

The following contains excerpts from *What Is Urology: Information for Medical Students and Prospective Urology Residents*, prepared by the AUA Graduate Medical Education Committee.

## What is Urology?

Urology is a surgical specialty which deals with diseases of the male and female urinary tract and the male reproductive organs. Although urology is classified as a surgical specialty, knowledge of internal medicine, pediatrics, gynecology and other specialties is required by the urologist because of the wide variety of clinical problems encountered. In recognition of the wide scope of urology, the American Urological Association has identified seven subspecialty areas:

1. Pediatric Urology
2. Urologic Oncology (cancer)
3. Renal Transplantation
4. Male Infertility
5. Calculi (urinary tract stones)
6. Female Urology (urinary incontinence and pelvic outlet relaxation disorders)
7. Neurourology (voiding disorders, urodynamic evaluation of patients, and erectile dysfunction or impotence).

Historically, the subject which clearly established the specialty of urology as being distinct from general surgery was the treatment of obstructive uropathy. This treatment ranges from the correction of obstructing posterior urethral valves or ureteropelvic junction obstruction in the infant to the correction of bladder outlet obstruction from benign prostatic hyperplasia in the older male. Through the decades, we have witnessed a tremendous increase in our general understanding of the diverse functional disorders of urine transport associated with various overt and covert forms of neuromuscular dysfunction. The rapidly evolving discipline of urodynamics has established itself as a major resource in the diagnosis and therapy of such disturbances.

Stone disease of the urinary tract has always provided a substantial portion of general urologic practice. The introduction of rigid and flexible ureteroscopy improved the capacity of the urologist to deal with the problem while the management of stones in the kidney has been revolutionized with the introduction of percutaneous methods for stone disintegration and extraction, and by the application of extracorporeal shockwave lithotripsy. Collectively these techniques have largely rendered open surgical procedures for dealing with kidney and ureteral stones obsolete. These new technologies remain under urological stewardship. In addition, advances in the diagnosis and metabolic management of recurrent nephrolithiasis allow urologists to reduce the risk of recurrent stone formation.

Another area of major urologic concern is that of congenital anomalies. The urinary tract is affected by congenital anomalies more than any other organ system. These congenital abnormalities run the gamut from the relatively common problem of cryptorchidism to the complex area of intersexuality. Most urologists do surgically repair many congenital anomalies in children, but the more complex problems are often referred to urologists with specialized training in pediatric urology.

Involvement of the urologist in the problems of renal insufficiency and end-stage renal disease has been necessitated by an enormous increase in the number of patients on dialysis and requiring transplantation. In a number of centers, urologists are the prime surgical arm for renal transplantation and, in others, serve as members of the surgical team. This practice has tended to increase the

experience of the urologist in vascular surgery which has been beneficially incorporated into other areas such as renal vascular reconstruction and in the new microvascular surgical procedures performed for certain cases of impotence. The enhanced communication between nephrologist and urologist often leads to involvement in the general area of hypertension and adrenal disorders.

The treatment of malignant disease is a very large portion of urologic practice. Some of the most encouraging results in the medical and surgical management of solid tumors have involved genitourinary tumors, namely testis tumors and Wilms' tumors. The development of multimodal therapy, in which chemotherapy, radiation therapy, and surgical treatment are used in conjunction, will hopefully improve the results of the treatment of other genitourinary malignancies. Newer diagnostic methods for the detection of prostate cancer have recently emerged and currently the diagnosis and treatment of prostate cancer occupies much of many urologists' time.

Urinary tract infections affecting every age group in both sexes comprise a significant fraction of urological practice. While urinary tract infection may be the obvious and definitive clinical symptom at presentation, it may also reflect other disorders of the urinary tract such as obstructive uropathy. Much recent interest has been focused on the characterization of pathogenic bacteria that are particularly prone to cause persistent urinary tract infections, specifically pyelonephritis. Bacteriuria is such a common clinical problem that there is inevitably a large cross-disciplinary approach to this problem. Urologists often interact with internists, pediatricians, and gynecologists in the management of patients with bacteriuria.

The importance of urologic problems seen primarily in women (stress urinary incontinence, interstitial cystitis, urethral diverticuli, etc.) is being increasingly recognized. The diagnosis and therapy of urinary incontinence constitute a significant portion of most urology practices. New therapies, both surgical and non-surgical, are being constantly developed. The number of female patients treated by urologists is substantial, and urologists need to understand gender differences in the medical and surgical approaches to these patients.

Male sexual dysfunction and infertility have become virtual subspecialties. The management of impotence has been revolutionized first and foremost by the introduction of prosthetic devices in urology. The area of prosthetics in urology has gradually expanded to encompass not only the various forms of penile prostheses, but also the use of the artificial urinary sphincter. The management of infertility in the male has generally focused on the surgical correction of various acquired and congenital obstructions within the genital system, and increasingly sophisticated efforts to diagnose and treat the problem of coexisting male subfertility and varicocele. Continued improvements in the medical management of male infertility require a high level of expertise in the area of reproductive physiology and endocrinology.

Trauma to the genitourinary system involves the urologist as one member of the trauma team during the initial evaluation of the multiply-injured patient. Recent improvement in imaging techniques for the evaluation of renal trauma and standardization of approaches to the problem of lower urinary tract trauma have significantly improved the care of such patients. There are a vast number of operative approaches to the problem of the late correction of injuries to the lower urinary tract which fall under the general heading of reconstructive surgery.

The specialty of urology is constantly changing. Much of this change has been the result of improved technology. Refinements in the area of ureteral and renal endoscopic surgery have revolutionized the therapy of urinary tract stones and, working in conjunction with extracorporeal lithotriptors, many of the traditional surgical and even endoscopic approaches to the problem of renal and ureteral calculi are now largely obsolete. Other traditional urologic procedures, specifically vasovasostomy and

hypospadias repair have improved results in selected cases with the use of the surgical microscope. Skill and experience using the surgical microscope will undoubtedly be an important part of urologic practice in the future. Lasers are in their infancy, but will influence the practice of urology in the management of neoplasms and, in a somewhat different context, the management of ureteral calculi. Much recent research effort has evolved in the area of laparoscopic surgery. Many urologic operations which have been done by open surgery in the past can now be performed through the laparoscope. The development of new cancer chemotherapeutic agents has significantly altered therapy for some urologic cancers. In summary, urology is a rapidly changing and exciting area of medicine which requires practicing urologists to be actively involved in continuing education.

### **What constitutes residency training in urology?**

To qualify for certification by the American Board of Urology (ABU), a candidate must complete an approved urologic residency training program. A minimum of five years of clinical postgraduate education is required; of which 6 months must be spent in general surgery and 48 months must be spent in clinical urology. The remaining 6 months must be spent in general surgery, urology or other clinical disciplines relevant to urology and acceptable to the Board. Irrespective of the training format provided, the final 12 months must be spent as a chief resident in urology with appropriate clinical responsibility under supervision in institutions that are an approved part of the program.

Urological residencies are subject to periodic review by the Accreditation Council for Graduate Medical Education (ACGME). The accreditation process is an in-depth review of the resident experience including the quantity of clinical material and quality of the teaching program. The role of the RRC is to protect the interests of residents by insuring that the educational expectations implicit in the training program will be met.

### **What is necessary for board certification in urology?**

Certification in urology is under the aegis of the American Board of Urology (ABU). The ABU arranges and conducts examinations testing the qualifications of candidates who present themselves voluntarily for certification. Completion of the requirements for certification in urology requires the successful passage of a qualifying written examination which must be taken within three years after completing an approved urology residency. After successful passage of this written qualifying examination, a second certifying examination must be taken within five years after notification of successful completion of the written examination. This certifying examination consists of pathology, uro-radiology and a standardized oral examination.

Over the past decade, approximately 80 percent of the candidates taking the written qualifying examination have passed, with the highest passing rate being among United States Medical School graduates. The certifying examination also has a failure rate of about 20 percent. Certification by the ABU is for a 10-year period with recertification required after that time.

## **General Information**

**Residency Programs are reviewed and accredited by the Residency Review Committee for Urology (RRC - Urology).**

Accreditation Council for Graduate Medical Education (ACGME)  
515 North State Street, Suite 2000  
Chicago, IL 60610  
Phone: 312-464-5585

**The American Board of Urology is the certifying body in urology.**

American Board of Urology  
600 Peter Jefferson PKWY, Suite 150  
Charlottesville, VA 22911-8850  
Phone: 434-979-0059

**The American Urological Association**

1000 Corporate Boulevard  
Linthicum, MD 21090  
Toll-free (U.S. only): 1-866-RING-AUA (1-866-746-4282)  
Phone: 410-689-3700  
Email: [resmatch@auanet.org](mailto:resmatch@auanet.org)

**Electronic Residency Application Service (ERAS) – ERAS**

2450 N. Street, NW  
Washington, DC 20037  
Phone: 202-862-6264  
Email: [myeras@aamc.org](mailto:myeras@aamc.org)

**The National Resident Matching Program (NRMP) can be reached at:**

National Resident Matching Program  
2121 K Street, NW, Suite 1000  
Washington, DC 20037  
Phone: 866-653-NRMP (6767)  
Email: [support@nrmp.org](mailto:support@nrmp.org)  
(those in medical school usually get specific information from their student affairs office)