Mitigating Urological–Oncologic Outpatient Volume Reductions during COVID-19 in a Tertiary Referral Center

Introduction

Beginning in March 2020 telehealth usage expanded across hospitals and clinics in the United States in response to the COVID-19 pandemic, with urologists rapidly integrating virtual outpatient visits into their practices. The differential impact of telehealth on frequently encountered urological–oncologic conditions has yet to be investigated. Here, we compare trends in urological–oncologic appointment rates over a matched period in 2019 and 2020. Additionally, we study individual trends for the most commonly encountered urological–oncologic conditions in terms of telehealth usage, new and established patient appointment distribution, and overall appointment volume to identify factors that may influence individual practice patterns for these diagnoses.

To provide evidence to clinicians after the first peak of the pandemic, we analyzed electronic health records to perform a matched periods analysis and used a period January 1, 2019, to January 31, 2020. hospitalization with new telehealth visits that were correlated with outcomes were noted to increase in patients with genitourinary congenital anomalies. They exist on a spectrum from severe to mild and can affect individuals of all ages.
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weekly percentage change (AWPC) and 95% confidence intervals were estimated to summarize linear trends.

Results

Urological–oncologic appointments in the 2019 period (2,100) showed no significant changes (AWPC –0.2%, p=0.9). In 2020 oncologic appointments (1,381) had a significant decrease from weeks 1 to 3 (AWPC –28.1%, p <0.001). However, weeks 1 to 4 showed a significant increase in oncology telehealth appointments (AWPC +391.2%, p <0.001). A stable trend in all 2020 oncologic appointments continued between weeks 3 to 6 (AWPC –6.7%, p=0.6). In week 6 the overall trend reflected and had a significant increase until week 13 (AWPC +7.3%, p <0.001). Weeks 4 to 13 showed no significant trends in oncology telehealth appointments (AWPC –4.9%, p=0.4; see figure and table). During the study period, the percentage of patients evaluated with telehealth were 58.2% for prostate cancer, 51.7% for renal cancer, 54.2% for testicular cancer (primarily followup visits) and 42.1% for bladder cancer (see figure). There was a sharp decline in new and established visits during weeks 2 to 4 of the 2020 study period. In 2020 new patient oncologic visits significantly decreased while established patient oncologic visits significantly increased (AWPC –3.2% vs +0.8%; p<0.001) differing from trends seen in 2019 (AWPC –1.9% vs +0.5%, all p >0.2). Appointment cancellations showed a steep increase in the first 3 weeks studied in 2020 (AWPC +54.9%; p <0.001), stabilizing thereafter and showing a comparable trend with 2019 (AWPC +5.2% vs –0.9%, all p >0.1; see table).

Discussion

Table 1: Join point regression analysis of urological outpatient appointment trends in weeks from 2019 and 2020, and percentage of telehealth appointments in 2020 period.

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Urological–Oncologic Reductions during COVID-19

Continued from page 3

limit the risk of person to person transmission. Telehealth represents the ultimate venue for accomplishing these goals while maintaining access to healthcare. We found that after rapid adoption of telehealth pathways the trends of decreasing outpatient visits and increasing cancellations rapidly subsided. Moreover, our data suggest that telehealth was able to adequately supplement overall visits for new and established patients. Interestingly, the cancellation rates were similar between the time periods apart from weeks 3, 4 and 13. During 2020 those weeks coincided with the greatest rises in COVID-19 cases/initiation of lockdown measures (weeks 3 and 4), and the commencement of the #BlackLivesMatter protests (week 13). These likely contributed to the higher cancellation rates (28% in 2020 vs 20% in 2019).

Our data also show significant contrasting trends for overall new and established patient oncologic visits as well as differing rates of telehealth usage across urological–oncologic conditions. We observed decreases in new patient appointment rates for certain urological malignancies (renal and testicular) and comparable rates for others (prostate and bladder). These differences can possibly be attributed to patients' increased reliance on community hospitals for initial treatment of new malignancies, foregoing travel to tertiary care centers. Variation in initial telehealth evaluation of urological malignancies is likely related to the need for physical exam or in-office procedures. Patients with prostate or renal cancer exhibited higher percentages of telehealth use, as initial and followup visits rely primarily on clinicopathologic results and imaging. Patients with bladder cancer patients were primarily seen in person given the need for endoscopic evaluation or urgent surgical intervention.

Prompt modification in national reimbursement policies and physician and patient acceptance represent the keys for successful adoption of a telehealth program with the goal of mitigating outpatient volume reductions. Integration of telehealth by tertiary care centers may also reduce loss to followup of geographically distant patients. This may avoid the potentially catastrophic effects that delays in diagnosis, treatment indication and inadequate followup adherence could have on disease prognosis, quality of life and health care system costs.

In conclusion, telehealth implementation helped reverse the initial decline seen with urological outpatient volume at our institution. The acceptability and effectiveness of these appointments provide evidence that the rapid transition to televisits directly mitigated the sharp reduction in urological appointments during COVID-19.

Acknowledgments

We thank Tracy Campanelli and Kathy Campanelli for their fundamental support in this project.

and wider pubrectal sling than normal and divergence of the levator ani muscles. The anus is usually anteriorly displaced.³ Cloacal extrophy (CE), otherwise known as the omphalocele-extrophy-imperforate anus-spinal anomaly (OEIS) complex, includes an omphalocele as well as the persistence of an extrophic rudimentary hindgut and prolapsing of the ileum between 2 separate bladder plate halves. CE is also associated with spinal defects as well as frequent renal abnormalities.

Accurate prenatal diagnosis of these congenital anomalies has a significant impact on parents for counseling and setting expectations. Despite advances in prenatal imaging only 10% to 32% of babies with BE or CE have a prenatal diagnosis.³ Providing an accurate prenatal diagnosis for expectant parents is crucial because the various diagnoses on this disease spectrum hold vastly different prognoses with respect to morbidity during an entire lifetime. Moreover, prenatal diagnosis helps to guide postnatal care and prevent urgent transfer of a baby and separation from the mother.

Fetal imaging includes an initial fetal ultrasound (fUS), with progression to fetal magnetic resonance imaging (fMRI) to further evaluate abnormal findings. However, the suspicion of the diagnosis has to be made based on an initial fUS. The diagnosis of classic BE with a small bladder, one that is not protruding on fUS, is predicated on identifying the absence of a urine filled bladder. It is much harder to see something that is not present than to identify something that is present and looks abnormal. If an abnormality is suspected, evaluation for a widened pubic diastasis or low lying umbilical cord may be helpful. Technologic improvements in fUS now offer high levels of detail and CL DEVELOPMENT.

IMRI was a protuberant anterior abdominal mass that was misinterpreted as an omphalocele, thereby misclassifying the fetus on the OEIS spectrum rather than as a classic BE. Retrospective review of the prenatal images by 2 radiologists experienced in fetal imaging correctly established the final diagnosis in all cases. The location of the insertion of the umbilical cord on the abdominal wall in relation to the abdominal wall defect distinguishes a protuberant bladder plate in BE from an omphalocele in CE. In addition, because a large bladder plate may protrude due to increased abdominal pressure from movement or straining, a bulging abdominal wall lesion, even if it appears to have loops of bowel posterior to it, may be a bladder rather than an omphalocele (fig. 1).

The care of children born with BEEC begins with the fetal diagnosis or during the initial care in the neonatal intensive care unit, but the management requires a lifetime of active surveillance and careful adjustments in treatment. The last 50 to 60 years have witnessed a continued evolution of the surgical approach, and no single technique has provided consistent results. The surgical objective for all approaches

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**Figure 1.** T2 sagittal images of fetal MRI (A and B) and fetal US (C and D) in a patient with BE demonstrating insertion of umbilical (long arrows) cord superior to a defect (short arrows; A and C), protuberant bladder plate with bowel posterior to the plate (short arrows; B and D) and postnatal appearance of female with BE and large protruding bladder (E). (Republished with permission from The Journal of Pediatric Urology.)⁴

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**No. CPRE Performed Per Year**

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Dr. Elizabeth Dannenberg, John Trus, and Dr. Dana Cukierman found, through Dr. John Trus. The procedures to reduce the risk of surgical complications and improve patient management and outcomes. In the years 2010 to 2012, each CPRE was performed and the number of patients increased over time at each institution.

At MIBEC, the safety of the surgical approach continues to improve.
Bladder and Cloacal Exstrophy Progress

Continued from page 5

closure without dehiscence, minimization of fistulae and most of all prevention of corporal ischemia, which can lead to glans and corpora loss, the most significant and unrepairable complication of the surgery. To prevent this complication MIBEC surgeons closely observe the perfusion of the glans during pelvic bone approximation and carefully adjust the degree of pelvic closure to prevent excessive pelvic pressures, which we believe may result in corporal and glanular ischemia. Once a hallmark of the repair, we no longer disassemble the glans to augment collateral distal perfusion following epispidias repair. In order to provide consistent and durable continence with voiding, we have refined the bladder neck and proximal urethral tailoring in hopes of achieving a gentle and yet funneled anatomic bladder neck to aid in the gradual development of voiding continence without obstruction. In many cases we externally rotate the corpora, which we believe helps reduce dorsal chordee.

Each MIBEC surgery is recorded with high-definition cameras. This has allowed us to develop and store a video library of “game films” edited to focus on the key steps of each closure and subfilms that focus on a particular aspect such as bladder neck measurement and tapering, penile dissection or even the monsplasty. Before each surgery we collectively review these movies as a “warm up” for the attending surgeons, fellows and residents who will participate. We focus on specific steps used in previous reconstructions that were successful or may need improvement.

Even after over 20 years of experience with exstrophy surgery, review of the game films suggest that today’s closures are better than those recorded as recently as 5 years ago. In surgery—just as in sports or music—coaching, dedication, self-critique and game film review refine and improve technique. In a presentation at the AUA in May 2019 we reported outcomes of 28 patients who underwent CPRE (12 girls and 16 boys) with at least 3 years of followup. There were no complete dehiscences and no glans or corporal injuries. In all, 5 children developed fistulae, 5 had temporary urinary retention and 2 require ongoing CIC. Six of the 28 had dry intervals of greater than 2 hours, and an additional 5 already had intervals of 1 to 2 hours. Therefore, 9 of 28 (32%) are already on the way to voiding with continence. This preliminary number is already well ahead of the 20% observed in our preMIBEC series.9,10

We hope that after gentle anatomic modeling of the bladder neck and aggressive physical therapy the child who is wet at age 5 will achieve voiding with continence by age 10 or 15 as the bladder grows and pelvic muscles mature. With bladder growth we believe we are seeing the child develop the sensation of a full bladder and a desire to void. We work with parents to encourage them to be patient with the child in the hope that this hard won continence forged on an anatomic repair will be durable and the alternative—augmentation and intermittent catheterization—will not be required in this next generation of children born with this challenging defect.


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Telemedicine—What Role Will it Play in the Future of Urology?

Telemedicine is now unquestionably an integral part of the menu of services available to patients, and it will likely expand as the demand for it increases. Before the onset of the COVID-19 pandemic, telemedicine was a $3 billion industry. According to a study conducted by the consulting firm McKinsey, telemedicine has increased in use between 50 and 175 times. Almost half of patients are using telemedicine to replace canceled in-person visits. Patient satisfaction is extremely high, but just as important 57% of providers view telemedicine more favorably than they did prepandemic and 64% are comfortable using it.

Telehealth is the use of telecommunication technologies for clinical care (telemedicine) but can also include nonclinical services such as patient education, home health, health professional education (distance learning), and administrative and program planning. Telemedicine involves the act of clinical care which is interactive, secure and confidential, ensuring that the integrity of the information transmitted is protected.

Telemedicine pre-pandemic was a great concept, but there were too many roadblocks in place that discouraged most physicians from incorporating this into their practices. Some of these obstacles included state and federal regulatory issues, involving protection of patient information, reimbursement, and lack of resources.

In a secure location, not at patient homes or in physician offices.

When patients could not see their doctors because of restrictions resulting from the pandemic, telemedicine was promoted as the solution to this problem, but it was far from simply flipping a switch and wishing for this to happen. An orchestrated effort by hospitals, physicians, practice administrators and information technologists facing external regulatory requirements was needed to allow medical practices to transition to telemedicine and in many cases to an exclusive telemedicine platform.

The White House coordinated with the Centers for Medicare & Medicaid Services and other federal agencies, issuing new policies and grants in an effort to expand telemedicine. In 2020, the federal government signed and approved $249 million in telemedicine grants to help patients, providers, and communities benefit from this technology. (previous page)

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Telemedicine and Urology's Future

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Shortly after this other exemptions were signed by executive orders to encourage expansion of telemedicine, including allowing delivery of services across state lines and relaxing HIPAA regulations. Nonsecure platforms for telemedicine like FaceTime and Skype were permitted, and care could be delivered to patients from anywhere to anywhere. Most important, parity for reimbursement was established for Medicare irrespective of whether care was delivered in person or virtually. Insurance carriers reluctantly followed suit, although there is no federal law that requires payers to provide coverage for any type of telemedicine services. However, some states mandate reimbursement at the same level as in-person care.

On a state level, no two are alike in how they deal with telemedicine. There are different rules for Medicaid, which covers telemedicine to some extent in all 50 states.

However, state insurance laws are very different in how they deal with commercial insurance and telemedicine coverage and reimbursement. A total of 43 states have laws that currently deal with this. Since the public health emergency was declared, more than 200 telehealth bills have been introduced across the country in state legislatures.

This is the current state of affairs. All of these changes were scheduled to expire when the public health emergency was set to end on October 23, 2020. The emergency has been extended, so presently nothing has changed. However, the future of telemedicine is uncertain because it is unclear if the Biden administration will continue to support the measures that have allowed it to flourish.

There are many considerations that need to be taken into account when considering the integration of telemedicine into your medical practice. From the perspective of the physician there are security issues to ensure that personal health information (PHI) is protected. Liability is a topic that has generally been ignored during the pandemic, but it will undoubtedly surface in the future for patients who claim that care delivered virtually resulted in damages to them. Workflow integration is another aspect of telemedicine that needs to be determined. Some doctors prefer to aggregate their virtual visits while others prefer to incorporate them into their regular office schedule. Reimbursement for services delivered virtually will be the major determinant as to the future of telemedicine, but just as important will be effectiveness of the care given virtually and the outcomes achieved.

When setting up telemedicine in your practice it is important to have confidence in the platform being used. There are many technical aspects to consider when deciding on the right telemedicine partner for your practice. Ease of connectivity for your patients, clear transmission for the visit and retrieval of this information are all considerations needed to be taken into account. It is preferable to test out the platform before signing any long-term agreement.

It is important to prepare your patients for telemedicine. It is helpful to create a worksheet for them about the telemedicine visit to make the visit as meaningful as possible. It should be treated just like a visit to your office and not a conversation with a friend. You need to promote it to your patients and introduce it to them, including obtaining informed consent for a visit in this manner. Many patients need to be helped with the new technology, and there should be someone in your practice who can assume this role, which includes preparing the patient for the visit by obtaining all of the information you would ordinarily get for an in-person office visit.

Despite all efforts to make telemedicine work, it will not be for everyone. Some patients will be unable to manage the new technology. Others will have devices that make the visit challenging or live in an area with no internet connectivity is...
Super Pulse Thulium Fiber Laser

The holmium:YAG laser has been the gold standard intracorporeal lithotripter for ureteroscopy for approximately the last 20 years. Its ability to fragment stones of all compositions coupled with a wide margin of safety led to its rapid adoption after its introduction. Refinements over the years including higher pulse frequency settings, the ability to increase the pulse duration and pulse modulation have helped extend the life of the platform. However, inherent limitations of the technology related to the high power requirements and extensive cooling systems appear to have placed a ceiling on future significant improvements.

The introduction of the super pulse thulium fiber (SPTF) laser (Sotive™, Olympus Surgical, Southborough, Massachusetts) to the North American and European markets has resulted in a true viable alternative to the holmium:YAG platform for stone and soft tissue treatment. The SPTF laser is a simplified design compared to the multirod holmium:YAG systems. It consists of a thulium doped fiber that is activated by a diode laser. It emits at a 1,920 nm wavelength that is even more highly absorbed in water as compared to the 2,140 nm wavelength of the holmium:YAG. The laser is small and portable, but perhaps more critically it uses standard electrical power and can be plugged into a standard electrical outlet. This is in contrast to the high power holmium:YAG systems, which require dedicated 20 to 50 amp service depending on the model. The 1,920 nm wavelength of the SPTF laser may be a more efficient wavelength to treat stones, and it can be used with laser fibers with core diameters as small as 50 microns. The multimodal holmium:YAG beam does not couple well with fibers with core sizes less than 240 microns, thereby limiting the ability to use smaller fibers. While these properties of the SPTF laser position it well as a successor to the holmium:YAG laser, in endourology the biggest advantage it has over existing holmium:YAG systems is its ability to deliver the laser pulses at an ultrahigh frequency of up to 2,400 Hz.

Early holmium:YAG systems were limited to pulse frequencies of 40 Hz. Later development allowed the most advanced systems to reach 80 to 100 Hz. As pulse frequency capabilities improved, the concept of performing laser lithotripsy with “dusting settings,” where low pulse energy delivered at high pulse frequency, became in vogue (see figure). Low pulse energy allows for the creation of smaller stone fragments but increases the time it takes to break up the entire stone since such small pieces are chipped off the stones. Higher pulse frequency settings will speed the process but the upper limit of the holmium:YAG is quickly reached. The SPTF laser is not limited by the pulse frequency setting. While 0.2 to 0.3 J pulse energy settings at 50 to 80 Hz (10 to 24 watts) are typically used with the holmium:YAG for “dusting,” with the SPTF laser pulse energy can be set lower such as at 0.05 Hz with the goal to create very tiny dust-like fragments. The pulse frequency can be increased to compensate for the low pulse energy. For example, the pulse frequency can be increased to 300 Hz, 3 times greater than the most advanced holmium:YAG systems, while still maintaining a wide margin of safety with only 15 W of power output. The reality is that 300 Hz is just scratching the surface of what the system is capable of, with 500 Hz already a reality.

Medical lasers are driven by frequency and simplicity, with the laser fiber and its design playing a key role. We must also factor in how we are treating better, recognizing that the SPTF laser offers a compelling idea for development.

Single-Use Ureteroscopes: Cost Savings or Excessive Waste?

was a single-use fiber. Although many volume

Figure. Sotive™ dusting settings.
The Role of Robotics in Endourological Stone Removal

management of urinary tract stones. Currently, there are only a handful of circumstances where traditional robotic surgery is indicated or advantageous in the management of single-use products.²

As more manufacturers enter the single-use ureteroscope market, the ureteroscope price and the number of cases required to achieve cost-equivalence will likely decline, assuming reusable ureteroscope repair costs do not make a similar trend. We will likely see a greater proportion of single-use ureteroscope cases, yet the convenience of an off-the-shelf device adds an obscured cost to the environment.

The United States health care sector is a major contributor to our current climate crisis, with operating rooms often comprising the majority of a hospital’s overall physical and energy waste.⁴ Much of this is driven by single-use products. After ureteroscopy, we routinely dispose of our gowns, drapes, ureteral access sheath, irrigation device, tubing, laser, basket and wires. While the clinical role of a single-use ureteroscope is warranted, the increased physical waste production per case is concerning, especially as use increases.

Reusable ureteroscopes are certainly not free of environmental burden, as Davis et al concluded that the overall carbon footprint per case (4.47 kg of CO₂) compared to single-use ureteroscopes (4.43 kg of CO₂) was similar. While the manufacturing cost (90% plastic) of a single-use ureteroscope comprised 86% (3.83 kg of CO₂) of the overall per-case carbon footprint, the manufacturing of a reusable ureteroscope was only 1.3% (0.06 kg of CO₂). The majority of the per-case carbon footprint for reusable ureteroscopes was in washing/sterilization (3.95 kg of CO₂, 88%).

Importantly, we have ways to retreat water and use clean, renewable energy sources. Our ability to deal with plastics is more challenging.

For nearly 50 years we have been emphasizing reduce, reuse and recycle in that order in an effort to curb the damage to our planet. As it relates to ureteroscopy this could imply reducing plastics from single-use products, but it could just as easily imply reducing ureteroscope damage, which has an environmental cost of repair. Pushing our reusable ureteroscope manufacturers to improve durability and training urologists to eliminate manual forcing, which can damage the fragile shaft, are also important reduction efforts.⁵ Furthermore, minimizing any unnecessary packaging of single-use items as well as blue wrap for our reusable products would help to reduce waste.

Reusability should be attempted for all products as long as patient safety can be maintained. For a single-use ureteroscope that has not reached its life expectancy, we should explore reprocessing options. There is a growing industry of reprocessing hospital equipment, from previously disposed surgical devices to patient transfer mats. The quality control for reprocessing these products is high, with functional devices being sterilized and sold back to hospitals at a cost-savings. A multi-use disposable ureteroscope would certainly make it more cost-effective by reducing the acquisition cost and improve the per-case carbon footprint.

The last option when a device has reached its life expectancy is recycling. We should be pushing our


Spina bifida (SB) is the most common permanently disabling neuro-urological birth defect in the United States, and urological complications of SB are a major source of morbidity. Individuals with SB face a lifelong risk of developing upper tract deterioration, chronic kidney disease, and end-stage renal disease due to their neurogenic bladders. In 2014 the U.S. Centers for Disease Control and Prevention initiated the Urologic Management to Preserve Initial Renal Function Protocol for Young Children with Spina Bifida (UMPIRE) study at multiple centers to define optimal management strategies for newborns and young children with SB (see figure). UMPIRE is the first prospective multicenter study to follow a large cohort of newborns with myelomeningocele, a severe form of SB, and monitor their kidney and functional outcomes over time.

We initially examined the baseline imaging characteristics of infants enrolled in UMPIRE. Baseline renal bladder ultrasound (RBUS) data were available for 190 infants, 2 of whom had a solitary kidney. Of these, both had Society of Fetal Ultrasound (SFU) grade 2 hydronephrosis of the solitary kidney. For the 188 infants with both kidneys present, the majority had normal kidneys or low grade hydronephrosis. Specifically, 105 infants (55.9%) had 2 normal kidneys, 71 infants (37.7%) had grade 1 hydronephrosis, and 11 infants (5.9%) had grade 2 hydronephrosis. There was 1 infant with grade 5 bilateral VUR in both kidneys, 7 infants had grade 3 to 4 in both kidneys, 5 infants had grade 3 to 4 in 1 kidney and 2 infants had grade 1 to 2 in both kidneys. Because of nationwide shortages or institutional policies, results for dimercapto succinic acid renal scan were available for only 66 infants. Of these, only 5 infants (7.6%) had 1 kidney affected by renal scarring, while no infants had bilateral renal scarring. Only 2 infants had VUR into the scarred kidney. In total, we found that infants enrolled in UMPIRE had very low rates of kidney abnormalities at baseline in contrast with previous analyses and frequently cited dogma.

With these data in mind, we then proceeded to examine the frequency of SB surveillance imaging during the first year of life. Newborns enrolled in UMPIRE underwent RBUS every 3 months during the first year of life and annually thereafter. Serial RBUS performed during the first 6 months of life for newborns enrolled in UMPIRE were analyzed. Dilating hydronephrosis (SFU grades 3 to 4) or an increase of 2 SFU grades or greater (eg grade 1 to greater than 3) were deemed positive. In total, 314 patients with RBUS at birth, 3 and 6 months were analyzed, 23 (7.3%) of whom had a total of 49 positive RBUS results. Patients with a negative RBUS at birth had a low probability of positive findings at months 3 (2.0%) and 6 (2.5%). Patients with a positive RBUS at birth had a high probability of remaining positive at months 3 (38.2%) and 6 (43.6%). Taken together these results would seem to suggest that high frequency RBUS screening in infants with SB might be low yield in the setting of a negative initial RBUS, at least in the first 6 months of life.

Urodynamic characteristics of elevated detrusor leak point pressure and detrusor sphincter dysynergia are associated with renal deterioration in myelomeningocele. Previous analyses have shown that interrater reliability of urodynamics tests is low. Therefore, a process to standardize urodynamics interpretation and reconcile discrepancies was developed. In UMPIRE, baseline urodynamics are obtained at 3 months or less and the bladder classified as low risk, intermediate risk or hostile. The multipstep standardization of interpretation of urodynamics included review 1) by the original site and 2 of 4 external reviewers (ie pediatric urologists from 3 different clinical sites), 2) if discordant, by 4 external reviewers at an in-person meeting, 3) if classification discordance persisted, by the original site again with reviewer feedback; and 4) if discordance still persisted, by all 9 sites. As of now, 157 baseline urodynamic tests from 9 sites have completed the full review process. Baseline urodynamic
With the ONLY PARPi approved with phase 3 data for men with HRR gene mutations in metastatic castration-resistant prostate cancer

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There are no contraindications for LYNPARZA.

**WARNINGS AND PRECAUTIONS**

Myelodysplastic Syndrome/Acute Myeloid Leukemia (MDS/AML): Occurred in <1.5% of patients exposed to LYNPARZA monotherapy, and the majority of events had a fatal outcome. The duration of therapy in patients who developed secondary MDS/AML varied from <6 months to >2 years. All of these patients had previous chemotheraphy with platinum agents and/or other DNA-damaging agents, including radiotherapy, and some also had a history of more than one primary malignancy or of bone marrow dysplasia.

Do not start LYNPARZA until patients have recovered from hematological toxicity caused by previous chemotherapy (≥Grade 1). Monitor complete blood count for cytopenia at baseline and monthly thereafter for clinically significant changes during treatment. For prolonged hematological toxicities, interrupt LYNPARZA and monitor blood count weekly until recovery.

If the levels have not recovered to Grade 1 or less after 4 weeks, refer the patient to a hematologist for further investigations, including bone marrow analysis and blood sample for cytogenetics. Discontinue LYNPARZA if MDS/AML is confirmed.

Pneumonitis: Occurred in <1% of patients exposed to LYNPARZA, and some cases were fatal. If patients present with new or worsening respiratory symptoms develop while receiving LYNPARZA, discontinue LYNPARZA and evaluate for alternative causes of respiratory symptoms.

**ADVERSE REACTIONS—HRR Gene-mutated Metastatic Resistant Prostate Cancer**

Most common adverse reactions (Grades 1–4) in ≥10% of LYNPARZA for Profound were: anemia (46%), fatigue (41%), nausea (41%), decreased appetite (30%), diarrhea (12%), cough (11%), and dyspnea (8%).

Most common laboratory abnormalities (Grades 1–4) in clinical trials of LYNPARZA for Profound were: decrease in hemoglobin (77%), lymphocytes (62%), and decrease in leukocytes (60%).

**DRUG INTERACTIONS**

Anticancer Agents: Clinical studies of LYNPARZA with anticancer agents, including DNA-damaging agents, have demonstrated the potential for increased toxicity.

CYP3A Inhibitors: Avoid coadministration of strong CYP3A inhibitors when using LYNPARZA. If a strong or moderate CYP3A inhibitor is required, reduce the dose of LYNPARZA. Avoid grapefruit, grapefruit juice, Seville oranges, and Seville orange juice.

Olaparib (LYNPARZA) is the only PARPi included in the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) for patients with metastatic castration-resistant prostate cancer (mCRPC) who have progressed following prior treatment with enzalutamide or abiraterone, regardless of prior docetaxel therapy.

*Category 1: Based upon high-level evidence, there is uniform NCCN consensus that the intervention is appropriate. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for any aspect of healthcare decisions resulting from the use of the guidelines.*

*Based on an FDA-approved companion diagnostic for LYNPARZA.

Not an active ingredient.

*Not an active ingredient.*

The treatment paradigm following progression on enzalutamide or abiraterone.

Pregnant or breastfeeding women should not use LYNPARZA due to potential risk to the fetus. Women of childbearing potential should use effective contraception during treatment and for at least 1 month following the last dose of LYNPARZA and to not donate eggs or sperm.

**Venous Thromboembolic Events:** Including pulmonary embolism and deep vein thrombosis.

7% of patients with metastatic castration-resistant prostate cancer (mCRPC) who received LYNPARZA plus androgen deprivation therapy (ADT) and ADT had a 6% incidence of venous thromboembolism compared to 0.8% of patients treated with enzalutamide or abiraterone. Monitor patients for signs of deep vein thrombosis and pulmonary embolism, and treat as necessary. Consider prophylaxis for patients at high risk for venous thromboembolism. Some patients experienced deep vein thrombosis and pulmonary embolism while taking LYNPARZA.
Among men with BRCA1/2- or ATM-mutated mCRPC following progression on enzalutamide or abiraterone, LYNPARZA more than doubled median rPFS vs retreatment with enzalutamide or abiraterone.1,7

PROfound: A PHASE 3 trial of a PARPi in mCRPC.1,7

TRIAL DESIGN1,7
- The PROfound trial was a prospective, multicenter, randomized, open-label, phase 3 trial of LYNPARZA in patients with HRR gene mutations and mCRPC.
- Key eligibility criteria: Metastatic castration-resistant prostate cancer; progression on prior enzalutamide or abiraterone therapy for mCRPC; a tumor mutation in at least 1 of 15 genes* involved in the HRR pathway.
- Patients were divided by mutation: BRCA1/2 or ATM gene mutation (Cohort A [n=245]18) and other HRR gene mutation (n=142)18, and randomization was stratified by prior receipt of taxane chemotherapy and presence of measurable disease.
- Each cohort was randomized 2:1 to receive LYNPARZA (tablets, 300 mg per dose, twice daily) or an active comparator (retreatment with enzalutamide or abiraterone).

*HRR gene mutations (BRCA1, BRCA2, ATM, BARD1, BRIP1, CDK12, CHEK1, CHEK2, FANCL, PALB2, PPP2R2A, RAD51, RAD54L, and/or RAD51C) were identified using the Foundation Medicine FoundationOne clinical trial HRR assay performed at a central laboratory. No patients were enrolled who had mutations in any of these genes: FANCL and RAD51C.

1Patients with co-mutations (BRCA1, BRCA2, or ATM plus a Cohort B gene) were assigned to Cohort A.

Although patients with PPP2R2A gene mutations were enrolled in the trial, LYNPARZA is not indicated for the treatment of patients with this gene mutation due to an unfavorable risk-benefit ratio.

PRIMARY ENDPOINT: RADIOLOGICAL PROGRESSION-FREE SURVIVAL (rPFS)1,7

- rPFS in Cohorts A and B using BICR per PCWG3 (including interim analyses).
- Consistent with exploratory analyses:
  - For patients with no prior exposure to enzalutamide or abiraterone.
  - For those with HRD and/ or BRCA1/2 mutations.

Myriad patients with HRD and HRD plus BRCA1/2 mutation were enrolled in the PROfound trial. The PROfound trial included a large number of patients with HRD and HRD plus BRCA1/2 mutation.

The PROfound trial enrolled a large number of patients with HRD and HRD plus BRCA1/2 mutation.

![Graph showing median rPFS and probability of rPFS over time for LYNPARZA and enzalutamide or abiraterone.]

<table>
<thead>
<tr>
<th>Cohort A</th>
<th>3.6 mo</th>
</tr>
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<tbody>
<tr>
<td>LYNPARZA</td>
<td>7.4 mo</td>
</tr>
<tr>
<td>Retreatment with enzalutamide or abiraterone</td>
<td></td>
</tr>
</tbody>
</table>

Number of patients at risk:
- LYNPARZA: 162
- Retreatment with enzalutamide or abiraterone: 83


IMPORTANT SAFETY INFORMATION (CONT’D)

USE IN SPECIFIC POPULATIONS (CONT’D)

Hepatic Impairment: No adjustment to the starting dose is required in patients with mild or moderate hepatic impairment (Child-Pugh classification A and B). There are no data in patients with severe hepatic impairment (Child-Pugh classification C). Please see accompanying Brief Summary of Prescribing Information on following pages.
LYNPARZA® (olaparib) tablets, for oral use

Initial U.S. Approval: 2014

Brief Summary of Prescribing Information. For complete prescribing information see full Prescribing Information.

INDICATIONS AND USAGE
LYNPARZA® is indicated for the treatment of adult patients with ovarian cancer with germline and/or somatic BRCA mutations (mBRCA), including BRCA1 and BRCA2 mutations, who have failed previous platinum-based therapy for advanced ovarian cancer. Patients receiving LYNPARZA and ADT are at risk for myelosuppression, including grade 3 and 4 neutropenia and anemia, and should have a complete blood count (CBC) done weekly during the first 8 weeks of therapy and then every 2 weeks thereafter. Patients should be counseled on the risks of myelosuppression before initiating therapy.

Patients with germline or somatic mBRCA mutations may have a higher risk of developing a second malignancy.

ADVERSE REACTIONS
The following adverse reactions are listed according to body system:

Gastrointestinal:
- Diarrhea
- Nausea
- Vomiting

Hematologic:
- Neutropenia
- Anemia

Central Nervous System:
- Fatigue or asthenia

Other:
- Myelosuppression

DRUG INTERACTIONS
Use with Antiangiogenic Agents
Clinical studies of LYNPARZA with other antiangiogenic agents, including bevacizumab, nintedanib, bevacizumab plus nintedanib, and aflibercept, have not been conducted.

Effect of Other Drugs on LYNPARZA
The effect of LYNPARZA on the pharmacokinetics of other drugs has not been studied.

Strong and Moderate CYP3A4 Inducers
Avoid concurrent use with strong or moderate CYP3A4 inducers, as LYNPARZA is a CYP3A4 substrate.

USE IN SPECIFIC Populations
Pregnancy
Risk Summary
Based on findings in animal studies, LYNPARZA may cause fetal harm when administered to pregnant women. It is not known whether LYNPARZA crosses the placenta. Women of childbearing potential should be advised to avoid becoming pregnant during treatment with LYNPARZA.

Animal Data
A study in pregnant mice showed that LYNPARZA given at daily doses of 20 mg/kg or greater resulted in increased numbers of hypoplastic and/or bone marrow aplastic fetuses. The no-effect dose was 10 mg/kg/day.

Nursing Mothers
It is not known whether LYNPARZA is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when LYNPARZA is administered to a nursing woman.

Pediatric Use
Safety and effectiveness of LYNPARZA have not been established in pediatric patients.

Genetic Use
The safety and efficacy of LYNPARZA have not been established in patients with BRCA mutations who have not previously received systemic therapy for advanced ovarian cancer.

Dose Administration
LYNPARZA tablets 600 mg (360 mg as olaparib) are recommended once daily, orally, with or without food.

LYNPARZA tablets should be swallowed whole. Do not crush, break, or divide tablets.

Table 1: Biomarker Testing for Patient Selection

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Sample Type</th>
</tr>
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<tbody>
<tr>
<td>BRCA1/2</td>
<td>Tumor Blood</td>
</tr>
</tbody>
</table>

GermCell or somatic mBRCA mutation
- BRCA1
- BRCA2
- ATM
- CHEK2
- RAD51C
- RAD51D
- RAD51G

Adverse Reactions
- Hematologic: Neutropenia, anemia
- Gastrointestinal: Diarrhea, nausea, vomiting
- Central Nervous System: Fatigue
- Other: Myelosuppression

DRUG INTERACTIONS
Avoid concurrent use with strong or moderate CYP3A4 inducers, as LYNPARZA is a CYP3A4 substrate.

USE IN SPECIFIC Populations
Pregnancy
Risk Summary
Based on findings in animal studies, LYNPARZA may cause fetal harm when administered to pregnant women. It is not known whether LYNPARZA crosses the placenta. Women of childbearing potential should be advised to avoid becoming pregnant during treatment with LYNPARZA.
Robotic Endourological Stone Removal

Continued from page 10

among 240 consecutive patients undergoing ureteroscopy at a tertiary stone center and demonstrated outcomes in line with reported data for conventional ureteroscopy with a less than 1% technical failure rate of using the robotic system. The authors reported favorable ergonomics with the device and were able to increase the distance from the C-Arm for these cases decreasing radiation exposure, although these outcomes were not formally assessed.\(^1\)

It is conceivable that future generations of ureteroscopes could be designed specifically for robotic control potentially allowing greater degrees of scope deflection and maneuverability not currently feasible with manually controlled scopes. An example of this concept is in the field of bronchoscopy where robotically controlled endoscopes have recently been introduced to assist in scope navigation to the peripheral airway. A common indication for bronchoscopy is attempting to biopsy lung lesions, yet this can be a technical challenge as the pathway into the peripheral airway is often difficult to navigate owing to the branched configuration, the need to deflect the bronchoscope in multiple directions and the progressively smaller size of the subsegmental bronchi. Robotically guided flexible endoscopes have shown potential to improve scope maneuverability, precision, and reach otherwise challenging areas of the lung more easily all while being controlled from a handheld controller.\(^2\)

While such fully robotic controlled endoscopes are not currently clinically available for use in urological surgery, the concept has proven to be feasible. Desai et al used one such system (Auris Health, Redwood City, California) in a first-in-man study demonstrating technical feasibility of performing robotic controlled flexible ureteroscopy with laser lithotripsy to treat 16 patients.\(^3\) A novel prototype for a fully robotic flexible uroscopic system that allows for scope control and also uses haptic technology to provide some measure of force feedback as well as intrarenal pressure monitoring has also been described.\(^4\)

Another area of interest in applying robotics toward stone disease is in percutaneous renal surgery. One of the most substantial barriers in percutaneous nephrolithotomy (PCNL) is in obtaining renal access as evidenced by the fact that a minority of urologists obtain their own access. Robotic assistance has been postulated as a technology capable of helping obtain precise, efficient access while minimizing fluoroscopic exposure and complications. Image-guided robotic surgical navigation systems are becoming more widely available across several surgical fields, whether it be assisting with more precise screw placement during spine surgery or aiding in alignment of surgical pins during orthopedic joint replacement. The potential for such a system to assist in needle placement for PCNL is clear.

Recently, the automated needle targeting with x-ray (ANT-X) robot-assisted device has been developed. This device uses image registration to automatically align and target a desired calyx using artificial intelligence and can even compensate for respiratory movement. In preclinical studies it has shown potential for reduced radiation exposure and high success rates with high surgeon satisfaction scores compared to ultrasonographic access among a small cohort of residents and attendings. This system has been used successfully in a pilot study among 19 patients undergoing PCNL where there was a median of only 1 attempt required to successfully achieve access with a median needle insertion time of 3.6 minutes, only 21.5 minutes needed.

The use of robotics in urology continues to occur in many existing urology procedures. The value of robotics to be added to the endourological armamentarium is clear in 1990 and the belief that the current technology is lent a hand as the technology for precise, effective, and cost-effective access.

Dr. Bruce A. Zelman and Associates


The Emerging Role of Robotics in Reconstructive Urology

Nabeel A. Shakir, MD
Lee C. Zhao, MD, MS
New York, New York

Since their initial introduction, robotic-assisted laparoscopic procedures have been utilized for an ever-increasing array of upper tract reconstructive procedures. Advances in robotic-assisted techniques have led to significant improvements in surgical precision, accuracy, and patient outcomes. The potential of robotic-assisted surgery in reconstructive urology has been demonstrated in the treatment of a wide range of conditions, from the correction of urethral strictures to the treatment of incontinence.

The robotic system allows for precise, intricate dissection and suturing, enabling surgeons to perform complex reconstructive procedures with improved visualization and dexterity. This technology has significantly reduced operating times, blood loss, and postoperative pain, leading to faster recovery and improved patient satisfaction. With the ability to perform minimally invasive procedures with greater control and precision, robotic-assisted reconstruction offers patients a safer and more effective alternative to traditional open surgery.

The emerging role of robotics in reconstructive urology is evident in the growing number of procedures being performed using this advanced surgical technique. As technology continues to evolve, robotic-assisted surgery promises to revolutionize the field of reconstructive urology, offering unparalleled benefits to both patients and surgeons alike.

well-vascularized, the superficial and the anterior wall of the bladder incision is usually less complicated with the robotic system. Figure 1 shows a close-up of the mucosa of the bladder and the obvious tumor extension. Robotic-assisted dissection, along with advanced reconstruction of the bladder, has become a standard of care in the treatment of bladder cancer.

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The emerging role of robotics in reconstructive urology is evident in the growing number of procedures being performed using this advanced surgical technique. As technology continues to evolve, robotic-assisted surgery promises to revolutionize the field of reconstructive urology, offering unparalleled benefits to both patients and surgeons alike.
Reconstructive Urology

Continued from page 15

nontransecting urethroplasty, in which spongiosal periurethral vascularity is preserved, Slawin et al recently reported a multi-institutional experience with robotic assisted side-to-side ureteral anastomosis for patients with benign distal ureteral strictures. A posterolateral cystotomy is anastomosed to a longitudinal anterior ureterotomy made proximal to the stricture (see figure, b). While conventional ureteroneocystotomy can be a reliable modality for short stenoses, circumferential mobilization and transection of the distal ureter is required, possibly affecting vascularity and resulting in recurrent stricture. The putative advantages of a nontransecting approach in addition to preserving the posterior ureteral blood supply include avoiding a potentially dangerous dissection over the iliac vessels if there is significant periretinal fibrosis as well as preserving the native ureteral orifice if future endoscopic intervention is needed.

The development of the more novel robotic approaches to mid and proximal ureteral strictures similarly proceeded from recognition of the difficulty of safe ureteral dissection in a multi-operated or irradiated field, the challenge of achieving tension-free anastomoses and the morbidity or technique expertise required for options such as ileal ureteral interposition or renal autotransplantation. In such cases NIRF can be used intraoperatively in conjunction with intraluminal indocyanine green (ICG) instilled either via a nephrostomy tube or urethral catheter to identify the ureter and aid in its dissection (see figure, c). Alternately, white light from a flexible ureteroscope can also be used for this purpose. While ureteroureterostomy remains the gold standard for treatment of relatively short unifocal strictures, longer and more complex disease warrants consideration of robotic assisted ureteroplasty. First described in 2015, updated intermediate-term outcomes are now available for robotic ureteral reconstruction with BMG, demonstrating preserved success at 28 months in 87% of patients with low perioperative morbidity. Obliterative and nonobliterative strictures (median length 3 cm) can be addressed with the technique. Where the ureteral lumen is patent, a longitudinal anterior ureterotomy preserves the posterior ureteral plate and allows for an onlay repair. For complete obliteration, diseased tissue is excised, a new posterior plate is created, and the ureter is reanastomosed to the new ureteral plate. Nonoblitereative approach to ureteroplasty to preserve periretinal vascularity, as described here, can be utilized for various periretinal procedures such as ureteral, reimplantation, or ureteroureterostomy.

While not all cases will fall into this treatment algorithm, the advantage lies in reducing the perioperative morbidity, time to definitive treatment, and exposure to the high cost of robotic technology. The use of diagnostic and minimally invasive approaches will continue as their technology advances.

Figure. Robotic assisted approaches to nonobliterative VUAS via anterior cystotomy with cystoscope light and wire visible and laparoscopic guided needle used in hydrodissection (a), nontransecting distal ureteral reimplant with side-to-side anastomosis (b), identification of the proximal ureter with intraluminal ICG (c) and augmented anastomotic appendiceal onlay ureteroplasty for right proximal ureteral stricture (d).
The Role of Chemotherapy for Advanced Penile Cancer

Jad Chahoud, MD, MPH
Philippe E. Spiess, MD
Andrea Necchi, MD

Tampa, Florida
Milan, Italy

Advanced penile squamous cell carcinoma (PSCC) is a lethal and rare cancer that affects 2,000 American men and 35,000 men worldwide yearly. Regional lymph node involvement level and tumor burden remain the strongest predictors of survival for patients with PSCC. Patients who present with bulky regional or pelvic PSCC metastasis are at an increased risk of disease-related mortality with surgery alone and are best treated using multimodal approaches with neoadjuvant chemotherapy followed by inguinal and pelvic lymph node dissection. This approach for patients with bulky or fixed, or bilateral inguinal lymphadenopathy typically is the preferred strategy as recommended by the NCCN and the EAU guidelines.

Neoadjuvant chemotherapy allows for timely delivery of systemic chemotherapy, results in potential volume reduction for enlarged lymphadenopathies, provides prognostic information and may facilitate subsequent surgical consolidation. The trial that established the approach of neoadjuvant chemotherapy followed by surgery as the standard of care is a prospective, single-center, nonrandomized phase 2 clinical trial by Pagliaro et al.1 This study’s objective was determining the response rate, time to progression (TTP) and overall survival (OS) of patients with bulky adenopathy who were receiving neoadjuvant chemotherapy with docetaxel and cisplatin, followed by pelvic lymph node dissection. The estimated median TTP was only 8.1 months (95% CI 5.4–50 months) and median OS was 17.1 months (95% CI 10.3–60 months).1 Nevertheless, this study had major limitations that are inherent to a single-arm Bayesian trial with a small patient sample. Therefore, our group conducted a meta-analysis that included 10 studies evaluating a total of 182 patients who received preoperative chemotherapy with 66 (36.3%) and 116 (63.7%) treated with nontaxane platinum and taxane platinum regimens, respectively. The pooled results demonstrated an objective similar response rate of 53% (95% CI 42–64) and pathological complete response rate of 16%.2

It was not possible to conduct randomized controlled trials in penile cancer to answer the basic management questions before the design of the International Penile Advanced Cancer Trial (InPACT). InPACT is a 200-patient trial that has 2 independent randomizations to answer 2 main questions, the first being the role of neoadjuvant therapy before standard surgery by randomizing to chemotherapy, chemoradiotherapy or no neoadjuvant therapy. This will answer whether there is any benefit for neoadjuvant therapy over surgery alone. Patients with relapsed or refractory PSCC after neoadjuvant chemotherapy, they have a dismal prognosis and have very limited benefit from second line cytotoxic systemic therapy. Every effort should be made to enroll these patients with relapsed disease in clinical trials as there is a need to explore biologically driven targeted therapies and immune therapies for patients with relapsed PSCC. Recent data from a phase II clinical showing that dacarbazine, a second-generation panHER tyrosine kinase inhibitor in 28 chemotherapy-naive patients with locally advanced or metastatic PSCC, had clinical benefit with the ORR was 32.1%; median PFS of 4.1 months and OS of 13.7 months. The treatment was relatively well-tolerated with only 10% grade 3-4 skin rash as the major toxicity.3

On the other hand, immunotherapy trials using single-agent immune checkpoint inhibitors have been limited by slow trial enrollment and limited single-agent clinical activity, and most of those studies are using single-agent immune checkpoint blockade in a population with all solid tumors.4 Preliminary investigations into the immune milieu of PSCC have demonstrated reduced mutation burden and lack of microsatellite instability, and PSCC appears to be an immunologically cold tumor. As we have shown, a recent study in a mouse model of PSCC also confirmed an immunosuppressive tumor microenvironment and the important role of the immune system.

The current accepted standard of care chemotherapy regimen.

Financial Toxicity in Urology

As health care costs in the United States continue to rise, financial responsibility is increasingly being shifted to patients and their families in the form of high deductible insurance plans, higher copays and premiums, secondary insurance, and uncovered medications, devices and services. In addition to burdensome out-of-pocket costs, patients often face indirect costs of medical care such as time off from work, physical limitations, early retirement and the need for informal caregivers to make financial sacrifices during recovery. Financial toxicity is a term that encompasses the harm associated with these direct and indirect costs and is gaining increasing interest as a patient-centered outcome.

The majority of research exploring financial toxicity has centered on cancer care, which represents one of the most expensive medical conditions in the United States. The development of novel systemic agents, increased use of multiple treatment modalities and gains in overall survival have all contributed to the rise in cancer treatment costs in a patient's lifetime. Launch prices of new cancer drugs increase over 10% annually and continue to rise after release into the market. The impact of these rising costs is reflected in a recent study that found 42.4% of newly diagnosed cancer patients had depleted their entire life’s assets within 2 years of diagnosis. Just as potential toxicities (e.g., neurotoxicity, kidney injury and anemia) are considered when prescribing treatments, the American Society of Clinical Oncology now recommends transparent discussion of treatment costs in shared decision-making processes (www.asco.org/research-guidelines).

While generalized data assessing financial toxicity in cancer care are growing, further research is needed to describe the unique facets of this toxicity among different types of cancer. Indeed, very little data exist assessing financial toxicity in urological oncology.

A recent review of financial toxicity in localized prostate cancer from Memorial Sloan Kettering Cancer Center highlights the paucity of data and need for further investigation in this area. The authors propose a framework to assess cancer related economic burden (fig. 1) and provide a thoughtful review of current strategies to evaluate financial toxicity (fig. 2). According to their review it appears patients undergoing radical prostatectomy are at greater risk for financial toxicity early on in the disease course, whereas those undergoing radiation may experience delayed and longer lasting effects. Interestingly, when compared to nonurological malignancies such as colon and breast cancers, localized prostate cancer may carry a lower overall risk of financial toxicity. These findings were supported by recently published data from the Comparative Effectiveness Analysis of Surgery and Radiation study where only 15% of patients reported large or very large burden of treatment costs at 6 months. This prevalence declined even further to 3% at 5-year followup.

Assessments of financial toxicity in other urological malignancies are not as encouraging. In an evaluation of 138 bladder cancer patients at the University of North Carolina financial toxicity was present in 24% of patients. Those individuals with nonmuscle invasive disease were more likely to report financial toxicity, which was associated with worse physical and mental health. Soon-to-be published data from a cross-sectional survey of the Bladder Cancer Advocacy Network Patient Survey Network using the validated, 11-item Comprehensive Score for Financial Toxicity (COST) questionnaire, which assesses direct and indirect costs, found that financial toxicity impact on patients is found to negatively impact physical, psychological, and social well-being of patients. It is important to highlight that this framework is not exhaustive and financial toxicity in urological oncology may include other important aspects, such as insurance coverage, medical debt, transportation, and caregiver costs.

Figure 1. Proposed financial toxicity framework for clinicians to assess patient-level cancer related economic burden. Framework considers five domains and can be used in a bottom-up approach by analyzing individual patient-specific drivers or a top-down approach by considering overall patient-reported distress. (Reprinted with permission.)

1 Patient-reported financial toxicity screening tools
   - Comprehensive Score for Financial Toxicity (COST)
   - InCharge Financial Distress/Financial Well-Being Scale (FDFW)

2 Direct financial implications
   - Unadjusted cost benchmarking (for example, monthly out-of-pocket costs)
   - Adjusted cost benchmarking (for example, monthly cost burden as a share of total income)
Sexual Function Preservation after Treatments for LUTS/BPH

Kevin T. McVary, MD, FACS
Maywood, Illinois

Relationship between LUTS/BPH and Sexual Function

Although the mechanism of action for the relationship between lower urinary tract symptoms attributed to benign prostatic hyperplasia (LUTS/BPH) and erectile dysfunction (ED) has not been firmly established, community-based studies have repeatedly provided strong evidence of an age-independent association between these disorders. What is apparent from this relationship is that men with LUTS/BPH are at high risk of developing ED and vice versa. Because theses diseases are so closely intertwined it is important to always consider the impact of a LUTS/BPH treatment on the man's sexual function.

Role of Medical Treatments and Impaired Sexual Function

Men often experience a decline in sexual function with the progression of LUTS/BPH. Unfortunately, commonly reported adverse effects of certain alpha blockers include anejaculation (6%). The agents with greatest prostate selectivity (e.g., tamsulosin, silodosin) have fewer systemic adverse effects but are associated with a higher frequency of ejaculation problems. Meanwhile, the most commonly reported adverse effects of 5ARIs include erectile dysfunction, decreased libido and ejaculatory dysfunction. Phosphodiesterase type 5 inhibitors (PDE5i) have been shown to be beneficial in improving symptoms scores in patients with LUTS/BPH and improve erectile function even though there no significant changes in urine flow rates and other urodynamic measures. As mentioned above, because men with LUTS/BPH frequently suffer from concomitant ED, the use of PDE5i has certain obvious advantages in this population.

Role of Surgery Treatments and Impaired Sexual Function

Many men will abandon medical therapy within the first year of treatment for a variety of reasons including lack of efficacy, side effects and personal aversion to required ongoing treatment and therefore consider surgical intervention. Before choosing any of these options, the patient and his healthcare provider should carefully discuss the potential impact of the treatment on erectile function (see below).

In the last several decades minimally invasive surgical therapy (MIST) has been widely adopted across many therapeutic specialties in response to an aging population that increasingly places greater value on factors such as lower operative complication rates and faster recovery. As it relates to patients with LUTS/BPH who failed to achieve satisfactory symptom relief with lifestyle changes or oral medications, transurethral resection of the prostate (TURP) is considered the gold standard treatment as this surgery provides clinically meaningful and durable relief from LUTS. However, TURP suffers when considering net health outcome balancing efficacy, morbidity and patient experience. The key benefits of TURP are offset by several major drawbacks including the need for regional/general anesthesia and hospitalization, increased anesthetic risk in older patients with coexisting medical conditions and high rates of postoperative sexual dysfunction. Consequently, enthusiasm for TURP has been declining and interest has grown in developing MISTs that are efficacious, provide a more favorable risk profile and better align with patient preferences.

Data on the sexual side effects of more traditional prostate surgery are difficult to ascertain as many studies were not designed to answer which types of patients benefit or not from MIST. Regardless of the specific indication, BPH has a risk for impaired sexual function. It is unclear if treatments for LUTS/BPH beyond the medical therapy realm will be required.

Ratio of Postoperative Outcomes

As many men weigh the surgical options, few are aware of the ramifications of management options for LUTS/BPH and sexual function. There is a need for more studies that include metrics beyond symptom severity and biochemistry at the time of surgery and reporting outcomes to ensure that the patient is not only trying to make the best choice for his prostate, but also for his sexual health.

therapy without a discernible thermal gradient. This convective thermal therapy uses radiofrequency to generate wet thermal energy in the form of water vapor (steam). No thermal effects occur outside the prostate or targeted treatment zone. Therefore, this technology is able to provide rapid and meaningful improvement of LUTS regards of prostatic topography without significantly impacting sexual function.

In a randomized controlled trial of convective water vapor therapy vs sham the men in the study arm exhibited a 50% improvement in their International Prostate Symptom Score compared to a 20% improvement in the control arm (11.4 vs 4.2 points, p < 0.0001) while \( Q_{\text{max}} \) improved by 67% (from 9.9 ml/sec to 16.1 ml/sec) compared to no change within the control group.\(^2\) Reports at 2, 3, 4 and 5 years note a durable voiding improvement.\(^3\) Retreatment at 5 years appears low with 4% and 11% for surgical and medications restarts (respectively). Meanwhile, longer-term data have confirmed preservation of erectile and ejaculatory function. At 1 year postoperatively no significant difference in IIEF responses were noted, while only 3% of men (4 of 136) reported EjD. This preservation of sexual function has been maintained through year 4 of followup (fig. 2).

Prostatic Urthral Lift (UroLift\textsuperscript{®}). Prostatic urethral lift (PUL; UroLift, Teleflex, Wayne, Pennsylvania) is a unique nonablative approach to treating LUTS/BPH. This transprostatic tissue compression consists of a nitinol capsular anchor connected to a stainless steel urethral end piece by a monofilament suture tensioned in vivo that mechanically relieves obstruction without ablation or resection. PUL provides durable relief of LUTS through 5 years with few detriments to sexual function.\(^4\) However, returns to the operative room for additional treatment and medication restarts are higher (24.3% at 5 years). Implant misplacement, malfunction, encrustation or infection are other potential indications for surgical device explant that are unique to PUL and drive the risk of re-treatment even higher.\(^5\) What appears consistent is the favorable perioperative experience as many patients continue to have improved sexual function.

Men experience a significant decline in the sexual function in the older ages. The sexual function are essentially showing that functional limitations who are not been avoided or considered have a negative impact on sexual function, dual therapy was required for improving and impact on quality of life as dual therapy.

What Have We Learned from the NBRG-SCI Registry?

Blayne Welk, MD, MSc, FRSC
London, Ontario, Canada

Jeremy Myers, MD
Salt Lake City, Utah

Research must be viewed as a long-term investment. It requires a significant upfront outlay of time and energy that is driven solely by the hope that the final result will be a worthwhile contribution. However, the funding, execution and publication of medical research is becoming more challenging. Advanced degrees are now common among new physicians, grant competitions often have funding rates of 10% or less, and publication in a respected specialty journal is harder and harder to achieve.

The formation of research groups is one way to address some of the challenges of academic research. These groups combine the talents, knowledge, patient populations and “time” of several researchers (usually from different centers) into a common pool to accomplish a research goal that would be difficult for an individual researcher to take on. In recent years several research networks have arisen from functional urology collaborations, such as SURN, LURN, TURNS and MAPP. In neurology, the Neurogenic Bladder Research Group (NBRG, www.nbrg.org, see figure) was established in 2015 as a result of a large collaborative Patient Centered Outcomes Research Institute (PCORI) grant, which sought to better understand bladder-related quality of life (QOL) after spinal cord injury (SCI).

This study collected detailed descriptions of patients who had undergone bladder reconstruction. The data included demographic information, surgical details, postoperative outcomes, and patient-reported outcomes. The study found that bladder reconstruction had significantly fewer bladder symptoms (primarily due to reduced incontinence) and an improved bladder management QOL compared to those who were using intermittent catheters (IC) through their native urethra. This finding helps to validate the operative complications that patients take on when they select reconstruction or diversion and was a primary hypothesis evaluated with this project.

The dataset from this study became known as the NBRG-SCI registry, and it was used to study several research questions relevant to SCI. Maintaining people on IC after SCI is a common goal of urologists. However, we know that people tend to switch to other types of bladder management over time. Of the 176 patients in the registry who had used but discontinued IC, the common reasons can be nicely summarised as the four “T’s” of inconvenience, incontinence, infections and independence. This reinforces to physicians the importance of actively managing factors we can influence such as urinary infections and incontinence in people using IC after SCI in order to maximize bladder management satisfaction.

When looking at the factors associated with IC use, age, female gender, frequent infections and bowel dysfunction were significantly correlated with dissatisfaction. However, importantly level of injury, fine motor hand function, and caregiver dependence for IC did not. It is important to note that this is within a self-selected population that had chosen IC and in most cases had persisted with it for several years after their SCI. The NBRG-SCI registry data also demonstrated that fine motor skill has the greatest association with IC as the primary bladder management after a median of 11 years from SCI. Another study showed that after SCI people infections are the standard definition that we try to promote, in practice many patients are bothered by symptoms suggestive of a low grade urinary infection, and this is difficult to differentiate from asymptomatic bacteriuria. Patients often still consider this a “UTI” and in most cases receive treatment for it. In the NBRG-SCI registry self-reported urinary infections were highest among people who use indwelling catheters. However, it is surprising that the magnitude of risk of these self-reported UTIs (with patients with SCI who void as the reference category) is not all that different between IC users (OR 3.42, 95% CI 2.25–5.18) compared to indwelling catheter users (OR 4.3, 95% CI 2.59–6.70). In addition to the medical risks of urinary infections, they are an independent and “dose dependent” risk factor that has a negative impact on a QOL. Among the 1,260 patients in the registry who had 1 year followup there was a 14% rate of urological hospitalization, and of these 88% were due to urinary infections. UTIs are an obvious problem in this patient population, and this research underscores the importance of

Nontransecting Urethroplasty for Bulbar Urethral Strictures—What is the Evidence for Better Sexual Outcomes?

In 2007 Dr. Gerald H. Jordan introduced a novel technique for short bulbar urethral strictures, the vessel sparing excision and primary anastomosis (VS-EPA).1 The goal for the vessel sparing technique in the bulbar urethra was to obtain equivalent and durable outcomes to traditional transecting excision and primary anastomosis (T-EPA) while preserving the proximal vasculature of the corpus spongiosum (figs. 1 and 2). The initial idea was to potentially benefit patients with bulbar urethral stricture after radical prostatectomy. In preserving the proximal blood supply to the bulb he could potentially prevent the feared cuff erosion in those patients who would require an artificial urinary sphincter to treat stress urinary incontinence. With time he proved that the technique was feasible and the indication expanded to all strictures of the bulbar urethra. The potential for benefit was also recognized in patients with a history of hypospadias and/or synchronous strictures.

Modifications to his initial technique followed as others found the principle of preserving the proximal blood supply of the bulb to be feasible while not compromising the excellent results of the T-EPA.2–5

The group from London reported 100% success in their initial small series of patients undergoing complete excision or Heineke–Mikulicz stricturoplasty without ventral spongiosal transection.2 They later validated their results with 97% radiological stricture free rate at a mean follow-up of 13 months.3

The VS-EPA technique was validated in many centers across the globe, and initial reports by Jordan et al were updated with time showing that outcomes are similar to T-EPA. In one such report 68 patients underwent urethral reconstruction with this technique and 95% had successful outcomes after a mean follow-up of 17 months.6 Advanced age, extended length of stay and previous endoscopic treatments were predictors of failure. Although nonvalidated questionnaires were used, de novo erectile dysfunction only occurred in 6% of the patients.

With proven success in anatomical patency, the next step was to evaluate if the nontransecting techniques would have potential benefits for sexual function. A publication from the group in Alberta, Canada, compared T-EPA vs VS-EPA for bulbar urethral stricture and found similar outcomes between groups (94% vs 98% success) after a mean followup of 64 months.7 In their large retrospective multi-institutional series, patients reported more adverse sexual effects with the T-EPA vs VS-EPA (14% vs 4%), suggesting that the vessel-sparing approach may have a positive impact on sexual function.

The group in Ghent, Belgium, is conducting a prospective, single blinded, controlled, randomized clinical trial to directly compare VS-EPA and T-EPA for surgical and functional outcomes, the VeSpAR trial (fig. 3).8 Failure is defined as a patient who is unable to achieve or maintain an erection sufficient for intercourse. This trial will also evaluate if ventral spongiosal transection is necessary.

Norfolk, Virginia

Figure 1. The main steps for traditional transecting stricture excision and primary anastomosis.

Figure 3. VeSpAR trial timeline.
Urology Burnout, Uninterrupted: Another Year, Another First Place

Daniel Marchalik, MD, MA
Washington, D.C.

In Medscape’s recently released 2020 National Physician Burnout and Suicide Report, urology once again found itself at the top of the charts. With 54% of urologists endorsing burnout the specialty is now 12% above the average seen in the overall cohort of over 15,000 physicians. If this is an error, then that error seemed to also have occurred in 2019 when urology, still at the top, was shown to have a 54% prevalence of burnout. The same goes for 2017 when urologists’ level of burnout appeared to be the highest in severity of any specialty. In fact, we have to go back to 2013 to find urology not toward the top of the list in specialty burnout, and even then it fell in the top third.

During the past few years I have found myself in the position of a de facto liaison for the field of urology while presenting at national and international conferences on physician burnout. In these meetings, even when giving talks that do not mention urology, the same question seems to always arise from the audience: “Why are burnout rates so high in your field?” The truth is that I don’t know. Yet I have offered up myriad excuses to try and explain this phenomenon. Here are some explanations that I have previously offered, and why they don’t actually hold up.

“The Doximity survey isn’t a validated survey. We aren’t sure how reliable it is.” While this may be true, it still signals that, on this survey measuring distress, urologists continue to top the medical field. At the same time, urologists appear to have among the highest rates of burnout in a variety of other national studies. Data from 6,880 physicians collected in 2014 showed urology as having the second highest level of burnout at 63.6%. That same study revealed that urologists had the worst work-life integration of all surveyed specialties with only 29.3% endorsing satisfaction with work-life balance. Repeated in 2017, this AMA-sponsored national survey of 5,197 physicians showed an overall decrease in burnout symptoms. At 48.4%, urologists remained in the bottom quartile for burnout while still maintaining a place as the specialty with the lowest satisfaction with work-life balance. A similar phenomenon was observed in a national study of 4,732 residents, which showed urology trainees as having the highest level of burnout at 63.8%. Yes, these studies are imperfect in their own ways. But the findings in them, as they pertain to urology, are consistent.

“All these studies have a small number of urologists.” While this statement is true at face value, it ignores the consistent relative representation of urologists in the cohort. For example, in the national study conducted in 2011, 2014 and 2017, roughly 1.7% of the overall responses came from urologists (see table). With urologists making up 1.5% of the overall physician workforce, our specialty appears slightly overrepresented. At the same time, cohort analysis demonstrates a nondifference between the sample group and the overall complement of U.S. physicians. Finally, specialty representation tended to mirror the overall proportions of physicians within that specialty (e.g., radiation oncology 0.8%, neurosurgery 1.1%, pathology 2.5%, radiology 3% etc). If the issue with the data were a sampling error, that issue would be expected to be reflected across the board in all specialties.

“But I’ve never met an unhappy urologist.” In many ways this is the argument I have heard and uttered the most and is the reason why we remain at the bottom of the burnout barrel. As a field we remain committed to the communal folklore of our exceptionalism. It is the reason why our field remains among the least studied on the drivers and associations of burnout. It is also why we continue to fall behind other specialties not located in our medical practice.

So why won’t we acknowledge the high rates of burnout we have observed?

1. Shorr IR, Iorio A, Chahla J. Urology is ranked as the second worst specialty in burnout. JAMA Oncol. 2015;1(10):e139-e140.
2. Shorr IR, patient satisfaction and burnout in urology. JAMA Oncol. 2015;1(10):e139-e140.
3. Doximity. Urology has the highest burnout rates in America. In an era of rampant burnout, it’s clear that the specialty is suffering. 2015.

Table.

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Nontransecting Urethroplasty for Bulbar Urethral Stricture

Continued from page 22
**AUA TOP 5**

**JOURNAL ARTICLES BY ALTMETRIC SCOPE**

**1. Re: Female Sexual Orgasmic Dysfunction and Genital Sensation Deficiency**
   - Allen D. Seife
   - Article in Journal of Urology, July 2020

**2. The Association between Popular Diets and Serum Testosterone among Men in the United States**
   - Richard J. Fantus, Joshua A. Halpern, Cecilia Chang, Mary Kate Keeter, Nelson E. Bennett, Brian Helfand, Robert E. Brannigan
   - Article in Journal of Urology, February 2020

**3. High Intensity Focused Ultrasound Hemigland Ablation for Prostate Cancer: Initial Outcomes of a United**
   - Article in Journal of Urology, October 2020

**4. Predictive Factors of Missed Clinically Significant Prostate Cancers in Men with Negative Magnetic Resonance**
   - A Systematic Review and Meta-Analysis
   - M. A. Pagniez, V. Kastvisvanathan, P. Puech, E. Drumez, A. Villers, J. Olivier
   - Article in Journal of Urology, July 2020

**5. Predictors of Recurrence, and Progression-Free and Overall Survival following Open versus Robotic Radical Prostatectomy: Analysis from the RAZOR Trial with a 3-Year Followup**
   - Article in Journal of Urology, March 2020
**Textiloma Mimicking Renal Cancer Recurrence**

Pierluigi Bove, MD  
Luca Cindolo, MD, FEBU, PhD  
Rome, Italy

**Introduction**

The patient was a 68-year-old man submitted to an open left radical nephrectomy for renal mass in September 2006. The pathologic examination revealed a renal cell carcinoma of 8.5 cm in maximum diameter located at the upper pole. In February 2007 he had been investigated with abdominal pelvic CT scan that showed a nodular image of about 23.5 mm located in the left renal bed next to the renal vessels. The mass appeared heterogeneous with a peripheral enhancement of the wall and irregular hyperdense internal areas (fig. 1). The lesion was interpreted in first hypothesis as local recurrence.

In March 2007 the patient underwent laparoscopic transperitoneal surgical exploration. The intraoperative ultrasound (US) study showed a mass in the left renal bed with a homogeneous and mainly hyperechoic aspect of about 25 mm with no evidence of intrasional blood flow. Incision of the roof of the lesion revealed a thick wall associated with multiple serpentine fibers of textile (retained sponge). Curettage of the remaining textile fragments was performed and the lesion was removed with some difficulties because of the presence of an intense fibrotic reaction surrounding the renal vessels. The nodule excision was accomplished laparoscopically in a total operative time of 150 minutes. Blood loss was minimal and no intraoperative or perioperative complications occurred. The final pathologic examination revealed fibromuscular tissue with modest chronic inflammation associated with the presence of an amorphous material (hemostatic mesh partially absorbed).

**Discussion**

Textiloma is a foreign body unintentionally left in the body. Surgical sponges are the most frequently retained foreign bodies after surgery followed by gauzes and towels. A foreign body is usually detected with X-ray examination because of the presence of a radiopaque marker. Without markers retained sponges are more difficult to diagnose. Alternatively, a surgical sponge may be detected using US or computerized tomography (CT). US appearance may be widely different from hyperechoic to hyperechoic aspect with or without posterior shadow. CT shows the heterogeneous appearance of the mass visible as pseudocystic lesion with partial calcification or alternatively as low/high density mass.

Oxidized cellulose was developed from wood pulp in 1960. It is used in vascular and general surgery as a local hemostatic agent and to control capillary bleeding. Due to its morphology it can be used everywhere as it can easily and rapidly adapt to any surface. Its maximal hemostatic effect seems to be achieved when it is applied dry. It decreases pH and generates an artificial brownish clot.

In the animal model oxidized cellulose is supposed to be reabsorbed within 3 months. Peculiarity of this case was that the tumor was reported to be hyperechoic with a hyperechoic rim of heterogeneous hyperechoic aspect of about 25 mm. The tumor was resected with the periphery of the renal pelvis due to granulation tissue.

Oxidized cellulose is a common sponge used in ureterotomy and is occasionally a foreign body, especially in the US. The US can easily differentiate the cellulose bolsters from the renal pelvis, allowing differentiation of the normal from the abnormal tissue.

To our knowledge this is the first reported case of oxidized cellulose in the renal pelvis. It is interesting to note that this foreign body was resected with a partial nephrectomy, which is a challenging surgery. Further studies are needed to better understand the optimal surgical technique.

PSMA PET CT to Assess Prostate Cancer Recurrence after Radiation or Surgery

Elliot Anderson, MBBS, BMedSc  Patrick Bowden, MBBS, FRANZCR  Jeremy Grummet, MBBS, MS, FRACS

Melbourne, Australia

A 66-year-old man was referred for elevated prostate specific antigen (PSA; 5.6 ng/ml) and underwent transperineal (TP) prostate biopsy that found low volume Gleason score 3+3=6 (ISUP Grade Group 1) prostate cancer (PCa). After a 15-month period of active surveillance the patient's PSA rose to 8.2 ng/ml and a multiparametric prostate magnetic resonance imaging (MRI) discovered 2 PI-RADS™ 5 lesions. The patient was biopsied using cognitive fusion, revealing extensive Gleason score 4+3=7 (ISUP Grade Group 3) PCa. He underwent a robotic assisted prostatectomy (without pelvic lymph node dissection) with histopathology demonstrating pT2c Gleason score 4+3=7 (ISUP Grade Group 3) and clear margins. PSA was undetectable at 3 months, then rose to 0.11 at 12 months, and 0.58 ng/ml at 18 months postoperatively.

The patient underwent a whole body gallium-68 prostate specific membrane antigen (PSMA) positron emission tomography/computerized tomography (PET-CT), which showed no evidence of PSMA avid PCa. The patient proceeded to prostate bed salvage radiotherapy (70Gy in 35 fractions) alone (no hormone therapy), which he tolerated with minimal toxicity. After treatment his PSA dropped to 0.08 ng/ml and 0.01 ng/ml at 1 and 2 years postradiotherapy, respectively. Three and a half years after prostate bed salvage radiotherapy his PSA increased sharply to 0.79 ng/ml (PSA doubling time (PSA-dt) 2.4 months) prompting a repeat whole body gallium-68 PSMA PET-CT. This time it was positive, demonstrating metastatic disease in a lymph node in the right internal iliac station (see figure). This metastatic deposit was treated with stereotactic radiotherapy (50Gy in 10 fractions) alone (no hormone therapy). At 4 months after treatment the patient had no radiotherapy toxicity and his PSA has dropped to 0.01 ng/ml.

Early identification of recurrent disease is of critical importance for managing PCa after curative intent therapy. Visualization of metastases via PSMA PET-CT allows for metastasis directed therapies (MDT) such as stereotactic radiation treatment. PSMA PET-CT has demonstrated excellent results as an accurate diagnostic modality following biochemical recurrence. Importantly, PSA level and kinetics impact recurrence detection rate. Our case study patient underwent 2 PSMA PET scans 3.5 years apart, following a PSA rise with rapid PSA-dt. In a study by Ceci et al a positive scan was demonstrated in 85% of patients with PSA less than 2 ng/ml and PSA-dt less than 6.5 months. This is congruent with a retrospective study by Eiber et al that found pathological scans in 72.7% of men with PSA between 0.5 to less than 1 ng/ml after radical prostatectomy. Additionally, PCa recurrence to the pelvic lymph nodes is best detected by PSMA PET-CT over other imaging modalities such as CT and MRI.

According to EAU Guidelines, PSMA PET-CT is now indicated to investigate biochemical recurrence after prostatectomy when PSA is greater than 0.2. It can precisely locate sites of local disease recurrence for salvage therapy or oligometastases for MDT. MDT may delay and control disease progression, allowing for further intervention.


Changes in Urologist Workforce in the United States from 2014 to 2018

The workforce is critical to prepare for the future delivery of urological care, especially as the U.S. population ages. The urological community is working to ensure that the workforce is meeting the needs of patients and that the delivery of quality healthcare is maintained.

Urology certification records, contain medical specialty, gender and location data on all U.S. practicing urologists. The Census sample files collected yearly through the AUA Annual Census contain detailed information on demographics, training and practice characteristics.

### Statistical Analysis

The number of practicing urologists in the United States was calculated directly from the population files. Estimates of age, ethnicity and race were calculated using statistical samples from the Census and are reported with the appropriate standard errors due to sampling bias. To further account for survey sampling bias, Census data were weighted to represent the urologist population regarding post-stratification factors, including gender, geography, current certification status and years since initial certification. Data were analyzed using IBM SPSS® 26.0.

### Trends in Workforce Size

The number of practicing urologists in the United States grew from 11,703 in 2014 to 13,352 in 2020, an increase of 1,649 urologists (14.1%), implying an average growth rate of 2.75 urologists (2.4%) per year. This incremental rate outpaces the growth of the U.S. population (0.62%) but lags the growth of the U.S. population age 65 or older (3.42%), the demographic with the highest demand for urological care.

### Trends in Geographic Distribution

From 2014 to 2020 the number of practicing urologists increased faster geographically in nonmetropolitan areas than in metropolitan areas. For example, the growth rate was seen in the AUA South Central (19.3%) and Western (17.5%) Sections, while the slowest growth rate was noted in the New York (4.1%) and Northeastern (7.9%) Sections.

### Trends in Age

While the number of practicing urologists in the United States increased among all age groups, the number of urologists age 65 or older grew the fastest, from 2,679 (22.9%) in 2014 to 4,020 (30.1%) in 2020 (p < 0.05). The average age of U.S. practicing urologists increased from 53.1 years in 2014 to 55.2 years in 2020 (p < 0.05).

### Trends in Gender

There was a significant increase in the number of women in the urology workforce, from 897 in 2014 to 1,375 in 2020. The average annual growth rate was 8.9% for women compared to 1.8% for men. For the first time in history women urologists exceeded 10% of the workforce (12.7%) in 2020.

### Trends in Racial and Ethnic Diversity

Little change was observed in the number of urologists self-identifying as having Hispanic ethnicity or nonWhite race between 2014 and 2020. However, the fraction of White urologists actually increased from 9,241 urologists (83.4%) in 2014 to 10,784 urologists (84.7%) in 2020 (p < 0.05).

### Conclusion

The AUA Census is an invaluable tool that illustrates how the urology workforce has changed during the last 6 years in the United States. While the urology workforce has grown, the rate of increase is not keeping pace with the rapidly growing number of older Americans. The Census also demonstrates an increasing number of women urologists, although these numbers do not yet come close to achieving representation consistent with the gender mix of graduating U.S. medical students. However, this study also indicated no growth in the Hispanic and Asian populations, and an overall increase in White urologists. Further research may be needed to evaluate the impact of urology workforce diversity on care for underserved populations.

### Notes

2. Geographic and U.S. Census data provided by American Health Data.
HAVE YOU Read?

Daniel A. Shoskes, MD
Columbus, Ohio


While multimodal therapy based on patient phenotype helps the majority of men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS), new treatments, especially for those with pelvic floor spasm and, that do not require specialized training are welcome. While low intensity shockwave therapy (LiST) is primarily known in urology as a therapy for erectile dysfunction, it has been used for years as a treatment for trigger points, chronic pain and poorly healing wounds.

In this study patients with CP/CPPS were randomized in this prospective, sham controlled, double-blind study either to the active group who received 5,000 shockwaves per session with energy flux density 0.1 mJ/mm² or to the sham group who received 5,000 shockwaves from a visually identical sham probe. All groups underwent 6 weekly sessions. LiST effects on pain, micturition, quality of life (QoL) and erectile function were evaluated at 4, 12 and 24 weeks after treatment. Overall, 45 men were randomized to the active (30) and sham groups (15). Regarding impact of LiST in National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) total, pain and QoL subdomains scores a clear and persistent improvement was found in all follow-up timepoints compared to sham treatment. The mean difference between the LiST and sham group in the change of the NIH-CPSI pain-domain score (Q1-4) from baseline to 12 weeks after final treatment, which was 3.3 (95% CI 1.8 – 4.7). Perineal LiST was easy and safe to perform without anesthesia or any side effects.

The authors conclude that LiST seems to be a safe and effective treatment option for CP/CPPS, considerably improving pain and quality of life. Lack of any side effects and the potential for repetition make LiST a promising treatment choice for CP/CPPS patients.


Penile prosthesis is a highly effective treatment for erectile dysfunction (ED). Given the propensity for ED with advancing age and comorbidities, the surgery is not without risks. How many men who have the surgery actually use the device long term? In this study the authors conducted a survey of 144 men who underwent an inflatable penile prosthesis (IPP) implantation by a single surgeon during a 6-year period. The factors determining patient selection for IPP implantation included suitability for general anesthesia, manual dexterity to use the device by the patient or their partner on a demonstration device and presence of refractory erectile dysfunction, HbA1c lower than 8.5 or need for a revision of a previously placed IPP.

Universally, a 3-piece AMS 700 Series implant was placed via the penoscrotal approach. The survey participation rate was 97%. The mean age of patient was 64 years (range 24–83), and the mean time between surgery and completion of survey was 2.98 years (range 0.25–7.4). Of all patients 68% were using the IPP at 5 years after implantation. Using the age of 70 years as a cutoff, 18 (22%) patients younger than 70 years and 14 (42%) patients older than 70 years discontinued using the IPP (p = 0.029). The most common reasons for discontinuation were poor health to engage in sexual activity (2.6%), loss of companion (19%), loss of interest in sex (2.6%) and device malfunction with no further interest in revision of prosthesis (14%).

The authors conclude that they had a high rate (28%) of nonuse of IPP, more so in men older than the age of 70 years in the first 5 years of implantation.

Berajoub MB, Aditya I, Herrera-Caceres JO et al: A prospective randomized controlled trial of irrigation


This trial aimed to conclude whether the use of the flexible stent or a “bag in place” was better on renal function in patients with urethral stent infection. The results are expected to influence the treatment of ureteral stones.

The authors concluded that patients who underwent the “bag in place” had a lower complication rate and a shorter hospital stay. The authors concluded that the “bag in place” technique was superior to the flexible stent in terms of outcomes.

Journal of Urology

Novel Survey Identifies Targets

likely to suffer worse outcomes from prostate cancer. This group is more likely to be diagnosed with metastatic prostate cancer and require treatment with androgen deprivation therapies. The survey also found that patients with a history of prostate cancer are more likely to have a higher risk of developing a second primary cancer. These findings suggest a need for targeted screening and monitoring in this population.

Additionally, the survey found that patients with a history of prostate cancer are more likely to have a higher risk of developing a second primary cancer. These findings suggest a need for targeted screening and monitoring in this population.

Joel D. Feldman, MD
Rochester, New York
with the Decisional Regret Scale, the EPIC26 questionnaire and a demographics questionnaire, were distributed to 1,143 men.\textsuperscript{20,21}

Analysis was conducted using descriptive and comparative statistics as well as multivariable logistic regression. Just more than 1,000 surveys were delivered, of which 36% were returned. Differences in demographics were noted with the AAM group more likely to report lower annual income and lower rates of college graduation. No differences were noted in pretreatment erectile function or posttreatment urinary incontinence, bothersome urinary symptoms, bowel or hormonal symptoms.

We were able to demonstrate a correlation between race and regret with higher average DR scores among AAM even when adjusting for primary treatment, treatment age, time since treatment, reported comorbidities, income, sexual function and education. Significant differences were noted in PCBQ scores by race with AAM reporting more medical mistrust and greater concern about masculinity. Higher medical mistrust and masculinity scores predicted DR independent of race.

By identifying medical mistrust and masculinity as factors that contribute to posttreatment regret among AAM, the PCBQ offers a tool for providers caring for men with prostate cancer. When administered to a patient recently diagnosed with prostate cancer, the PCBQ may inform future conversations and shared decision making between provider and patient. It can also identify opportunities for education, as in our study many men believed that different sexual practices could increase a man’s risk for prostate cancer, and not all men understood that AA race increases the risk of prostate cancer and that radiation can increase the risk of other subsequent malignancies. On a community level, our hope is that results of this study can continue to identify targets for intervention. Going forward we plan to repeat this study in larger populations, in different geographic areas and among different minority groups.


### Table 1. Summary of recurrences rates and patterns of surgical approach.

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<td>Surgical approach</td>
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<td>Any followup (months)</td>
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<tr>
<td>% Urothelial carcinoma</td>
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<td>76 vs 82</td>
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<tr>
<td>% pT3 or greater</td>
<td>37</td>
<td>32 vs 31</td>
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<tr>
<td>% Positive disease margins</td>
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<td>% Pathological positive disease</td>
<td>20</td>
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<tr>
<td>No. RFS</td>
<td>66 at 5 yrs</td>
<td>65 vs 68 at 3 yrs</td>
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<td>No. LRF</td>
<td>84 at 5 yrs</td>
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<td>No. DMFS</td>
<td>74 at 5 yrs</td>
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<tr>
<td>% Any recurrence</td>
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<td>26 vs 26</td>
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<tr>
<td>% Local recurrence</td>
<td>11</td>
<td>3 vs 4</td>
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<tr>
<td>Most common site of local recurrence</td>
<td>Pelvis</td>
<td>Cystectomy bed</td>
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recurrence. Carbon dioxide pneumoperitoneum deployed in minimally invasive surgery has been considered to inhibit peritoneal immune response against malignant urothelial cells leading to recurrence in the pelvis and at port sites, although never validated.

To determine the relapse rates and patterns after RARC, the International Robotic Cystectomy Consortium (IRCC) performed a retrospective review of the prospectively maintained database (3,000+ patients among 28 institutions from 14 countries). A total of 2,107 eligible patients were analyzed for disease relapse following RARC, and 521 patients (25%) relapsed. Local recurrences were observed in 241 (11%) and distant metastasis occurred in 382 (18%) patients. Early oncologic failure (within 3 months) was seen in 4%. The median time to disease relapse, local recurrence and distant metastases was 8 months for all categories. The most common site for local recurrence was the pelvis (5%) while the most common sites for distant metastasis were the lungs (6%) and extrapelvic lymph nodes (5%). Abdominal wall/port-site metastases were observed in 25 patients (1.2%), and peritoneal carcinomatosis was observed in 26 patients (1.2%). Five-year relapse-free survival (RFS), local recurrence-free survival (LRFS), distant metastases-free survival (DMFS), and overall survival (OS) were 66%, 84%, 74% and 60% respectively.

On final report preoperative hydronephrosis was associated with poor RFS, LRFS and DMFS. Perioperative blood transfusion was associated with RFS and DMFS. Meanwhile, age, ileal conduit urinary diversion and ICU stay were associated with worse OS. Pathological T3 or greater and node positive disease were associated with worse OS.

Bochner et al showed nonstatistically significant differences between ORC and RARC analyzing local and abdominal wall recurrences separately. However, when the pelvic and abdominal recurrences were combined into a single group representing local/regional recurrence, the ORC group showed significantly less local/regional recurrence compared to RARC (p=0.035). Intra-abdominal recurrences have been attributed to the lack of tactile feedback and subsequent inadequate cancer control, especially for locally advanced tumors. We did not note an unreasonably high rate of local or abdominal recurrences in our series.

While intracorporeal urinary diversion (ICUD) has been increasingly adopted, an extracorporeal approach has been used for all patients in previously published RCTs comparing ORC and RARC. Therefore, the effect of the diversion approach was not examined. Our study shows no oncologic differences between the open and ICUD approaches. The iROC trial, which is an RCT comparing RARC with ICUD to ORC, is currently recruiting and may provide more robust evidence regarding the effect of diversion approach.

The stage of disease and adverse features remains the main predictor of relapse and survival following RARC. Like any other surgical procedure, technique and strictly adhering to oncologic principles hold the keys to best chances towards success after RARC. 


The Gender Pay Gap in Urology

Amanda C. North, MD
Bronx, New York

Women physicians make up a growing proportion of the urological workforce. According to the 2019 American Urological Association Census, 9.9% of practicing urologists,1 29.4% of urology residents and 30.9% of urology fellows are women.2 Despite growing numbers of women practicing medicine, women physicians continue to earn less money than their male counterparts. This gender pay gap has been found in every field of medicine and has been previously reported in urology.3

Many have attributed the gender pay gap to women choosing less profitable fields of medicine. Others believe it is due to women physicians working fewer hours than men. Our study sought to better understand if a gender pay gap exists in our specialty and then explore potential factors using the 2017 AUA Census data.

Of the 12,517 practicing urologists in 2017, 2,323 completed the AUA Census that year (18.6%). Women urologists tend to be younger and have fewer years in practice compared to males, so our sample was limited to urologists 34 to 63 years old to ensure age comparability. We also matched men and women for number of years in practice. Since $350,000 per year was the median take-home pay reported on the AUA Census in 2017, of those with over 10 years of practice, and of those with less than 10 years of practice was performed to determine if office volume was also a factor. We found that women earn less than men in our specialty; however, factors such as years in practice, years of fellowship, and fellowship type were similar between the genders. Further research is needed to better understand the causes of the gender pay gap in urology.

fewer weekly patient visits. Further study is required to understand if practice differences between male and female urologists are due to the preferences of the providers or if women in urology are being pushed into practices where they need to spend more time counseling patients and do fewer inpatient surgeries.


Patient Perpetrated Sexual Harassment of Urologists

The #MeToo movement is a high profile movement that sparked discussions regarding sexual harassment in several industries. Since then, medical organizations have updated their codes of conduct to reflect an intolerance of gender-based harassment and sexual harassment in the workplace. However, these policies often do not address instances of sexual harassment in which the patient is male and the perpetrator is a urologist. For example, a patient may feel uncomfortable being examined or touched in a manner that he finds inappropriate.

urolists through organized listservs via e-mailed web links, from which we received 190 responses. Approximately half of the urologists responding to this survey experienced patient perpetrated sexual harassment and certain demographics may be more likely to experience this phenomenon than others.

More than 1 in 10 respondents reported being impacted negatively as a result of patient perpetrated sexual harassment. Overall 49.5% answered yes to the prompt, “Have you ever been sexually harassed by a patient in a medical setting?” Respondents who answered yes were more likely to be residents/fellows compared to staff/attending (p=0.004), female (p <0.0001) or younger (age 40 or younger compared to respondents who categorized themselves as age 41 or older, p=0.001, fig. 1).

Examples of patient perpetrated sexual harassment included being asked on a date, receiving compliments about one’s face and/or body, receiving inappropriate comments about touching the patient’s genitalia, prolonged

![Figure 1. Responses to “Have you ever been sexually harassed by a patient?”](image)

- Inappropriate comments re: touching patient’s genitalia
- Prolonged embrace
- Other

Figure 1. Responses to “Have you ever been sexually harassed by a patient?”
Frequency of Restricted Interview Topics Differs by Applicant Gender

Applying to residency is a uniquely structured and competitive process of employment for medical trainees, and previous work has shown the interview process and development of match rank lists are not free from bias. Despite employment law prohibiting discrimination based on age, gender, sexual orientation, religion and disability, our study from the 2017 Urology Match revealed female applicants were more likely to encounter questions on these topics than their male counterparts.\(^1\) Other studies examining factors that may influence match rank lists have found that program communication with an applicant was associated with better odds of an applicant matching at that program.\(^2,3\)

To address match violations and to set a clear policy as done by the National Resident Match Program, the Society of Academic Urologists (SAU) and the American Urological Association published revised guidelines for the 2020 Urology Match. The guidelines state that programs should not ask an applicant to disclose names, specialties, geographic location or other identifying information about programs they may apply to, nor interview questions and post-interview contact. We hypothesized that in response to the new guidelines, applicants would encounter fewer restricted questions during interviews and there would be little to no program initiated contact after interviews compared to prior studies.

Surveys were sent to 361 applicants and 100 responses were received. Almost all respondents (98%) reported they had encountered at least 1 question in a restricted topic area. Female respondents were more likely to report they had encountered a personal question they felt was inappropriate compared to their male counterparts (50% vs 25%, \(p=0.01\)). Despite this, as of 3 months after the match not a single match violation had been reported by applicants to an anonymous portal administered by the SAU.

The most commonly encountered restricted interview topic was regarding other programs to which the applicant applied, reported by 95% of respondents, followed by current parental status, encountered by a third of respondents. Other restricted topics encountered by applicants included questions more likely to be questioned on their intent to have children (27.3% vs 10.7%, \(p=0.032\)). Female applicants were also more likely to be asked about other programs to which they applied (100% vs 91%, \(p=0.04\)). There were no differences between genders among other aforementioned restricted topics.

Compared to previous work suggesting that up to 60% of applicants were contacted by a program post-interview,\(^2,3\) our study encouragingly showed a significant reduction in program initiated post-interview contact. Only 2% of survey respondents reported unsolicited contact by a program following an interview, and no respondents reported receiving match commitments. Although program initiated contact was infrequent, the majority of respondents (70%) initiated contact with programs after an interview. Following applicant initiated contact, more than half of applicants (54%) received responses from programs.

Our results indicate that there is an ongoing need to reduce bias and discrimination and to educate urology interviewers on employment law. Despite restrictions prohibiting programs from asking applicants about age, religion, political preferences, intent to have children, sexual orientation, and disability, 36% of participants in this study reported being asked a question that they considered inappropriate, unchanged from our study of the 2017 application cycle, in which 35% of respondents reported encountering inappropriate questions.

To minimize bias, programs should require all interviewers to participate in implicit bias training and consider using standard

National Outcomes of Vasectomy without Children
guaranteed. There is little literature evaluating whether men who have not fathered children are at greater risk for post-vasectomy desire for children.

**Materials and Methods**

We performed an analysis of the 2002 to 2017 waves of the National Survey for Family Growth (NSFG), a nationally representative survey of family planning in the United States. The study was performed by in-person structured interviews with a sample of people designed to provide nationally representative data.

We compared demographic information and family planning attitudes among men who had undergone vasectomy and compared characteristics of those with vs without children. In addition to demographic characteristics, we evaluated their responses to the questions, “Do you want (more) children?” and “Have you ever had a vasectomy reversal?”

**Results**

Out of 29,192 men who participated in the NSFG, 1,043 (3.6%) reported undergoing vasectomy. Applying the NSFG sampling weights, this population of sterilized men represents 5.7% of the national population of 63,313,791 men age 15 to 44 in the nation. Of the 1,043 men who participated in the NSFG and reported having a vasectomy, 61 (5.8%) reported having no children. This rate would be equivalent to a national population of 4.4% of the men with vasectomy.

There were significant demographic differences between the vasectomized men with and without children (table 1). Men in both groups underwent vasectomy at similar ages. Men with no children had a significantly higher annual household income at 413% of the national average.

<table>
<thead>
<tr>
<th></th>
<th>National Av (95% CI)</th>
<th>Bivariate F</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at survey</td>
<td>39.7 (39.3–40.1)</td>
<td>3.8 (37.4–40.3)</td>
<td>0.302</td>
</tr>
<tr>
<td>Age at vasectomy</td>
<td>32.7 (32.3–33.2)</td>
<td>32.9 (31.4–34.4)</td>
<td>0.824</td>
</tr>
<tr>
<td>Income % of poverty limit</td>
<td>347.1 (335.4–358.8)</td>
<td>412.8 (376.2–449.3)</td>
<td>0.011</td>
</tr>
<tr>
<td>Religion (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant</td>
<td>55.9 (51.7–60.0)</td>
<td>15.6 (8.5–26.8)</td>
<td>F</td>
</tr>
<tr>
<td>Catholic</td>
<td>19.9 (16.7–23.6)</td>
<td>14.2 (5.0–34.1)</td>
<td>F</td>
</tr>
<tr>
<td>Other</td>
<td>5.4 (3.7–7.8)</td>
<td>8.8 (3.7–19.7)</td>
<td>F</td>
</tr>
<tr>
<td>None</td>
<td>18.8 (15.7–22.3)</td>
<td>61.4 (44.4–76.0)</td>
<td>F</td>
</tr>
<tr>
<td>Marital status (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>86.5 (84.1–88.5)</td>
<td>68.6 (53.8–80.3)</td>
<td>F</td>
</tr>
<tr>
<td>Separated/divorced</td>
<td>12.7 (10.7–15.1)</td>
<td>12.7 (6.3–24.1)</td>
<td>F</td>
</tr>
<tr>
<td>Never married</td>
<td>0.7 (0.5–1.2)</td>
<td>18.7 (10.4–31.5)</td>
<td>F</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
<td>0.195</td>
</tr>
<tr>
<td>NonHispanic White</td>
<td>86.2 (83.6–88.4)</td>
<td>88.3 (78.5–94.0)</td>
<td>F</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7.1 (5.7–8.9)</td>
<td>5.5 (1.8–15.1)</td>
<td>F</td>
</tr>
<tr>
<td>Black</td>
<td>4.3 (3.2–5.8)</td>
<td>2.6 (1.8–3.7)</td>
<td>F</td>
</tr>
<tr>
<td>Other</td>
<td>2.4 (1.3–4.1)</td>
<td>3.6 (1.0–12.4)</td>
<td>F</td>
</tr>
<tr>
<td>Education (%)</td>
<td></td>
<td></td>
<td>0.502</td>
</tr>
<tr>
<td>High school</td>
<td>72.4 (68.2–76.3)</td>
<td>67.8 (53.4–79.5)</td>
<td>F</td>
</tr>
<tr>
<td>College</td>
<td>27.6 (23.7–31.8)</td>
<td>32.2 (20.5–46.6)</td>
<td>F</td>
</tr>
</tbody>
</table>

By increments of 10%.

The negative correlation between number of children and income is well documented in the United States population and is likely the result of the interplay between educational attainment on both earning potential and timing of children. Men without children are more likely to not be married, report no religious affiliations and have a higher household income.

Almost a fifth of men who underwent vasectomy without children had never been married. Less than 1% of vasectomized men with children were never married. The decision to undergo vasectomy with no children may reflect that these men are less likely to identify with a traditional nuclear family structure.

Household income was significantly higher in the population of sterilized men with no children compared to men with children. The negative correlation between number of children and income is well documented in the United States population and is likely the result of the interplay between educational attainment on both earning potential and timing of children.

None of the men without children reported undergoing vasectomy reversal. They also did not express the desire for more children. Fewer men who undergo vasectomy at an older age (≥ 40 years) or who also have had a vasectomy reversal are at risk of vasectomy failure or have undergone vasectomy reversal.

**Table 1. Demographic differences between men who undergo vasectomy with and without children.**
supported by the literature, absence of children is not.

Only 4.4% of the men who reported undergoing vasectomy in the NSFG did so without having children. However, urologists who perform a high volume of the procedure will likely encounter this situation. When counseling these men, these data are reassuring that the absence of children does not portend future regret. To further ameliorate risk of regret, sperm banking allows for the future option of assisted reproductive technology.

Conclusions

Men who undergo vasectomy without having children constitute a small but distinct population. Compared to men with children, men without children are more likely to not be married, report no religious affiliations and have a higher household income. Men without children did not report vasectomy reversal over 7-year follow-up. The data suggest that men without children should be counseled carefully, but not discouraged from vasectomy.


FROM THE AUA Secretary

Looking ahead in 2021

John D. Denstedt, MD, FRSC, FACS, FCAMS
Editor, AUA News
London, Ontario, Canada

Each new year brings the chance for fresh starts and new, innovative ideas. It’s also a time for reflecting on the past year and developing personal resolutions for the year ahead. As with many of you, the AUA has also been diligently working on its own resolutions to implement in 2021, ones aimed at providing beneficial resources for our members.

As Editor in Chief of AUA News, I am excited to share with you some new features developed by our editorial team. This year will showcase new columns in AUA News:

- Coding Tips and Tricks, focusing on helping members abreast of the latest coding updates, changes, and how-tos. This column will be written by Dr. Jonathan Rubenstein, AUA Coding and Reimbursement Committee Chair.
- A new column on Ethics in Urology coordinated by Dr. Raj Pruthi.

A New Technologies column in which Dr. Bodo Knudsen will share and exciting tools being used in urology.

Out of Office, a new column featuring our members and what they do when they’re out of the office, such as special talents, philanthropy, hobbies and more. Any AUA member may contribute to this new column.

A dedicated column on the History of Urology, coordinated by Dr. Ronald Rabinowitz, AUA Historian, and the AUA History Committee.

FROM THE Chief Executive Officer

Leadership in 2021: Flexibility, Diversity and Inclusion and Lessons Learned

Michael T. Sheppard, CPA, CAE
Linthicum, Maryland

2020 was an unprecedented year. We faced a global pandemic, waves of social change, a devastating number of wildfires and hurricanes and a fully charged presidential election.

International concern in January 2020 before being declared a pandemic by the World Health Organization in March. While the pandemic has changed the way we live and view the world we live in, it has provided a new lens through which to view how healthcare is delivered and what is possible to achieve. From re-engineering hospital environments to resilience planning to supporting healthier lifestyles, we have seen the promise of cost savings and better health that could be achieved.

COVID-19 completely shook up health care operations, including emptying outpatient departments and doctors’ waiting rooms and virtualizing many activities overnight. Many patients were too scared to seek care in-person, and providers needed to determine a viable solution to seeing patients while also keeping them safe. Both of these were the necessary forces for overcoming any reservations about telehealth, and in a matter of days, we saw widespread acceptance.

Additionally, in The Journal of Urology Practice, it was revealed that 74% of patients with COVID-19 in the United States took some form of urological care. This is an opportunity for the AUA to continue to provide care and information to patients during this time.

As we look to 2021, we will be a year of our initiatives and our members’ initiatives. It’s the year to take action and deliver a first-class event through a fully virtual environment. This shift presented several digital and technical challenges we hadn’t faced before, but in the end it was the agility of our leadership, members and staff who made the virtual event a success.

COVID-19 completely shook up health care operations, including emptying outpatient departments and doctors’ waiting rooms and virtualizing many activities overnight. Many patients were too scared to seek care in-person, and providers needed to determine a viable solution to seeing patients while also keeping them safe. Both of these were the necessary forces for overcoming any reservations about telehealth, and in a matter of days, we saw widespread acceptance.

Evolved, the new leadership within the AUA is committed to the success of the AUA, creating a more inclusive environment. Dr. T. Dan Ryan, AUA President, new was elected in 2021 and represents the interests of resident and resident resources. Endorsed by the AUA, and formed as a leader in the field, we look forward to an exciting year ahead.
FROM THE Urology Care Foundation

Success Begets Success with Foundation Supported Research

Harris M. Nagler, MD, FACS
President, Urology Care Foundation
New York, New York

Research is at the heart of the Urology Care Foundation’s mission because we know it leads to improvements in the care and lives of all of us. Our Foundation works tirelessly to support the research that may relieve symptoms, cure disease or even prevent diseases from occurring in the first place. I am honored to highlight some of those research accomplishments.

Research Scholar Award Program: 45 Years and Going Strong

Established in 1975, our flagship funding opportunity—The Research Scholar Award program—identifies future research leaders and ensures they receive the necessary opportunities, training and support to develop a successful research career. What started as a pledge to fund 2 researchers annually has advanced into one of the most important research funding sources in urology.

We have provided more than $27 million to help roughly 600 early-career investigators. Uncertain times notwithstanding, I am proud to announce that our support for this specialty’s young researchers remains stronger than ever in 2021.

Building Future Leaders in Urology Research

Many of our Research Scholar Award recipients have developed into leaders in urological research and clinical practice. These individuals are continuing to shape the field of urology to improve patient care.

Looking back at an outcomes analysis conducted in 2017 for the previous 25 years of funded investigators, we know our program has brought widespread success to our field and the patients we serve. Some important highlights to note include the findings that:

- 83% of awardees continue to conduct urological research
- more than half reported having held at least 1 academic leadership position
- 52% of respondents had achieved tenure at the time of the analysis, and
- 34% reported holding an endowed position.

The impact of our Research Scholar Award was also reflected in subsequent research productivity. For example, former awardees reported an average of 28.4 publications and 2.9 grants that were directly or indirectly related to their Foundation supported research.

I would like to highlight the success of one of our research scholars, Dr. Dirk Lange. Dr. Lange was a 2013 Research Scholar working with mentors S. Larry Goldenberg, MD; Benjamin H. Chew, MD; and Ralph Buttyan, PhD, all of whom were at the University of British Columbia.

AUA RESIDENTS & FELLOWS Committee News

Finalizing your Rank List

Nishant Garg, MD
Juan Javier-DesLoges, MD
Chair, AUA Residents & Fellows Committee
La Jolla, California

With interview season wrapping up now, many applicants will soon receive offers from programs. When evaluating programs, there are many ways to go about ranking programs, but the most important point is to divide the top half and bottom half of the list. This is not to say that programs in the top are somehow better than programs in the bottom. Rather, it means that the programs you put in your top half are a better fit for you. This distinction is critical because the rank list is meant to represent how you feel about a program.

When evaluating the Match statistics from the AUA website for the prior years (2010-2019), we found only 3 programs on your list. When constructing your list, keep in mind that no matter where you end up, you will get good training and become a competent urologist. Rereminding yourself of that fact will allow you to focus on other aspects of ranking. Is there a specific type of urology you are interested in? Is there a particular region/location in the country you want to be? Does the program have a strong focus on research and, if so, is that something that interests you? What is the relationship between faculty and residents? What is the relationship among residents themselves? What is the trajectory of the department? Is there another factor that now?
pare

This year, you have more choices than ever. With programs becoming substantially stronger and more motivated to ensure candidates are happy, your options are greater than ever. So, what should you do with this information? Prepare to enter the Match season with a solid strategy.
FROM THE Public Policy Council

Telehealth: A Comprehensive Advocacy Strategy

Eugene Y. Rhee, MD, MBA
Chair, AUA Public Policy Council
San Diego, California

Public policy is a course of action created and/or enacted, typically by a government, in response to public, real-world problems.

Over the course of 9 months, the urology community has come upon real-world problems that are generational in scope. Whether practices be academic, employed, independent groups or solo, an overarching request has been heard from all: take action to advocate for telehealth for the delivery of urological care on behalf of patients across this nation.

The AUA and its Urology Telehealth Task Force has formulated a comprehensive telehealth strategy engaging the Coding and Reimbursement, Legislative Affairs, Practice Management, Research Advocacy and State Advocacy Committees, and National Insurer Advisory, Veterans Health and Workforce Workgroups.

Additionally, several professional societies are already a part of this multipronged strategy, including The R. Frank Jones Urological Society, Sexual Medicine Society of North America, the Society of Urodynamics, Female Pelvic Medicine & Urogynecologic Reconstructive, American Association of Clinical Urologists, and Large Urology Group Practice Association.

Telehealth was a key advocacy topic during the virtual Annual Urology Advocacy Summit Meeting. AUA members, representing 34 states and the District of Columbia, participated in more than 160 virtual meetings with lawmakers and staff to support legislation to make telehealth change permanent, advocating Congress and CMS (Centers for Medicare & Medicaid Services) to preserve Medicare beneficiary access to telehealth services. Telehealth is also a priority legislative issue for AUAPAC (https://www.myauapac.org/).

On September 17, 2020, the AUA met virtually with CMS, thanking the agency for the flexibilities that have been made in response to the COVID-19 pandemic. Participating urologists spoke to proposing additional changes to Medicare’s telehealth and communications technology based services policies, including virtual check-ins and audio-only E/M (evaluation and management) visits.

Partnering with the Alliance of Specialty Medicine has also brought forward language to seek permanence for urology in telehealth. Specifically,

- Maintain the updated Medicare telehealth list to retain all of the services added in response to the Public Health Emergency for COVID-19, including audio-only interactions
- Eliminate site-of-service payment differentials for telehealth visits, and maintain Medicare coverage and enhanced payment for “telephone” E/M services (CPT 9944–99443)
- Allow key telehealth and virtual care services (eg virtual check-ins, e-visits and other communication technology based services) to be furnished to both new and established patients

AUA and the national specialty’s organizations’ work is a work in progress, but we are on the right track and the coursework we are doing will lead to change and define telehealth’s active role.

1. Revised Category I CPT Code: Antegrade Urography

New CPT Codes for 2021

Jonathan Rubenstein, MD
Chair, AUA Coding and Reimbursement Committee
Baltimore, Maryland

The CPT code set is continuously being updated, with new Category I codes being released on January 1 of each year. The changes for 2021 focus on the addition of new codes for procedures related to the use of High-Intensity Focused Ultrasound (HIFU) for the treatment of prostate cancer.

HIFU was FDA approved in October 2015 for ablation of prostate tissue. Clinically, HIFU is used to ablate prostate cancer and has been used for both initial treatment and recurrence after prior therapy (radiation, laser, cryoablation etc.).

Ablation of prostate cancer using HIFU was not previously described in the CPT code set and an unlisted code (CPT 55899) was recommended by the manufacturers. HIFU

CPT code itself.

Starting January 1, 2021, HIFU will be reported using CPT code 55800. Please note that included in the procedure and not reported separately is CPT code 76942 Ultrasonic guidance for needle placement (eg biopsy, aspiration, injection, localization device), imaging supervision and interpretation.

Revised Category I CPT Code: Antegrade Urography

CPT 74425: Urography, antegrade

CPT code 74425 has been revised for 2021, expanding the use of the code to include imaging of both the upper and lower urinary tracts. The code now includes imaging of the kidneys, ureters, bladder, and urethra.

The revised code reflects the increasing use of antegrade urography in diagnostic and therapeutic procedures.
Coping Tips and Tricks
Continued from page 36

50695.

Please note that, if performing an injection for visualization of an ileal conduit, CPT code 74425 should be used if the catheter for injection is placed to the back end of the conduit for antegrade injection (with the flow of urine), and CPT 74420 urethrogram, retrograde should be used if the catheter is placed at the distal end of the conduit and the contrast is injected in a retrograde fashion (against the flow of urine).

New Category III CPT Code: Prostate Commissurotomy with Drug Delivery
CPT 0619T: Cystourethroscopy with transurethral anterior prostate commissurotomy and drug delivery, including transrectal ultrasound and fluoroscopy, when performed.

The Category III CPT code 0619T describes a drug coated balloon dilation system used for men with benign prostatic hyperplasia. The system combines a controlled pressure dilation of the prostatic channel with the delivery of an antiprostatic drug into the prostatic bed, which may facilitate the long-term treatment of benign prostatic hyperplasia.

This procedure is unique and not currently described in the CPT code set. Parenthetical notes instruct the coder to not report CPT codes 52000, 52441, 52442, 52450, 52500, 52601, 52630, 52640, 52647, 52648, 52649, 53850, 53852, 53854, 76872 or 0499T in conjunction with 0619T.

New Category III Codes: Female Intraurethral Valve-Pump Insertion and Replacement
CPT 0596T Temporary female intraurethral valve-pump (ie, voiding prosthesis); initial insertion including urethral measurement
CPT 0597T Temporary female intraurethral valve-pump (ie, voiding prosthesis); replacement

Two new Category III codes were created to describe the initial insertion of a female intraurethral valve-pump and for the replacement of a pump. These codes were created as there were no codes to describe the procedure of initial measurement and placement of a voiding prosthesis or the replacement of the device.

Prior to the establishment of these codes, CPT code 53899, Unlisted procedure, urinary system was used to report this work (with HCPCS code A4335, Incontinence supply; miscellaneous for the valve-pump and activation wand). While there is a similar CPT code 53855 Insertion of a temporary prostatic urethral stent, including urethral measurement, this is a male code (prostatic) only. The degree of difficulty in determining urethral measurement and of urethral insertion in men vs women made it necessary for a separate code for female urethral valve-pumps.

OUT OF Office
Musical Accomplishments

Michael Karasis, MD
Springfield, Illinois

“Music is the greatest of the arts. It is greater than any wisdom or philosophy.” – Ludwig van Beethoven

Music has always been a great part of my life. I began studying the violin the very year I began my urology residency at SIU School of Medicine in Springfield, Illinois (1976). I eventually joined 2 symphony orchestras in Northern Illinois about the time I began practice in Woodstock, Illinois (1980). Through the years my interest grew in composition and I studied...
Virtual Sub-Internship Experience from a Student Perspective

Rohan Sawhney, MS4
New Brunswick, New Jersey

The COVID-19 related cancellation of away rotations for medical students in urology has been devastating to many prospective applicants and residency programs alike. It is widely acknowledged that sub-internships are a critical part of the application process. Students rely on sub-internships to learn urology and understand the culture of various residency programs, while programs use these rotations to assess the potential applicant's personality and fit.

When virtual sub-internships were first announced by the Society of Academic Urologists, I must admit that I was a little skeptical. How could programs incorporate students virtually to teach them, evaluate them and expose them to the culture of their program? Casting these doubts aside, I decided to jump in and became the first virtual sub-intern at the Zucker School of Medicine at Hofstra/Northwell, otherwise known as the Smith Institute for Urology (SIU). Going into the virtual sub-internship, I did not fully know what to expect. Little did I know what a phenomenal journey upon which I was about to embark.

Technology Involved

The success of my virtual sub-internship owes a lot to the telemedicine carts at Long Island Jewish Medical Center (LIJMC; see figure).1 These carts were housed in the hospital and at outpatient offices. When I logged onto the cart I was able to control the 20× zoom camera and experience a 360-degree view. On a typical day, I participated in morning report conferences, performed prostate biopsies, and chatted with residents and faculty. I was also able to observe the daily ward rounds, interview patients, present to attendings and discuss treatment options. In the OR I viewed various open and endoscopic procedures. The only drawback of using the carts was that the connection would sometimes disconnect due to poor Wi-Fi signal or the battery would run low. Fortunately for me, the residents, faculty and other staff were very attentive and were able to resolve these issues promptly.

My Experience

Each morning I put on my white coat, sat down at my desk and logged onto the cart. Through my Northwell remote electronic medical record access I was able to check overnight updates on patients and prepare for rounds. Participation in rounds was a phenomenal learning experience as residents went out of their way to answer my questions. I must acknowledge an intern who would contact me throughout the day with updates on patients I was following. During my rotation the residents went above and beyond by sharing slides from conferences and quizzesing me in the OR and clinic. They even took time out of their weekends to help me with my grand rounds' presentation.

The virtual sub-internship also provided a great opportunity to observe the camaraderie among the residents. As we all adjusted to the virtual sub-internship setup, the residents began to include me in banter. I will never forget the day in clinic when a resident jokingly asked me to stand up to prove to him that I was wearing pants. Fortunately for me, I was!

When I was in the OR I observed the surgical autonomy that the faculty provided to residents. On a personal level I appreciated how many of the attendings, no matter how junior or senior, continually engaged with me and offered their feedback. Learning was a priority for the faculty and the program, which I experienced throughout the program without ever feeling like an outcast.

Figure 1. Anwell C250 Telemedicine Cart available on floors, in OR and at clinic.

developed by the program directors, allowed me to meet 17 of the 28 faculty members and exposed me to various subspecialties. In addition to attendance at rounds, cases and clinic, I was expected to watch recorded lectures on different core topics each week. These subjects were strategically matched with who I was assigned to work with that week.

To further enrich my experience most providers allowed me to meet 17 of the 28 faculty members and exposed me to various subspecialties. In addition to attendance at rounds, cases and clinic, I was expected to watch recorded lectures on different core topics each week. These subjects were strategically matched with who I was assigned to work with that week.

To further enrich my experience, many providers allowed me to meet with patients and involved me in outpatient procedures. I am especially grateful to those who took the time to walk me through the steps necessary to read renal ultrasounds, perform transperineal and transrectal ultrasound/magnetic resonance imaging fusion prostate biopsies, and conduct and analyze urodynamics.

During my time at LIJMC I also met with the department leadership. They went above and beyond in creating an effective environment away from the physical classroom.

I want to extend my thanks to the faculty, residents, and MD students for their support and kindness during my sub-internship. From those who supported me during my time in the hospital to those who hosted and welcomed me into their homes, I am truly grateful.

I would like to thank the Society of Academic Urologists for their vision and support in allowing virtual sub-internships to happen. I hope that this model can continue to evolve and expand so that those who are interested in pursuing careers in urology can experience a personalized and meaningful experience even in challenging times.
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