnostic laboratory. Once the testing is performed, they are also able to interpret and advise on the next steps, including referrals to other UCLA specialists if needed.

The program is seeking to better understand whether the prompt attention leads to higher patient satisfaction along with better outcomes when it comes to providing appropriate testing for family members found to be at risk based on the patient’s results.

The genetic tests can provide critically important information, Dr. Shuch notes. For example, a patient found to have prostate cancer caused by a mutation in the BRCA2 gene can be a candidate for a drug that specifically targets that mutation. The knowledge of the genetic culprit could also increase their risk for certain other cancers, indicating the need for closer surveillance. Female family members might be advised to test for the same mutation — and, if found, to consider a prophylactic mastectomy or oophorectomy based on their breast and ovarian cancer risk. In other cases, the genetic test may provide reassurance for the newly diagnosed cancer patient. For example, individuals with multiple small kidney tumors found to have the hereditary condition known as Birt-Hogg-Dubé syndrome might not need surgery, since such tumors can often be safely watched for a number of years.

Patients are referred for genetic screening based on criteria that include the characteristics of their tumor, age of cancer onset, and other cancers...
or benign conditions they or their family members have had. Dr. Shuch notes that this means that roughly 10-20% of the urologic cancer patients his clinic sees are recommended for further genetic risk assessment. “If 5-10% of patients have a genetic alteration predisposing them to cancer, we want to cast a wide enough net to make sure we’re not missing them,” he says. “Previously, we haven’t had the capacity to do that. This program is aimed at increasing that capacity to give patients access to appropriate counseling and testing in a timely manner.”

Patients have responded positively to the new program. “They’re anxious, and they want to know what caused their cancer,” Dr. Shuch says. “Having rapid access to experts has allowed them to get answers quickly and efficiently, and allows our team to expedite their care.”

Genetic Testing Program a Game-Changer for Patient

In most health care settings, the discovery of multiple small tumors in Dianne King’s kidney more than a year ago would likely have prompted a partial or radical nephrectomy. And in King’s case, it was the only kidney she had left and something she couldn’t spare. Diagnosed at age 15 with a Wilms tumor — a rare childhood cancer that starts in the kidneys — King had her affected kidney removed, followed by a year of chemotherapy. She remained cancer-free into middle age, but in September of 2020, after her primary care physician recommended imaging to check on the function of her remaining kidney, the test revealed the lesions.

“I was scared,” King recalls. “I thought I would have to have the kidney removed, which would have meant going on dialysis.”

King’s fears were allayed after she was referred to Dr. Brian Shuch, UCLA Urology associate professor and director of the Institute of Urologic Oncology Kidney Cancer Program, and learned of a pilot program Dr. Shuch had launched to provide genetic risk assessments, testing and counseling to patients at risk for hereditary cancers. She received immediate genetic counseling and testing, which revealed that her current tumors and possibly her childhood kidney cancer were caused by Birt-Hogg-Dubé syndrome, a hereditary condition that puts carriers at elevated risk of developing bilateral, multifocal kidney cancers.

Because tumors associated with the condition tend to be less aggressive, that information led Dr. Shuch and his team to recommend a plan of active surveillance until a specific size threshold. “Dr. Shuch put me at ease when he said that based on the genetic testing result, the tumors would grow at a very slow rate, so it was best not to do anything radical with my good kidney,” King says. In addition, the relatively indolent nature of these tumors makes it more likely that if their growth becomes a concern, all of them could be taken out by a partial nephrectomy rather than removing the entire kidney. As these tumors do not need to be removed with a wide margin, most of the kidney may be able to be preserved.

Based on the findings, King’s blood relatives, including her father, siblings, and children, all tested for the syndrome, and several tested positive, which means they will be closely screened in the future to ensure that any kidney tumors are detected early and monitored. The Birt-Hogg-Dubé diagnosis in King’s sister — who had previously had two surgeries after renal tumors were discovered — means she is now being closely monitored, like King.

“The immediate counseling, testing, and results for me and my family gave me the peace of mind to know what was causing this and that we had a plan going forward,” King says. “I can’t say enough about this program, and am so thankful to Dr. Shuch and his team.”

New Faces

Rajiv Jayadevan, MD

Dr. Jayadevan joins UCLA Urology as an assistant professor in the Division of Men’s Health, where his clinical focus is in male fertility, male sexual medicine, sexual function-preserving treatment of benign prostatic hyperplasia (BPH), and general urology. He earned his undergraduate degree in nonfiction writing at Brown University, and his MD from Icahn School of Medicine at Mt. Sinai. Dr. Jayadevan completed urology residency followed by a fellowship in male reproductive medicine and surgery, both at UCLA. During his UCLA Urology residency he studied patient decision-making in men’s fertility treatments, as well as prostate cancer detection and focal treatment.

Parth Patel, MD

Dr. Patel joins UCLA Urology’s Division of Endourology as a health sciences clinical assistant professor, and sees patients at UCLA Urology’s offices in Santa Monica and Santa Clarita, with a focus on all aspects of endourology including urinary stones, benign laparoscopy and robotics, and male bladder outlet obstruction, as well as general urology. Dr. Patel’s academic focus at UCLA Urology involves clinical and translational work in office-based bladder outlet procedures and patient-centered outcome improvement in kidney stone surgery. He earned both his undergraduate degree in neuroscience and his MD from Saint Louis University, then completed his urology residency training at Loyola University Medical Center in Chicago, and his fellowship in endourology and minimally invasive surgery at UCLA.
HEALTHY AT EVERY AGE

Genetic Risk Assessment for Urologic Cancers

A s more is learned about hereditary cancer risk, it’s now believed that as many as 5-10% of urologic cancers — cancers of the prostate, kidney, bladder, testicle, ureter and adrenal glands — are related to a genetic predisposition, with dozens of recognized genetic cancer syndromes. Just as women at risk for breast cancer or individuals found to have colon polyps are urged to pursue heightened screening approaches, it’s become clear that men and women who fit certain genetic profiles could be at increased risk of urologic cancers and other manifestations, and should pursue a similar approach to genetic risk assessment.

Upon diagnosis with a urologic cancer, patients may be considered candidates for a genetic assessment to evaluate a potential inherited predisposition. Such an assessment can help to clarify why the cancer developed and, if it is determined to be caused by an inherited mutation associated with the disease, can lead to a better-informed treatment plan, screening for additional cancers, and a discussion of whether family members may be at risk and should pursue genetic testing. Some of the factors that may lead to a recommendation for genetic risk assessment include having cancer at a very early age, having more than one tumor in paired organs (such as the other kidney), having unusual or unique tumor microscopic characteristics, and a personal or family history of other cancers.

Genetic risk assessments are generally performed in consultation with a genetic counselor who has received specialized education in both medical genetics and counseling. Those qualifying and willing to pursue testing are evaluated for changes in their genes known to increase cancer risk. The newly established UCLA Genitourinary Cancer Genetic Risk Assessment Program has an experienced team equipped to identify those at risk and refer them for appropriate screening. The program helps initiate state-of-the-art screening for individuals found to be at risk of other types of cancer. Often, treating at the earliest sign of tumor formation can minimize unnecessary harm or death by preventing advanced forms of urologic cancer.

For more information, visit www.uclaurology.com. To make an appointment, call (310) 794-7700.

ALUMNI PROFILE

Peter Mulders, MD

More than 25 years ago, Dr. Peter Mulders found the perfect site for his urologic oncology fellowship training, even if it was some 5,600 miles away from Radboud University Nijmegen Medical Center in The Netherlands, where Dr. Mulders completed medical school and residency training in urology.

In a laboratory in Nijmegen, researchers had discovered an antibody specific to renal cell carcinoma, the most common type of kidney cancer. At UCLA, the Kidney Cancer Program, then under the leadership of Dr. Arie Beldegrun, was pioneering the then-new research area of immunotherapy for renal cell carcinoma. At the recommendation of Radboud’s urology chair at the time, Dr. Mulders brought the newly discovered antibody with him to UCLA for his clinical fellowship training.

During Dr. Mulders’ two years as a UCLA urologic oncology fellow, he participated in research in which the antibody, carbonic anhydrase IX, was successfully delivered through dendritic cells — antigen-presenting immune cells — to produce an immune response in kidney cancer patients. The approach, which acts as a vaccine, has continued to be successfully refined since that time in kidney cancer as well as melanoma and, more recently, prostate cancer.

“This was the first dendritic cell vaccine, and it was spectacular to work on it in the laboratory at UCLA and then be able to inject it in a kidney cancer patient, all during my fellowship,” Dr. Mulders says.

After his two productive years at UCLA Urology, Dr. Mulders returned to The Netherlands, where he is currently professor and chair of the Department of Urology at Radboud, a position he has held for more than 20 years, starting not long after he completed his fellowship training. In addition to seeing patients and heading a large urology department, he has continued to conduct research and lead clinical trials designed to develop immunotherapy and other new treatments and diagnostic approaches to urologic cancers. He has served as chair of the European Association of Urology Research Foundation and currently is study coordinator on several international clinical trials, including a new trial of a vaccine in combination with a checkpoint inhibitor — an emerging approach for renal cell carcinoma.

“Seeing how the UCLA Urology department worked was extremely helpful as I was establishing a similar department in Radboud,” Dr. Mulders says. “It’s been very rewarding to build on that experience to be able to translate laboratory findings into the establishment of innovative surgical and systemic therapies. It has been great to continue working on some of the same research as UCLA, and to know that the UCLA Kidney Cancer Program continues to be as strong as ever.”
In 2003, an international consortium of scientists completed a 13-year odyssey in which they sequenced the 3.3 billion base pairs of what was known as a reference human genome — our genetic blueprint. The $3 billion Human Genome Project paved the way for the sequencing of the first individual genome four years later. That took six months and cost $4 million.

The advances in genetic testing technologies in the 15 years since have been nothing short of remarkable. Today, dozens of genes associated with a particular disease can be tested simultaneously for $250 or less, with the results returned in as soon as three weeks. In the field of cancer, this is having a huge impact. Since tumors have different genetic signatures, the accessibility of these tests is leading to so-called targeted therapies taking aim at the specific cellular processes involved in a particular cancer.

The increased testing has also led to the discovery that many more cancers than we realized, including in urology, have a hereditary basis. For patients suspected of having one of these cancers, genetic testing can provide information that can significantly alter the course of how they are treated, or even whether immediate treatment is necessary. It can also suggest whether family members might share their genetic risk and benefit from testing and, potentially, the process of enhanced screening to ensure that if they develop cancer, it is detected at a stage when treatment is likely to be more effective.

As our cover story details, this testing, while potentially invaluable, calls for highly trained genetic counselors who consult with patients prior to their decision on whether to test, discuss the implications of the results, and follow up with potentially affected family members. Unfortunately, there is a significant shortage of these specialized professionals, leading to long wait times. But Dr. Brian Shuch, director of the UCLA Kidney Cancer Program and the Alvin & Carrie Meinhardt Endowed Chair in Kidney Cancer Research in our department, has spearheaded a pilot program, in partnership with a national company that employs licensed genetic counselors. This has provided immediate access to potentially critical information for patients with urologic cancers thought to be hereditary, as well as their family members.

We often talk about the basic science research that takes place in the laboratory, and the translational efforts to bring those discoveries to fruition through clinical applications leading to better treatment. Our department excels in both areas. But Dr. Shuch’s program shows that we can and do take the research a step further, through what’s known as implementation science — ensuring that the advances in our testing and treatment capabilities reach the people who can benefit from them.

❖ Mark S. Litwin, MD, MPH
Professor and Chair, UCLA Urology

Efe Chantal Ghanney Simons, MD, UCLA Urology resident, was appointed an inaugural executive board member of the UCLA Minority Housestaff Organization, a house staff-driven organization dedicated to the mission of excellence through diversity. Dr. Ghanney has used her leadership to advance pipeline efforts to assist in the recruitment, retention, and mentorship of historically underrepresented-in-medicine students. She was recognized by American Urological Association (AUA) president Dr. Raju Thomas for her dedication and leadership as a member of AUAs Diversity & Inclusion Task Force.

Cindy Gu, MD, UCLA Urology resident, received a $25,000 HH Lee Research Grant, which will focus on interstitial cystitis/bladder pain syndrome, a chronic pain disorder involving a constellation of lower urinary tract symptoms and bladder/pelvic pain. She will be mentored by Dr. A. Lenore Ackerman.

Tommy Jiang, David Geffen School of Medicine at UCLA (DGSOM) student mentored by Dr. Amar Kishan, associate professor of radiation oncology and urology, received a prestigious 2022 Dean’s Leadership in Health and Science Scholarship from DGSOM. His project will focus on optimizing post-prostatectomy radiotherapy. He is also the recipient of an AUA Summer Medical Student Fellowship for a similarly themed project.

Lin Lin, MD, UCLA Urology resident, received a $25,000 HH Lee Research Grant, which will focus on renal oncocytoma, a benign kidney neoplasm. She will be mentored by Dr. Brian Shuch. Dr. Lin also received the 2022 Urology Care Foundation Residency Research Award from the AUA.

Victor Nitti, MD, the Shlomo Raz Chair in Urology and chief of the Division of Female Pelvic Medicine and Reconstructive Surgery, received a Sacral Neuromodulation Education Therapies fellowship grant from Medtronic for the third consecutive year.

Allan Pantuck, MD, UCLA Urology professor and vice chair of academic affairs, was elected to the American Association of Genitourinary Surgeons, the highest academic honor in urology. Dr. Pantuck’s scholarship has been focused on advancing the understanding of diagnostic and therapeutic immunology in patients with kidney cancer. He joins the elite roster of a 135-year-old society with only 75 active members in North America.

Natalia G. Peñaloza, DGSOM student, received a 2021-22 Viola Hyde $3,000 Surgical Research Scholarship.

Robert Reiter, MD, MBA, UCLA Urology professor, director of the Prostate Cancer Program and Bing Research Chair in Urology, received a Prostate Cancer Research Program Idea Development Award – Established Investigator Award from the Department of Defense Office of Congressional Directed Medical Research Programs for his grant, “Targeting N-Cadherin for Inhibition of Enzalutamide Resistance and Emergence of Neuroendocrine Prostate Cancer.”

Richard C. Reznicek, MD, UCLA Urology clinical professor, and co-authors, Drs. L. Darling Valverde and S. Magdaly Torres, had a manuscript, Establishing synoptic cancer pathology reporting in low- and middle-income countries: A Nicaraguan experience, published in *JCO Global Oncology*.

Kymora Scotland, MD, PhD, UCLA Urology assistant professor, received a grant from the DGSOM Office of Justice, Equity and Diversity Inclusion to attend the Association of American Medical Colleges Early Career Women Faculty Leadership Development Seminar in July. Dr. Scotland also received the 2022 Young Urologist of the Year Award from the AUA in recognition of her efforts and commitment to advancing the development of early-career urologists. She was recognized at the AUA annual meeting in May in New Orleans at the Young Urologists Forum.

Brian Shuch, MD, UCLA Urology associate professor, director of the Institute of Urologic Oncology Kidney Cancer Program, and Henry Alvin and Carrie L. Meinhardt Chair for Kidney Cancer Research, received a Kidney Cancer Research Program Idea Development award – Established Investigator Award from the Department of Defense Office of Congressional Directed Medical Research Programs for his grant, “Exploiting DNA Repair Defects in Krebs Cycle-Deficient Renal Cell Carcinoma.”

Grace Sollender, MD, UCLA Urology resident, received a $25,000 HH Lee Research Grant for her qualitative interviewing project exploring the clinical experience and attitudes of adolescent patients and their families regarding the evaluation, surveillance, and management of varicoceles. She will be mentored by Drs. Sriram Eleswarapu, Jennifer Singer, and Christopher Saigal.

Renea Sturm, MD, UCLA Urology assistant professor, received the 2022 Urology Care Foundation Outstanding Graduate Scholar Award for her two-year research project on Bio-inspired Urethral Design: Scaffold Creation and Evaluation. She was honored at the 2022 Urology Care Foundation Research Honors Program & Reception at the AUA annual meeting in New Orleans.
Dr. Carol J. Bennett Steps Down From VA Leadership Role

Carol J. Bennett, MD, the Henry E. Singleton Chair in Urology at UCLA and a pioneer in the field, has announced her retirement from her position as chief of urology at the Greater Los Angeles VA Healthcare System after nearly three decades, effective September 2022. Dr. Bennett will continue to serve as a member of the UCLA Urology faculty.

Under Dr. Bennett’s clinical and administrative leadership, the VA urology clinic evaluates nearly 16,000 patients per year and has earned numerous awards for high-quality patient care. In 1987, Dr. Bennett became the first Black woman to be board-certified by the American Board of Urology.

Dr. Bennett continued to break new ground when she was recruited to join the UCLA Urology faculty in 1996 as the department’s first woman, paving the way for many more. Today, although less than 10% of U.S. urologists are women, at UCLA 31% of practicing urologists and 42% of urology residents are. Beyond serving as a role model for the women who have followed her in the department, Dr. Bennett has trained nearly 150 urology residents in her career.

“Urology has been a journey,” Dr. Bennett said recently, “but what an extraordinary ride it has been.”

Sue and Chris Congalton

Sue and Chris Congalton will never forget the day, more than two years ago, when they met Dr. Brian Shuch, UCLA Urology associate professor, director of the Institute of Urologic Oncology Kidney Cancer Program, and the Henry Alvin and Carrie L. Meinhardt Chair for Kidney Cancer Research.

The couple had just learned that cancer had not only completely filled one of Chris’s kidneys, but that it had invaded the inferior vena cava (IVC) and traveled up to the edge of his heart, with spots found on his lung as well. Although the news was upsetting, the Congaltons say they were comforted by the thoroughness and compassion of Dr. Shuch’s approach. He explained that he would assemble three teams for the surgery — a liver surgeon and a cardiac surgeon along with Dr. Shuch, who would remove the diseased kidney and repair the IVC.

The surgery was a success — Chris Congalton’s kidney was removed, and the IVC was opened so the cancer could be eliminated before it was sewn back. Once Chris had sufficiently recovered from the surgery, a radiation oncologist treated an isolated location with brachytherapy rather than conventional external radiation. By inserting a radioactive seed into the largest spot on his lung, it could spare Chris some of the collateral damage and enable higher therapeutic doses to kill the lesion. Next came immunotherapy treatment, which kept things stable for quite some time, and once that ceased being effective, Dr. Shuch helped advocate for an exciting clinical trial using a novel therapeutic approach.

“Throughout this difficult process, we have been consistently impressed with the degree of caring, the quality of communication and patient engagement, and the expertise of everyone we have encountered at UCLA,” Sue Congalton says. “Dr. Shuch has maintained a close and ongoing relationship with us and remains very involved in Chris’ treatment.”

In late 2020, the Congaltons made a substantial contribution to support the UCLA kidney cancer program. “As we began this journey, we didn’t realize what an insurmountable challenge lay before us,” Chris Congalton says. “We have since learned that it wasn’t long ago that Stage 4 kidney cancer carried a very grim prognosis. But from the beginning, Dr. Shuch held open the hope that, as research strides continue, this terrible reality can ultimately be transformed into a chronic disease. We want to do everything we can to support that goal.”

Sue Congalton says the improvement her husband has experienced in recent months, allowing him to again enjoy playing golf with friends, seems like a miracle. “We don’t know exactly what the next steps will be,” she says. “But we know we have the right master guide and support team, and we are hopeful that some of the ongoing trials will produce a new way to keep this terrible disease under control, for more years.”
The Men’s Clinic at UCLA

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Have life circumstances changed? Did you know your vasectomy is reversible? Microsurgeons at The Men’s Clinic at UCLA are world leaders in vasectomy reversal, a minimally invasive outpatient procedure with stellar success rates.

The Men’s Clinic at UCLA is a comprehensive, multidisciplinary health and wellness center located in Santa Monica, now with locations in Burbank and Santa Clarita. For more information or to make an appointment, call (310) 794-7700.