The Focus on Education

FROM THE EDITOR

Douglas Storm, MD

As I start my new role as editor of Dialogues in Pediatric Urology, I want to take a moment to thank Dr. Elizabeth Yerkes for her tireless efforts as the prior editor of DPU. For the last ten years, she oversaw the publication of DPU (27 editions in total!!), tackling relevant and timely topics in pediatric urology. She has transformed DPU into its current form and has left an everlasting mark, for which we are all grateful.

Clearly, I have big shoes to fill, and I am hopeful that my small feet will be able live up to the task. Fortunately, I have a new, tremendous editorial board who have already made huge contributions to DPU. As Andrew Carnegie said, “Never be foolish as not to surround yourself with people who are smarter than you” and this certainly holds true with our new board members. I would like to thank Jason Van Batavia for his willingness to serve as the new associate editor of DPU. In addition, I would like to thank Emily Blum, Nicolas Fernandez, Fardod O’Kelly, Anthony Tracy, Diana Bowen and Carmen Tong for their willingness to serve as the new DPU Editorial Board Members. The energy and commitment that they have brought to DPU is already showcased in this edition and I am excited to see where we can take DPU in the future.

In this edition of DPU, we have focused on the topic of “Education.” All of us in pediatric urology are educators. Even those of us who are not directly associated with a medical school, urology residency or pediatric urology fellowship are educators. We educate our patients, their families, and the people we work with daily. In this edition we have broken the topic of education into several different subtopics that affect us all. These subtopics include Medical Student Education, Updates on Resident Education, Fellowship (within the United States and abroad) and Updates on Lifelong Learning in Urology. I would like to thank Kate Kraft, Nicolas Fernandez, Victor Figeroa, David Joseph, Allison L. Grant, Connie N. Wang, Gina M. Badalato, Daniel Roberson, Clare Mallahan, Nathaniel McLauchlan, Karl Godlewski, R. Caleb Kovell and Seth Alpert for their contributions to articles with this edition of DPU.

I would also like to highlight some new DPU sections including “How I Do It” and “Get to Know Me”. Cameron Hinkel and Andrew Kirsch have been kind enough to serve as our first contributor to the “How I Do It” section as they showcase how they perform a robotic assisted laparoscopic prostatic utricle excision. In upcoming editions, I am hopeful to use this section to highlight pearls and advice to help us in all realms of practice. In addition, I could think of no better person to interview for our inaugural “Get to Know Me” section, than Elizabeth Yerkes. Dr. Yerkes was kind enough to share her insight as a leader in pediatric urology.
Despite growing demands of the urologic workforce in the United States, recent data has demonstrated decreasing exposure to urologic education in medical school curricula. Specifically, Sloughenhoupt et al. found that while 99% of medical schools included required urology rotations in 1965, only 5% of medical schools had similar requirements in 2014. A more recent 2021 national survey of 173 medical students concluded that 98% of respondents reported not having a required clinical urology rotation at their school.

While pre-clinical and clinical urologic exposure during medical school has room for expansion, one area in which urologic education has traditionally excelled is the medical student sub-internship experience. Urology sub-internships allow senior medical students to learn more about both the scope and the day-to-day workflow of a practicing urologist through immersion in both inpatient and outpatient urology settings. Furthermore, sub-internship rotations offer opportunities for medical students to take on graduated responsibilities as they progress in their skills and training.

During the onset of the COVID-19 pandemic, urology programs were at the forefront of creating virtual curricula for medical students. As sub-internships were offered entirely virtually during the 2020-2021 academic year and limited to only one in-person visiting sub-internship in the 2021-2022 academic year, virtual sub-internship utilization increased dramatically. To meet this need, the Society of Academic Urology (SAU) assembled a working group comprised of 33 academic urologists and program directors from multiple institutions. The consortium created 10 discipline-specific modules that served to teach the basics of urology and allowed for more objective assessment of student performance. In a similar vein, Margolin et al. developed a novel, online, blended curriculum for fourth year medical students interested in a urology sub-internship. The group found that their curriculum’s case-based and interactive modules significantly enhanced learning. Most students and physician preceptors involved in the curriculum thought the online modules should be incorporated into urology electives moving forward. The SAU has since supported expanded use of these modules in the form of national pilot program to prepare students for urology sub-internships.

Aside from establishing a fund of knowledge in urology, sub-internships serve another critical purpose: providing a mechanism for urology residency programs to both recruit and evaluate prospective residency candidates. In 2016, Pagano et al found that the number of visiting sub-internships completed directly contributed to match success, independent of medical school rank, test scores, or grades. A more contemporary study that surveyed post-match students from the 2022 match cycle reported that most applicants were offered an interview at an institution where they completed a visiting sub-internship rotation. Additionally, 56% of applicants who declined a visiting sub-internship rotation at a program did not receive an interview invitation from the same program. These findings collectively highlight the significant impact visiting sub-internship rotations have on the urology residency interview and match process (Figure 1).

As a specialty, urology has a tradition of prioritizing the sub-internship educational experience. This senior elective traditionally introduces students to the fundamentals of the profession and can serve an important role in the residency selection process. In recent years, urology programs have continued to innovate and offer novel educational platforms incorporated into the sub-intern clerkship. Future work is needed to expand some of these initiatives to early career medical students and ensure adequate exposure to the field during undergraduate medical education.

References

Figure 1. Survey from Movassaghi et al. Urology 170, 2022 demonstrating resident match outcomes from the 2022 Urology Residency Match. This demonstrates the importance of “in-person” urology rotations, either at a home institution or through an away rotation.
Contemporary Urologic Training: Trends, Challenges, and Opportunities

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In this editorial, we discuss various topics pertinent to urologic training in the United States, with the goal of briefing readers on current challenges and opportunities in this dynamic landscape. Herein, we explore changes to the American Urological Association (AUA) residency interview and match processes, trends in resident operative autonomy, and relevant, novel technological innovations.

AUA Residency Match

Major alterations have occurred over the last few years to the urology residency match. Initiated in 2021 during the COVID-19 pandemic, residency interviews have transitioned to an entirely virtual format. Even with restrictions lifting, virtual interviews have continued, in an effort to minimize applicant cost and allow for increased access to programs. Additionally, as of the 2022 match, applicants now have the option of sending preference tokens to a limited and standardized number of programs, which serve to demonstrate a higher level of interest. Both changes can profoundly impact the makeup of the individuals entering our field, and where they will ultimately train.

Virtual interviews became a necessity in the 2021 application cycle due to travel risks posed by the pandemic. The virtual format provides approximately $3,000 and $7,000 in cost savings to programs and applicants, respectively. The motivation for continuation of the virtual interview is partially driven by an effort to make the application process more equitable through maintaining lower costs for applicants. Whether a benchmark of satisfactory equity has been met or will be met is certainly up for debate. Notably, concerns have been raised regarding the ability to adequately evaluate candidates’ potential via the virtual format alone. In a survey completed by 31% of program directors, 71% believed that virtual interviews were detrimental in appraising an applicant’s ability for success in their program. However, an alternative survey completed by 40% of applicants and 39% of program directors, demonstrated that two thirds of applicants were satisfied with their match outcomes, and that most program directors were either more (13%), or equally (79%) satisfied with match results during the virtual interview cycles as compared to prior years. This same study showed that most applicants (61%) and program directors (71%) did not feel their outcomes would have changed with in-person interviews. Similar findings have been reported across medical specialties as well as outside of medicine. Most recently, an analysis compared the likelihood of matching at your home program prior to and after the virtual interview format was initiated, and found that only smaller programs (2 positions per year or less) saw a statistically significant increased likelihood of matching home applicants. While data does not prove that the virtual interview process results in more applicants matching at a program in which they have interacted with faculty in person, the limited data above supports this intuitive notion. It is difficult to predict what the impact of programs matching applicants who are a ‘known quantity’ may have.

Given the increasing number of applications per applicant and a continual rise in unmatched medical students, the 2022 match introduced preference signaling, also known as ‘tokens’, to help applicants indicate their strong interest in select programs prior to interview invitations.

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Contemporary Urologic Training (continued from previous page)

more accurately. Patient-specific simulation (PSS), which uses segmental imaging to produce 3D printed hydrogel models of patient anatomy, allows surgeons to rehearse specific cases. Advocates of these training tools propose better clinical outcomes with their use, including lower complications following percutaneous nephrolithotomy in one publication. Alongside physical models, immersive reality, in which the full magnitude of sensory stimuli in the operating room is replicated digitally, offers the ability to replicate a wide range of surgical complications in a safe and controlled environment. While these tools are exciting, they have yet to be widely adopted in surgical training programs, especially for early trainees. This is largely due to lack of availability of models and cost. It is unclear whether surgical skills training will prioritize synthetic and/or digital models over more traditional methods of education, yet both have the ability to augment current educational practice.

In addition to skills development, new technologies are assisting surgeons and trainees in preoperative and intraoperative decision making. Preoperatively, 3D virtual modeling has been shown to provide more information in less time to surgeons planning for renal cancer surgeries when compared to CT scans. Our institution recently published our experience with genitourinary 3D modeling to supplement preoperative planning of complex reconstructive and oncologic operations in pediatric populations. Intraoperatively, techniques such as photodynamic diagnostics with blue light cystoscopy at the time of bladder tumor resection has not only shown to aid in cancer detection, but has been proposed by experts to make complex endoscopic resections of bladder tumors and management of high risk bladder cancer easier to teach.

Residency training for urologists in this country is certainly evolving. The method with which we select urologic trainees has moved towards maintenance of a virtual residency interview format brought on by necessity during the COVID-19 pandemic. This presents concerns of the ability of programs to accurately assess applicants, though the proposed benefit of making the application process more equitable, through a decreased applicant cost burden. The trend of high and increasing numbers of applications per individual applying to urology residency, further increases burden on both applicants and programs, though implemented measures such as preference signaling provides an opportunity to mitigate such burdens. Technology in the form of advanced simulation and preoperative 3D modeling are examples of how innovation can improve the way we train the next generation of urologic surgeons. While we have much to learn and refine, we remain excited for the future of urologic education in the United States.

References
Urology Training Today: Examining Current Trends and Preparing for Future Practice

In our tripartite mission to uphold excellence in the field of pediatric urology, emphasis on education must remain at the forefront. The success of our profession hinges on delivering safe, high-quality patient care and engaging in discovery that expands the reach of clinical practice. More importantly, it depends on inspiring and training the next generation to do the same for years after we have hung up our scalpels.

William Stewart Halsted has been revered for his many contributions to surgery, but perhaps his model for modern surgical training remains his most significant accomplishment. Dr. Halsted’s century-old principles of surgical training remain relevant today, including residents assuming graduated responsibility as they gain proficiency in a supervised training environment. The process by which those skills are acquired, however, has changed dramatically due to multiple forces straining the graduate medical education mission of training surgeons who can practice safely and independently upon completion of residency.

Over the past decade, there has been rising concern that some surgical residents are not competent to enter independent practice by the time they complete their residency training.1-3 Today’s residents continue to progress through training by participating in increasingly complex operative procedures, yet learners have little opportunity to exercise independence in execution, decision making, and responsibility. Decreasing autonomy in surgical residency may contribute to the lack of readiness for independent practice.4,5 This could be due to work hour restrictions, expanding residency program requirements, ACGME regulations surrounding supervision, and pressure to improve clinical throughput, all within a fixed length of training.6-10

This issue is not unique to general surgery training. Recent graduates of US urology residency training programs express a lack of confidence in performing procedures commonly encountered in general urologic practice.11 The majority of recent surgical graduates also seek fellowships, which may reflect the need for further training after residency.11-14 Graduation from procedural specialties relies on ACGME case log minimums, measuring trainee surgical volume rather than surgical competence.15 The ACGME Milestones evaluate surgical performance globally but do not provide actionable feedback for specific surgical procedures.16 Even in our small subspecialty of pediatric urology, we are now witnessing concerning trends in fellows reaching graduation targets for surgical ability milestones.17,18

Achieving independence among surgical trainees has shifted from the Halstedian pure discovery learning model (learning by doing) to a need for guided discovery learning. In this model, an expert provides the learner preparatory information before an educational experience, offers verbal and manual guidance during the experience, and ends the experience by delivering formative feedback. (Figure 1). Learners using guided discovery not only learn more quickly and accurately but are also more likely to remember what they learned.19 Guided discovery learning partners well with deliberate practice to improve performance, and core to this partnership is the concept of feedback.

In a recent survey-based study, young pediatric urology fellowship graduates cited faculty feedback as one of their most valued training tools.20 Feedback not only fuels but accelerates learning. Learners who receive regular feedback about their performance perform significantly better, develop better judgment, and learn faster.21-26 More importantly, the quality of feedback is essential to propel skill development. At the very least, feedback should be specific and encouraging. To effect change in a learner’s development, feedback should also be corrective, rectifying undesirable or even harmful habits; speak to entrustment; and design a learning plan for skill acquisition.27

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Urology Training Today (continued from previous page)

Over the last decade, as importance of feedback has emerged in surgical education, development of workplace-based assessments (WBAs) that share feedback while capturing performance data has led to a paradigm shift toward individualized learning. The Society for Improving Medical Professional Learning (SIMPL) app is an example of a WBA that takes resident autonomy and performance into account while offering a mechanism for delivering feedback immediately following an operative experience. The SIMPL app has been readily adopted by more than twenty urology training programs nationwide and has the potential to segue seamlessly into an updated residency training model centered around competency based medical education (CBME). Analysis of assessments completed by urology programs has led to development of the Practice Readiness Score, predicting the probability that a trainee will earn a practice-ready rating the time next he or she is evaluated on that procedure. This is accompanied by a peer-average for trainees at that same PGY-level to provide further context. With this model, it is feasible to estimate readiness for practice quantitatively and detect if a specific educational change has led to improvement.

CBME shifts today’s standardized training experience to one organized around competencies of the individual trainee. Desired outcomes come in core competencies shape the curriculum development, educational methods, assessment, and time to completion. In CBME, the learner has more control over the pace of learning compared to the traditional time-based training model in which postgraduate year has served as a proxy for skill development. Completion of training in a CBME model occurs when a trainee demonstrates proficiency as opposed to merely completing a certain amount of time. CBME seeks to better meet the needs of the public as the volume of medical knowledge and technical procedures in which a trainee must demonstrate proficiency before completion of training continues to grow exponentially.

WBAs can facilitate gathering of data about a trainee and guide educational programs on whether a learner has fulfilled an entrustable professional activity (EPA). The EPA, an essential building block of CBME, represents an authentic work activity that is executable, observable, measurable, and reflects multiple competencies. Other specialties have turned to EPAs as part of the certification framework, with the American Board of Pediatrics establishing 17 core EPAs required for general pediatrics training, and the American Board of Surgery launching their EPA Project in July 2023. With our similarities in training, we could pave the path toward a competency-based system in urology residency that implements EPAs while applying lessons learned from our colleagues in general surgery.

We have all pledged *primum non nocere*—first do no harm. We are called to serve our patients, who are owed safe surgical care by competent urologists prepared to practice independently and professionally. Ensuring competence in practice could be considered a “two-way street.”* attending urologists must focus on tailoring the learning experience to their individual residents and fellows, while trainees must ensure they directly apply feedback to their own development as surgeons. Pediatric urology training remains the mainstay of open surgical training in many urology training programs, and, therefore, prioritizing how we teach the next generation in pediatric urology secures the future of our specialty. Along the way, we may be fortunate to ignite the spark of passion for our field that keeps ablaze our mission of healing every child.

References

7. Bell BM. Supervision, not regulation of hours, is the key to improving the quality of patient care. JAMA 1993; 269: 603-604.
The State of Pediatric Urology Fellowships

Many things have changed since I was a Pediatric Urology fellow in the early 2000’s. At that time, there were 13 fellowships in North America. Now, there are 27. In the past, the majority of programs were 2 years in length with one year of clinical training and one year of research. For a period of time, there were a couple of programs which were one-year in length for clinical training; since 2008, however, all fellowships have transitioned to at least 2 years in length once the American Board of Urology (ABU) Certificate of Added Qualification (CAQ) was introduced that year. At that time, the clinical year of training was overseen by the Accreditation Council for Graduate Medical Education (ACGME) and the non-clinical year of research was supervised by the ABU with minimum requirements for academic accomplishment during the latter. The Pediatric Urology Advisory Council to the ABU reviewed and approved the research plans for these fellows so that they would eventually be eligible for the CAQ after completion of initial ABU certification. A handful of programs either required a second year of research or allowed their fellow to train for an additional year to complete various master’s degrees related to their academic interests.

Beginning in July 2021, the ACGME moved to assume supervision of both years of Pediatric Urology fellowship training, which allowed potential changes to the structure of the training programs. Each program can now individualize their sequence of clinical and non-clinical research months, if the graduating fellow completes 12 months of each during their training. One novel advantage of this change is that any surgical case that the fellow logs during the 24 months of training counts toward their index case log. The ACGME Review Committee for Urology restructured the index case categories and minimums in July 2019 to better reflect the current expectations for surgical competencies for graduating fellows, since these categories and minimums had not been updated for several years. (https://www.acgme.org/globalassets/pfassets/programresources/pedsuro_case_log_info.pdf)

During the non-clinical year, current fellows have the requirement to design and conduct a scholarly project of their own choosing where they lead the research endeavor, and their work leads to at least one manuscript of publishable quality. A faculty mentor oversees this work and the program’s Clinical Competency Committee reviews and approves the fellow’s final research product at the end of the training program as a requirement for graduation.

In the past, ACGME required those individuals in an accredited 2-year fellowship program to have graduated from a North American urology residency program. Recently, the ACGME has changed its policy for the eligibility of trainees such that beginning in July 2023, fellowship programs may choose to train “exceptionally qualified” international medical graduates. These individuals must meet certain criteria for eligibility, be approved by their institution’s Graduate Medical Education Committee and have ECFMG certification. This may allow some programs to consider accepting certain international graduates for available vacancies during or after the fellowship match.

There has been an ongoing debate amongst various concerned parties that we are currently training too many pediatric urology fellows. With only so many complex urological procedures available and having these spread across the various programs, this may be diluting the fellows’ clinical experience to be prepared to care for some of these patients when they graduate and go into practice. On the one hand, due to recent trends of fewer residents applying for pediatric urology fellowships (range of 14-17 applicants per year the last 4 years), only about 2/3 of our programs are filling through the fellowship match in the past several years (Figure 1). Unfortunately, the perfect workforce requirements, and thus yearly quotient of graduating pediatric urologists each year, are hard to accurately predict and gauge for future expected needs.

Every summer, a new group of graduates complete accredited pediatric urology fellowships and enter practice. While the number and requirements of pediatric urology fellowships have changed over the years, one thing remains true: we must continue to mentor, attract, and train the best and the brightest candidates for our pediatric fellowship programs. The current practice of our specialty requires individuals who have a thorough medical knowledge base, superb surgical skills, and empathy for their young patients and their families. Those who pursue an academic career must possess these traits and must remain refreshingly true: we must continue to mentor, attract, and train the best and the brightest candidates for our pediatric fellowship programs. The current practice of our specialty requires individuals who have a thorough medical knowledge base, superb surgical skills, and empathy for their young patients and their families. Those who pursue an academic career must possess these traits as well as a commitment to cutting edge research to advance the field as well as the obligation to teach the next generation of students, residents and future pediatric urology fellows as the perpetual educational cycle continues to rotate from one year to the next.

**Figure 1.** A depiction of number of matched pediatric urology fellowship positions as compared to open fellowship positions from 2012-2022. Taken from “A survey of pediatric urology fellowship applicants: past priorities to guide future possibilities”; JPU; June 2022.

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Learning Pediatric Urology: A Journey of Friendship and Mentorship

Pediatric Urology is a recent specialty, if compared to other fields in medicine. Its growth over the last century has followed a special feature - knowledge has been transmitted through a unique mentorship/friendship model. Beginning in the early years, Sir David Innes Williams generously accepted John Woodard from Atlanta as his first registrar in 1963 and then Bob Jeffs as an observer. This overseas relationship only grew and future leaders of the caliber of Alan Retik and Hardy Hendren (amongst others) benefited from Sir David Innes Williams’ friendship and mentorship. This culture of oral and technical transmission of knowledge continues to be an intricate part of fellowship training to date. However, the continuously increasing complexity of pediatric urology practice has required a transition from the conventional Halstedian education model to a more structured competence-based model. The United States has been in the forefront of pediatric urology education through a rigorous and standardized model overseen by the Accreditation Council for Graduate Medical Education. Graduates from this fellowship model are expected to fulfill all the technical and medical knowledge requirements to practice all aspects of pediatric urology, including all relevant technologies, in the United States.

Despite significant improvements in medical education, this model of cognitive apprenticeship training and the requirements for candidates to participate in it, limit the ability to impact the education within areas of the world outside the United States. For instance, the practice of pediatric urology in South America has followed a quick evolution in practice and complexity of care, thanks to leaders in the field such as Dr. Ricardo Gonzales and Bernardo Ochoa. New generations followed them, trying to pursue a similar experience of traveling overseas to learn and benefit from the “Sir David Innes Williams” friendship and mentorship model. Recently pediatric urology fellowships have been established within Mexico and South America. Data from the Sociedad Iberoamericana de Urologia Pediatrica (SIUP), reports a total of 17 fellowship programs within these areas. Currently there are two programs in Argentina, one program in Bolivia, five programs in Brazil, two programs in Chile, one program in Colombia, three programs in Mexico, two programs in Peru and one program in Uruguay. Eight of these fellowships accepts trainees with prior urological or pediatric surgery training with the others only accepting those with urology backgrounds. Overall, these programs utilize a combination of the European and North American fellowship model. Unfortunately, almost half of them (7 out of 15) do not have funding to provide a salary to their fellows.

These programs within Mexico and South America offer a great learning experience to fellows but do lack in some technologic advancements. Robot-Assisted surgery (RAS) is an area that is lacking from many of these fellowships. In 2019, Molde et al. reported the status of RAS in South America with only 4 countries performing pediatric procedures1. The proportion of RAS access in the United States is 1 robot per 120,000 people and in South America is 1 per 5.2 million people. These statistics demonstrate how challenging it will be for future generations within these programs outside of the United States to learn and implement new technologies such as RAS. Telementoring might be a solution to overcome this barrier.

Despite advances in the field of medical education, we should continue to honor the importance of mentorship and friendship to train the future leaders of pediatric urology. One possible solution to help educate pediatric urology fellows outside the United States would be to incorporate international candidates into ACGME fellowship programs. Such fellows could then disseminate their knowledge and impact children in need of expert pediatric urology care in other regions of the world.

References

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We would like to thank Juan Prieto for providing information about the status of pediatric urology training in South America.
Lifelong Learning in Pediatric Urology

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The feeling of accomplishment, completion, and relief following many years of formal education through residency and pediatric fellowship training overwhelms most of us after receiving our certificate from the American Board of Urology, acknowledging that we have been certified as a Pediatric Urologist. That elation quickly fades when we realize that our education has really just begun, and we embark on the path of lifelong learning.

So, what is Lifelong Learning?

Lifelong learning, as defined by “Google”, is “self-initiated, continuous education outside of a traditional institution, focused on personal development.” I suspect that creates a vision of hurdles, hoops, and financial burden within your mind as you think about what you must conquer to fulfill requirements placed on you by state licensure, hospital credentialing, and continued board certification as a pediatric urologist.

So why do we follow that path? The answer is: Public expectations and our need to remain proficient.

NORC at the University of Chicago surveyed a diverse group of individuals and found 98% assume their physician is up-to-date in their medical knowledge, 95% agree their physician should be actively participating in an educational program, and 95% thought their physician should be required to demonstrate they are up-to-date. Patient expectations are realistic but it places a “burden” on all of us, taking time away from our family and practice, in addition to possibly incurring an expense that is not always reimbursed.

So, it is best to ask: “What’s in it for me?” I can tell you that you will walk away “personally fulfilled and have increased job satisfaction.” But that’s not enough and you should ask: “Does it make me a better pediatric urologist, and does it improve the care I give to children?”

Time results in an exponential growth of medical knowledge and the field of Urology is one of the most affected specialties. Medical knowledge doubling time in 1950 was 50 years, in 1980 it was 7 years, and in 2020 it was 73 days. Pediatric Urology is not immune to the changes of time; the management of vesicoureteral reflux that defined a pediatric urologist 40 years ago is significantly different than what it is today. A pediatric urologist’s approach to upper and lower tract reconstruction with utilization of robotics, and the management of stone disease has also transitioned greatly with time. The only constant is that time cannot be stopped and will continue to move forward imposing never ending changes.

During the first early years in your pediatric urology practice, you will be very analytic, questioning your understanding, evaluation, and treatment of everything you do. The longer you are in practice, the more nonanalytic you will become. Life experience does breed proficiency and expertise; consider your skill on a hypospadias repair after a thousand hours. However, becoming an expert doesn’t equate to maintaining expertise. Keeping abreast of expanding medical knowledge and maintaining your expertise as a pediatric urologist requires the fundamentals of continuous lifelong learning.

Patient care becomes progressively more nonanalytic as we mature; we develop greater confidence in our abilities which creates our own illusion of self-competence. In reality, this behavior can lead us to more errors and subsequent disciplinary action. Ten years ago, I rarely thought through every step and maneuver of a routine case as I had when first beginning my career. I was confident I could handle the unexpected. This overconfidence that occurs as one matures in their medical career may be one reason why performance complaints due to competence occur more often in physicians older than 70 years.

This is not a given, simply due to the passage of time or an individual’s maturity. Physicians, regardless of age, have the power to prevent overconfidence by remaining analytic and current in their medical knowledge. Having this knowledge has been shown to decrease one’s risk of disciplinary action. Our illusion of competence and knowledge is described as the Dunning-Kruger effect; individually we cannot assess our own competence. Believing we are competent results in increased confidence and often inversely associated with our true ability and skill. In other words, “we do not know what we do not know”. Autonomous nonanalytic patient care by those overly confident results in errors due to gaps in our knowledge and judgment and continually increases over time. Today, I have forced myself to revert to my younger analytic experience and think through every case regardless of its complexity, preparing once again for the unexpected. We all benefit from an outside entity helping us refocus our learning and helping to identify our own deficiencies.

Most of us participate in binge learning to gain knowledge when focusing on a point-in-time exam or required testing activity (e.g., recertification). We will succeed at the task at hand, but unfortunately the knowledge we gain will be quickly lost and the binge time invested... (continued on next page)

Figure 1. Scores from a 32-item online test comparing test scores for spaced education cohort vs. bolus education cohort. Test scores for spaced education remained stable with no significant decline. However, within the bolus cohort, test scores significantly decreased (p<0.05) over time. Taken from Kerfoort et al. J.Urol. April 2007.
Lifelong Learning (continued from previous page)

will be wasted. Science behind successful learning confirms binge learning is not durable, and self-study without a testing process does not result in sustained understanding. To acquire, recall, apply, and retain knowledge, we need repetition in the form of continuous learning. Testing enhances and embeds learning when undertaken in a low-stake environment, especially when utilizing frequent memory challenges. A commonly utilized repetitive testing methodology is “spaced” education, repeating similar low stake tasks over time. Early foundational work in spaced education was undertaken in Urology by B. Price Kerfoot. Kerfoot randomized urology residents to a traditional (bolused) or spaced education pathway when studying for the In-Service Exam. He found that both resident groups performed equally well on the exam, but when tested several months later, residents participating in spaced education maintained a significantly greater threshold of knowledge (Figure 1).

To gain and retain knowledge, a staircase approach to lifelong learning allows for greater preservation over time. Each step upward is made through exposure of new advances in pediatric urology, raising our level of contemporary knowledge. The tread (depth) of the step reinforces present and past knowledge. To sustain this learning experience, each of us needs to continuously take ourselves to the next higher level.

A strategy for lifelong learning in pediatric urology is founded in reinforcing our current knowledge, exposing ourselves to contemporary advances, and assessing our knowledge to identify personal gaps. We must accept we are not the best to determine our own lifelong learning needs, we must appreciate repeated short activities will keep our mind sharp and up to date and we must understand periodic testing adds value. Doing so will help us gain and maintain the knowledge needed to provide outstanding pediatric urologic care.

***DISCLOSURE: Chair Lifelong Learning American Board of Urology

References

1 National Opinion Research Center at the University of Chicago, 2018
Get to Know Me (continued from previous page)

**Doug: As the prior editor of DPU, what were your mission/goals with DPU? How do you see the future of DPU?**

**Elizabeth:** Sorry to tell you this now, Doug, but you have just taken on a tough job but a great opportunity! One goal I had was to give younger pediatric urologists an opportunity to lead an edition on a topic they find important and to interface with more senior members by asking for a specific contribution. Also, I wanted to give folks an opportunity to curate digestible expert content. It turns out that contributing to DPU is a big ask, as it pads the CV but is not citable. I hope that you will be successful fixing that barrier!

One of my favorite features was “Inside the Institution” to highlight the center and team where the guest editor worked. That didn’t always work out, but it was an attempt to get to know people and places. The editions put together by the fellow representative were also fun, as it was an opportunity to engage them and to see what they would produce. Also, they are great with “deadlines” and no one turns down a contribution request from a fellow!

My thanks to the DPU Editorial board for their support over the years!

As for the future, I am looking forward to great things as you modernize and reconceive DPU!

**Doug: As the current president of the Societies for Pediatric Urology, one of your initiatives has been to focus on wellness, mentoring and collaboration. Why do you think these topics are important in pediatric urology? How are things going thus far and how do we maintain these important initiatives in the future?**

**Elizabeth:** For all the joy that the practice of pediatric urology can bring, there are increasing burdens that we have to manage. Not to say that practice of medicine was easier previously - it was just different - and the lenses and rulers with which we are judged are different. If you look around, the relationships amongst our more senior tier are quite rich—there is something to learn/envy there. Focusing on wellness and mentorship and collaboration are important to the health of our specialty, to our own personal and professional satisfaction, and to outcomes for our patients. Simply stated, we all need some form of support to be our best. I am hopeful that bringing people together across the career spectrum to help each find what they need, will be a step in the right direction. There has been a reassuring interest in these efforts.

How is it going? Stay tuned—we will have to work on it over time.

**Doug: If you could go back and sit down with Elizabeth Yerkes, just as she is beginning as an attending, what advice would you give her?**

**Elizabeth:** Great question! We are definitely not “born ready” for all aspects of being an attending straight out of fellowship. While I have no regrets, looking back at my 4 years starting out at Wilford Hall USAF Medical Center with smart and talented residents or starting over in a very different health care system, also with smart and talented residents and fellows, at Children’s Memorial/Lurie Children’s, there are some tidbits of sage advice that have became clear immediately or looking back:

1. Complications will happen. It is painful but a unique formative growth opportunity. You don’t have to be and should not be alone with that.
2. Teaching is a great way to find yourself and build up others. You can, however, do and teach at the same time—it doesn’t have to be the same ratio everyday or with every learner. Important to solidify your own confidence without limiting exposure for residents.
3. Relationships are being sowed everywhere you go. Encourage that, as everything feels better when you have and share your people.

**Doug: Elizabeth, thank you for your time and for your keen insight! You serve as a true role model for the pediatric urology community, and we look forward to continuing to learn from you!**
How I Do It: Robotic Assisted Laparoscopic Prostatic Utricle Excision

Prostatic utricle excision has traditionally been performed through abdominal or perineal approaches, both of which are technically challenging. The robot-assisted laparoscopic approach is ideal for utricle excision with excellent visualization of the rectum, bladder, and ureters. In addition, the robot allows for enhanced dexterity to reach the deep pelvis with a minimally invasive approach. With this in mind, we present a video depicting our robotic approach to the excision of a prostatic utricle.

This case involves an 8-year-old male with mixed gonadal dysgenesis (45 XO / 46 XY), severe hypospadias, and a large prostatic utricle. The utricle was diagnosed at 3 months of age with a voiding cystourethrogram, but he did not present with symptoms until well beyond potty training years, with recurrent urinary tract infections and urinary incontinence. On magnetic resonance imaging of the pelvis, the utricle was found to have grown to an impressive 8 cm size and it was nearly as large as the bladder. The patient has a solitary left testis due to right gonadectomy earlier in life. In preparation for the operation, the patient and family were counseled regarding surgical risks. In particular, we were concerned with the risk for aberrant insertion of the vas deferens and subsequent need for vasectomy in order to remove the utricle.

The operation began with cystoscopy in a dorsal lithotomy position to place catheters to identify the bladder and utricle during dissection. The DaVinci Xi robotic surgical platform was used to access the abdomen through three 8 mm trocars, with the camera positioned above the umbilicus, and the working instruments to either side of the umbilicus. A hitch stitch through the abdominal wall was used to retract the bladder to expose the posterior pelvis. The peritoneum was incised over the left vas deferens, which was followed to the apex of the utricle. Due to insertion of the vas deferens into the utricle, as well as the absence of a seminal vesicle, a vasectomy was performed by dividing the vas deferens at the insertion into the utricle. As the dissection progressed, the bladder became distended with urine as the previously placed catheter in the bladder had migrated into the utricle. This made visualization and manipulation difficult. Because the patient was maintained in lithotomy position after docking the robot, an assistant surgeon was able to advance a cystoscope into the bladder to facilitate drainage. Eventually, the neck of the utricle was identified and transected, and the stump was oversewn to close the urethral defect. The utricle was removed through the umbilical port and the patient had an uneventful overnight stay in the hospital.

This case demonstrates the safety and technical advantages, as well as potential pitfalls and their solutions, of robotic utricle excision in a pediatric patient.

CLICK TO WATCH THE VIDEO or copy and paste into your browser:  https://youtu.be/2uqX0xKNwEs

Robot-assisted laparoscopic prostatic utricle excision

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