COMPETENCY-BASED GOALS AND OBJECTIVES FOR UROLOGY RESIDENCY EDUCATION
[Adapted (with modifications) from: “Objectives For Urology Residency Education” 5th Ed. 2001, SUU and ACGME’s Clinical Competencies / Outcomes Project]

Urology Residency Training - URO-3/PGY-4 Level

Rotations: Willis Knighton Health System – 6 months and LSU University Hospital – 6 months

NOTE: Goals and objectives from the preceding years (PGY 1-3: Pre-Urology & URO-1 and 2) should be refined, reinforced, and further developed. In addition, this year of education and training should focus on assuming higher levels of responsibility for patient management decisions (with attending supervision) and development of operative skills for performance of more complex urologic procedures. The following are specific goals and objectives for this year’s rotations:

I. Willis Knighton Rotation: Observe through interactions with supervising, attending physicians the daily private practice of Urology, while on the private rotation at Willis Knighton Health System.
   A. Participate in the preoperative evaluation and postoperative follow-up of patients in the private office / clinic setting.
      1. Describe the essentials of office urology and be able to apply them in accordance within the framework of a private office setting.
      2. Contrast the scope of care deliverable in a typical private office setting compared to that provided in the university or hospital-based urology clinic with specific reference to:
         a. Office consultations
         b. Diagnostic procedures practical in the private office setting.
         c. Therapeutic modalities practical in the private office setting.
         d. Recognition of common urologic conditions seen in a typical private office setting.
         e. Sexual and fertility counseling.
   B. Participate in the inpatient care of hospitalized patients on the Urology Service.
      1. Perform history and physical examinations on these inpatients and compare and discuss findings with private attending physicians.
      2. Make daily rounds on hospitalized patients, write progress notes, and discuss patients’ status with supervising attending physicians.
      3. Demonstrate a willingness and ability to function as a member of a team.
         a. Demonstrate mutual respect and cooperation among medical and paramedical personnel.
         b. Obtain and provide consultative services whenever appropriate.
         c. Demonstrate empathy, understanding, compassion, integrity, and honesty in the interactions with patients, family members, attending physicians, colleagues, and other medical and paramedical personnel.
   C. Participate as Assistant Surgeon or Surgeon (under the supervision of attending surgeon) in the operative management of urologic patients.
   D. Communicate daily with local program director, Rowena DeSouza, M.D., and subspecialty service chiefs (Dr. Elmajian for Uro-Oncology and Dr. Mata for Pediatric Urology) in selecting the cases from the operative schedule for participation in order to obtain maximal educational benefit from the variety of cases which may be available.

II. LSUHSC and WKHS Rotations: Demonstrate expanded clinical experiences and increasing knowledge and competence in the following situations or in the performance of the following procedures:
   A. Demonstrate achievement of clinical competence in performing the following outpatient / office clinic procedures:
      1. Rigid and flexible cystourethroscopy;
      2. Retrograde pyelography, retrograde and antegrade techniques to bypass ureteral obstruction and JJ stent placement;
3. Cold cup bladder biopsy;
4. Fulguration of minor bleeding (e.g., from cold cup biopsy sites) utilizing electrocautery under local anesthesia;
5. Retrograde urethrography and urethral dilation with sounds and balloons;
6. Local instillation therapy (e.g., BCG, DMSO, Chemotherapy) including indications, complications, and management;
7. Oral and parenteral medication administration for active infection and/or prophylaxis;
8. Urethral and suprapubic catheter care;
9. Stomal care;
10. Wound care;
11. Vasectomy;
12. Neonatal circumcision;
13. Urodynamic evaluation, including CMG, Flowmetry, VCUG, pressure/flow study, Valsalva Leak Point Pressure determination, and pelvic floor EMG measurement;
   a. Recognize the urodynamic patterns of: Detrusor Overactivity, Hypotonicity, Hyperreflexia, Autonomic Dysreflexia, Cystoparesis, Intrinsic Urethral Sphincter Deficiency, Stress Incontinence, Urge Incontinence, Mixed Incontinence, Detrusor External-Sphincter Dyssynergia (DESD), Functional Bladder Neck Obstruction, and Outlet Obstruction (from prostate or USD);
   b. Be able to discuss management options for the above voiding dysfunctions with knowledge of relative risk/benefits of each procedure;
   c. Describe the indications for and technique to perform and interpret a Whitaker Perfusion Pressure Test;
   d. Describe the indications for and technique to perform and interpret a Bethanechol Supersensitivity (Lapides) Test;
14. Percutaneous suprapubic catheter placement;
15. Percutaneous nephrostomy tube placement under ultrasonographic and/or fluoroscopic monitoring;
16. Urologic applications of ultrasound, including:
   a. BladderScan PVR measurement and U/S evaluation of the bladder;
   b. Renal U/S and guidance for needle biopsy or access to collecting system of kidney;
   c. Small parts U/S, including penis, scrotum, testes, spermatic cord, and inguinal canals;
   d. Transrectal U/S (TRUS) for diagnosis of disorders of the Prostate, Seminal Vesicles, and Ejaculatory Duct;
   e. Digitally and TRUS-guided prostate needle biopsies;
   f. Color flow Doppler assessment of testicular blood flow in evaluating the acute scrotum;
17. Sclerotherapy for hydrocele;
B. Demonstrate expanded knowledge of the causes and management of the following specific conditions:
1. Male Infertility
   a. Demonstrate an understanding of the hypothalamic-pituitary-gonadal axis, its endocrine control of testicular function, and abnormalities of hormone production which affect fertility;
   b. Describe the processes of spermatogenesis, sperm maturation, and sperm transport and storage;
   c. Demonstrate an understanding of the normal and abnormal anatomy and physiology of the male reproductive tract;
   d. Describe a rational, systematic approach to the clinical and laboratory evaluation of the infertile male;
   e. Select methodology for the clinical management (surgical and/or medical) of the infertile male and describe the anatomic and/or physiological basis for selection of specific treatment plans for the following conditions:
(1) Endocrinopathies such as Kallman’s Syndrome (hypogonadotrophic hypogonadism), primary testicular failure (hypergonadotrophic hypogonadism), and congenital adrenal hyperplasia;
(2) Sperm maturation abnormalities such as maturation arrest;
(3) Sperm transport abnormalities such as absent vas, epididymal obstruction, or ejaculatory duct obstruction;
(4) Ejaculatory dysfunction such as absence of ejaculation or retrograde ejaculation;
(5) Varicocele and oligospermia with “stress pattern”;
(6) Kleinfelter’s Syndrome;
f. Discuss ancillary methods of interdisciplinary management of male infertility including:
   (1) Artificial insemination (husband or donor)
   (2) Sperm processing and preservation techniques
   (3) Intruterine insemination
   (4) In vitro fertilization
   (5) Gamete intra-fallopian transfer
   (6) Intracytoplasmic Injection of Sperm (ICSI)
(7) Adoption

2. Urolithiasis
   a. Demonstrate a depth of knowledge of the etiology, pathophysiology, diagnosis, treatment and prevention of urolithiasis;
   b. Demonstrate an understanding of epidemiologic factors affecting stone formation, including:
      (1) Geographic differences in stone formation risks;
      (2) Incidence in relation to race, sex, age, and ethnic and climatic factors;
      (3) Effects of diet and fluid intake on occurrence;
   c. Describe the crystalline architecture of urinary calculi and discuss the theoretical factors affecting crystallization;
      (1) Crystallizable elements in urine;
      (2) Nucleation, growth, and aggregation of crystals;
      (3) Effects of pH on crystallization;
      (4) Other factors affecting crystallization, e.g., Citrate, Magnesium, Phosphate, and mucoprotein levels;
      (5) Concepts of stone size and shape and their effects on spontaneous passage rates;
   d. Demonstrate a knowledge of the effects of obstruction of the urinary tract from stones;
      (1) Describe changes in renal blood flow following acute ureteral obstruction;
      (2) Describe the changes in urine flow and intrarenal pressure with acute obstruction;
      (3) Describe the alteration in the above factors with chronic obstruction;
   e. Present a working classification of the types of metabolic stone disease and discuss their individual management;
   f. Demonstrate the ability to elicit a problem-directed history compatible with stone disease, including references to:
      (1) Pain patterns as an aid to localization;
      (2) Family history and personal (occupational) history;
      (3) Immobilization syndrome;
      (4) Diet and medications;
      (5) Fluid intake;
      (6) Previous stones and their management;
   g. Demonstrate an understanding of the information to be gained from urinalysis by discussing:
      (1) Appearance of typical crystals under the microscope;
      (2) Relationship of pH and specific gravity;
      (3) Possible significance of presence of bacteria;
(4) 24-hour urinary excretion of creatinine, calcium, citrate, magnesium, phosphate, oxalate, & uric acid;

h. Select and evaluate results of specific blood tests to order, when evaluating patients with urolithiasis.

i. Describe the value of crystallographic and chemical stone analysis.

j. Demonstrate the ability and discuss limitations of various radiologic tests in diagnosing and differentiating by radiologic appearance alone the different types of urolithiasis:
   (1) Uric acid
   (2) Cystine
   (3) Milk of calcium
   (4) Calcium oxalate (monohydrate and dihydrate forms)
   (5) Calcium phosphate (Apatite)
   (6) Infection stones (Struvite)

k. Demonstrate the ability to select in a timely manner the appropriate therapy for a given patient and be able to defend the choice with reference to risks, benefits, and cost.
   (1) Dietary restriction and adjustment in fluid intake
   (2) Medications
      (a) Phosphates
      (b) Magnesium
      (c) Diuretics and sodium restriction
      (d) Citrate augmentation by medication or lemonade
      (e) Allopurinol and urine alkalinization
      (f) Chelating agents for cystine stones (e.g., penicillamine / cupramine or “mucomyst”)
   (3) Genetic counseling when inheritable forms of stone disease are discovered (e.g., RTA)
   (4) Percutaneous nephrostolithotomy techniques
      (a) Access site selection
      (b) Techniques for tract dilation (e.g., high-pressure balloons versus Amplatz dilators)
      (c) Techniques for stone fragmentation (e.g., EHL, U/S, Laser, or pneumatic impactors)
      (d) Techniques for chemolysis
      (e) “Relook” nephrostolithotomy
   (5) Transurethral and ureteroscopic techniques – discuss equipment, techniques, risks and benefits
      (a) Describe the techniques for ureteral dilatation
      (b) Describe the range of available endoscopes and discuss limitations and applications.
      (c) Be familiar with the working instruments for each of the above scopes and their usages.
      (d) Be familiar with the complications of ureteroscopic manipulation and their management.
   (6) Open surgical techniques – discuss risks and benefits and describe individual techniques
      (a) Pyelolithotomy and Gil Vernet extended pyelolithotomy
      (b) Coagulum pyelolithotomy
      (c) Nephrotomy with extraction
      (d) Anatrophic nepholithotomy
      (e) Partial nephrectomy
      (f) Simple nephrectomy
   (7) Extracorporeal Shock Wave Lithotripsy (ESWL)
      (a) List the types of machines available – sources of energy, methods of coupling, and imaging / targeting systems, and comparative costs and relative advantages / disadvantages.
List relative and absolute contraindications to ESWL management of certain stones.
Demonstrate ability to successfully image, target, and treat a patient on the ESWL unit.
Demonstrate a working knowledge of the control panel and optimal instrument settings for ESWL.
Demonstrate knowledge of safety limits for energy level and total # of shocks to be delivered per treatment episode for ureteral or renal stones.
Discuss the alterations in technique for pediatric or obese patients.
Discuss the physics of shockwave generation and mechanism of stone fragmentation.
Describe appearance of successfully treated stone.
Discuss pain management during lithotripsy.
Discuss post-ESWL management.

3. Female Urology
   A. Demonstrate the ability to evaluate, diagnose and treat a wide variety of lower urinary tract and vaginal conditions occurring in the female including:
      1. Genuine stress urinary incontinence
      2. Urge incontinence
      3. Intrinsic sphincter deficiency
      4. Vesicovaginal fistula
      5. Neuropathic dysfunctions of the lower urinary tracts
      6. Interstitial cystitis
      7. Vaginal, uterine, and rectal prolapse
      8. Endometriosis – and its effects on the urinary tract
      9. Vaginitis and female urethral syndrome
     10. Urinary tract infection
     11. Urinary obstruction – anatomic and functional
     12. Urethral prolapse
     13. Urethral diverticulum
     14. Urethral caruncle

   B. Demonstrate the ability to choose, perform and / or recommend appropriate therapies from the list below for the above conditions.
      1. Kegel pelvic floor exercises
      2. Pharmacological and hormonal therapy when indicated
      3. Anterior colporrhaphy (Kelly plication) / posterior colporrhaphy
      4. MMK / Burch urethropexy
      5. Transvaginal needle suspensions
      6. Pubovaginal sling procedures
      7. Urethrolysis (take-down of obstructing urethral suspension operations)
      8. Periurethral injection therapy
      9. Artificial Urinary Sphincter Implantation
     10. Sacral nerve stimulation
     11. Bladder augmentation (enterocystoplasty)
     12. Self Intermittent Catheterization
     13. Vesicostomy and catheterizable stomas (Mitrofanoff Procedure)
     14. Supravesical diversion, including conduits, continent reservoirs, and neobladders
     15. Transvaginal and transabdominal techniques for vesicovaginal fistula repairs

4. Obstructive uropathy
   A. List and discuss the causes of obstructive uropathy (congenital, iatrogenic, and acquired) and discuss their pathophysiology;
   B. Recognize the clinical signs and symptoms
C. Select appropriate diagnostic tests to define the cause – be able to defend the choice of studies and state the advantages, hazards, and complications of the studies selected.
D. Presented with an example of an obstructed condition, discuss a solution for a patient with obstructive uropathy.
   1) Demonstrate an understanding of the natural history of the lesion and how the outcome can be most favorably altered.
   2) Discuss the available diagnostic and therapeutic modalities with consideration given to the advantages, hazards, and complications of each treatment indicated below:
      a. Surgical repair or correction of obstruction
      b. Minimally invasive surgical alternative (e.g., endourological management)
      c. Temporary and permanent diversion with or without tubes or catheters.
      d. Pharmacological management
   3) Discuss the acute and chronic effects of urinary obstruction upon the structure and function of the various portions of the urinary tract and comment on the relationship of the degree and duration of obstruction to function and restoration of function.

5. Diagnosis and endoscopic management of bladder cancer.
A. Demonstrate the ability to diagnose a patient with cancer of the bladder and list the various types of bladder abnormality.
   1) TCC and CIS
   2) Adenocarcinoma
   3) Squamous Cell Ca
   4) Cystitis cystica and glandularis
   5) Squamous metaplasia
   6) Malakoplakia
   7) Sarcoma
B. Discuss epidemiological aspects of bladder cancer and list some common risk factors.
   1) Family history
   2) Cigarette smoking – direct and secondary smoke inhalation
   3) Chemical carcinogen exposure – e.g., alanine dyes or tryptophan or its metabolites
   4) Chemotherapy – e.g., cytoxan (cyclophosphamide)
   5) Chronic inflammation – e.g., stones, infection, schistosomiasis
C. Identify and differentiate the various forms of bladder cancer and distinguish them from other entities that may mimic bladder cancer.
D. Describe the TNM classification for staging of bladder cancer.
E. Demonstrate the ability to elicit a history of the possible presence of bladder cancer.
F. Demonstrate the ability to recognize by endoscopy (or 35 mm slides) of typical bladder cancer.
G. Describe staging techniques – physical exam, radiologic and pathologic
H. Discuss the endoscopic management of clinically superficial TCC
I. Discuss the endoscopic management of clinically locally invasive TCC
J. Discuss the management of metastatic TCC
K. Discuss the roles of topical chemotherapy and immunotherapy in management of TCC.
L. Discuss the concepts of induction and maintenance and describe a typical regimen for BCG treatments in a patient who has recently been diagnosed as having recurrent superficial (Ta or T1), grade 2 TCC.
M. Discuss the rationale and changing trends in standard of care for the use of various forms of radiation therapy alone or in conjunction with surgery and/or chemotherapy.
N. Discuss various types of supravesical urinary diversion and considerations of their suitability in the context of particular disease stage and patient condition and motivation.
O. Discuss the rationale for use of systemic chemotherapy in the treatment of regional and metastatic TCC and list some of the more active agents.
6. Demonstrate the ability to evaluate, diagnose and manage a patient with a kidney mass.
A. Discuss the normal development, function, surgical anatomy, and surgical relationships of the kidney.

B. Identify and differentiate (using slides of gross and microscopic histology) the following renal abnormalities:
   1) Acute and chronic interstitial nephritis – pyelonephritis
   2) Clear cell renal adenocarcinoma
   3) Papillary renal adenocarcinoma
   4) Granular cell adenocarcinoma
   5) Wilms’ tumor
   6) Oncocytoma
   7) Angiomyolipoma
   8) Transitional Cell Carcinoma
   9) Sarcoma
   10) Mesoblastic nephroma
   11) Mesonephric adenoma
   12) Malakoplakia
   13) Xanthogranulomatous pyelonephritis

C. List the common presenting symptoms of kidney cancer

D. List the important diagnostic and staging studies used to evaluate a solid renal mass and interpret their results.

E. Discuss diagnosis, evaluation, and plan a course of management for various cases of renal mass lesions.

F. Demonstrate the ability to select and perform the surgical approaches for radical nephrectomy.

G. Identify the prognosis of renal cancer as a function of the TNM stage of the disease.

H. Discuss the various adjunctive therapies and their expected responses for metastatic RCC

7. Demonstrate the ability to diagnose, evaluate and treat a patient with cancer of the upper collecting system.
   A. Describe the normal embryological development, functions, and anatomy of the upper collecting system (ureter and renal pelvis).
   B. Discuss the theories regarding the etiologies of cancer of the ureter and renal pelvis.
   C. Identify and differentiate both on gross, endoscopic, and microscopic examinations the following abnormalities:
      1) Ureteritis and pyelitis
      2) Malakoplakia
      3) Xanthogranulomatous Pyelonephritis
      4) Fibroepithelial polyp
      5) Papilloma
      6) Inverted papilloma
      7) Transitional Cell Carcinoma
      8) Squamous Cell Carcinoma
      9) Adenocarcinoma
     10) Sarcoma
   D. Demonstrate the ability to use the TNM classification system to stage ureteral and renal pelvic tumors.
   E. Discuss the roles of endoscopic, radiologic, cytologic, and pathologic evaluation in diagnosing and staging TCC of the ureter and renal pelvis.
   F. Discuss the surgical management of upper tract neoplasm – including nephron-sparing and radical extirpative techniques.

8. Demonstrate the ability to diagnose, evaluate, stage, and treat a patient with prostate cancer (CaP).
   A. Discuss the normal development, function, and surgical anatomy of the prostate.
B. Discuss the various factors associated with the development of CaP
   1) Hormonal environment
   2) Genetic/familial
   3) Environmental and / or dietary
C. Identify and differentiate using gross and microscopic pathology the following:
   1) BPH
   2) CaP
   3) High grade PIN
   4) Seminal vesicle
   5) Squamous metaplasia
   6) Granulomatous disease
   7) Acute and chronic prostatitis
   8) Prostatic calcifications (corpora amylacea)
D. Discuss the epidemiology and natural history of Ca Prostate with respect to age, race, family history
E. Demonstrate the ability to stage Ca Prostate using DRE, TRUS, PSA, CT Scans, Bone Scans, Skeletal surveys, Laparoscopic biopsy, bone marrow biopsy, MRI and PET Scans.
F. Discuss without bias the risks and possible benefits of the various treatment options for localized and metastatic Ca prostate.
G. Discuss adjuvant treatments and controversies for recurrence following definitive radical treatments.
H. Discuss treatment options for metastatic prostate cancer
   1) Androgen ablation – surgical and medical
   2) Total androgen ablation – orchiectomy or LHRH analog therapy + antiandrogens
   3) Treatment options for hormone refractory prostate cancer
I. Discuss the roles of PSA, Age-specific PSA, Free PSA, PSA velocity, and PSA density in: screening, diagnosing, staging and in follow-up to previous treatment.
J. Demonstrate competence in performing radical prostatectomy and pelvic lymphadenectomy (using open, laparoscopic, and robot-assisted techniques)
K. Discuss the indications, potential value, and risks for performing lymphadenectomy – list the criteria of low probability of lymph node involvement.
L. Discuss the potential intraoperative and postoperative complications of radical prostatectomy and their management.

9. Demonstrate the ability to evaluate, diagnose, and treat a patient with cancer of the testes.
A. Discuss the normal embryology, anatomy, function, and surgical anatomy of the testes and spermatic cord structures.
B. Discuss and identify on gross and microscopic slides the various types of testis cancer and describe how they are differentiated and managed.
   1) Seminoma
   2) Embryonal cell Ca
   3) Choriocarcinoma
   4) Teratocarcinoma
   5) Sertoli Cell Tumor
   6) Interstitial (Leydig) Cell Tumor
   7) Lymphoma
C. Discuss the natural history and epidemiology of testes cancer
D. Demonstrate the ability to diagnose and stage using PE, Serum Tumor markers, U/S, CT scans, CXR, and MRI.
E. Demonstrate the ability to select a patient for and to perform the following surgeries:
   1) Radical orchiectomy
   2) Retroperitoneal Lymph Node Dissection – modified, nerve sparing versus extended.
   3) Excision of metastases (post-chemotherapy)
F. Discuss the roles for chemotherapy and limited role of radiation in managing Ca of the testes

G. List the adverse risk factors for metastatic disease based on primary tumor characteristics and pathological findings.

H. Discuss with the patient and family the need for surgical and/or chemotherapy and/or adjunctive measures, prognosis, and follow up.

10. Discuss the differential diagnosis and management of benign, premalignant, and malignant lesions of the penis.
   A. Balanitis xerotica obliterans (BXO)
   B. Leukoplakia
   C. Bowen’s Disease
   D. Erythroplasia of Queyrat
   E. Condyloma acuminata
   F. Bowenoid papulosis
   G. Kaposi sarcoma
   H. Squamous cell cancer
      1) Discuss risk factors such as circumcision status, chronic inflammation, viral infection (HPV)
      2) Demonstrate the ability to recognize and diagnose penile cancer
      3) Discuss the TNM staging
      4) Discuss and demonstrate competence in partial and total penectomy and inguinal lymphadenectomy
      5) Discuss the indications for, technique, and complications & their management for inguinal lymphadenectomy
      6) Discuss alternatives to surgery
         a. Radiation
         b. Laser fulguration
         c. Chemotherapy

11. Discuss the modern incidence and historical link to environmental carcinogens among chimney sweeps for scrotal squamous cell cancer.
   A. Discuss the gross appearance and describe the technique of biopsy for diagnosis of a suspicious scrotal lesion.
   B. Discuss staging and treatment for scrotal cancer

12. Understand, and be able to list with examples, the different categories of chemotherapeutic agents used in GU malignancies.
   A. Discuss the pharmacology of the various types and describe their major toxicities.
   B. Discuss other specific complications of chemotherapy.
   C. Discuss the indications for chemotherapy of GU malignancies and the expected response rates in different tumors with the different agents used.

13. Demonstrate an understanding of the physical and biological principles of radiotherapy for GU malignancies.
   A. Define and explain the fundamental units of radiation used including: Rads, Gray (Gy), and Roentgens (R)
   B. Discuss the differences in radiation techniques of teletherapy and brachytherapy and list some applications for each type in GU malignancies.
   C. Discuss the interaction of factors on biologic effectiveness of radiotherapy
      1) Dose of XRT
      2) Type of XRT
      3) Number of treatments
      4) Immunologic changes and complications
      5) Cellular death and repair
      6) Total body (hemi-body) irradiation
7) Tumor burden
8) Radiation sensitizers (tissue oxygenators, pharmacologic agents, temperature)
9) Relative radiosensitivity of different normal and neoplastic tissues
10) Molecular mechanisms of free radical formation (Compton effect)

D. Discuss commonly used curative and palliative radiation techniques used in GU malignancies.

14. List and discuss the cystic diseases of the kidney
   A. Describe the genetic transmission of adult and infantile forms of PCKD
   B. Comment on acquired cystic disease and its association with end stage renal disease
   C. Discuss the genetic counseling of patients with genetically transmitted renal cystic diseases
   D. Discuss the histological features of the various forms of cystic renal disease.
   E. Discuss the age and mode of presentation, diagnosis, and management of the different types of renal cysts.
   F. Discuss the role of biopsy, transplantation, and nephrectomy in patients with end stage renal cystic disease.

15. Demonstrate the ability to evaluate, diagnose and treat congenital obstruction of the ureteropelvic junction.
   A. Demonstrate competence in dismembered pyeloplasty – indications, work-up, and postoperative management.
   B. Describe surgical and endoscopic alternatives and their reported success rates.
      1) Percutaneous endopyelotomy
      2) Retrograde ureteroscopic endopyelotomy
      3) Acucise balloon endopyelotomy
      4) Davis intubated ureterostomy
      5) Scardino and Culp modifications of open pyeloplasty
      6) Laparoscopic or robot-assisted pyeloplasty
      7) Discuss management of accessory renal vessels
   C. Discuss surgical approaches to the UPJ region
   D. Discuss the risks and possible benefits of temporary percutaneous nephrostomy tubes and / or stenting and draining the open repair.

16. Demonstrate the ability to evaluate, diagnose, and treat a patient with Wilms’ tumor.
   A. Discuss the various theories regarding the etiology of Wilms’ tumor
   B. List the associated anomalies with congenital Wilms’ tumor – aniridia, hemihypertrophy, Beckwith-Wiedemann syndrome and Drash syndrome
   C. Discuss and differentiate favorable and unfavorable histology and discuss its influence on prognosis and treatment.
   D. List and discuss the diagnostic and staging studies used in Wilms’ tumor.
   E. Discuss the surgical, chemotherapeutic, and radiation management of Wilms’ tumor, dependant on stage and histology.
   F. Demonstrate competence in performing a standard transabdominal or thoraco-abdominal radical nephrectomy for Stage I Wilms’ tumor.

17. Develop the ability to diagnose, evaluate, and treat a patient with horseshoe kidney or other fusion renal defects.
   A. List and discuss the indications for surgery of the horseshoe kidney including: obstruction, infection, stone, and tumor.
   B. Describe and demonstrate competence in performing division of the isthmus and pyeloplasty.

18. Discuss the development, pathophysiology, clinical problems, treatment, and complications of epispadias and extrophy.
   A. Describe the mechanism by which these defects form.
   B. Describe the clinical problems produced by these defects.
   C. Discuss the surgical management of these defects and their complications and management.
D. Demonstrate surgical knowledge and competence in management of these conditions
E. Defend your decision regarding extent of personal participation in the care versus referral to major children’s center.

19. Evaluate and accurately describe the severity of hypospadias based on meatal position
A. Recognize the signs that suggest the possibility of intersex and discuss the evaluation and management.
B. Discuss the dysfunctions related directly to the hypospadias defect
   1) Sexual performance secondary to chordee
   2) Abnormality in semen deposition
   3) Difficulty in directing urinary stream
   4) Psychological issues for parents and child
   5) Discuss the various principles of hypospadias surgery and describe the application of various techniques to different degrees of hypospadias.
   6) Discuss the methods of urinary diversion and dressings following hypospadias repair
   7) Demonstrate competence in performing and managing complications of several techniques for hypospadias correction.

20. Demonstrate knowledge of the classifications, embryogenesis, associated anomalies, and management of imperforate anus.
A. Discuss the spectrum of anorectal malformations
B. Demonstrate the ability to define the defect and associated anomalies and plan appropriate management.
C. Recognize and manage potential urologic complications of anorectal surgery.
D. Discuss the importance of long term urologic follow up and surveillance for such anomalies as:
   1) Neuropathic voiding dysfunction
   2) Consequences of Mullerian anomalies at puberty or during pregnancy
   3) Difficulty with attainment of urinary control
   4) Recognition of potential progressive nature of associated lumbosacral anomalies.

21. Recognize abnormal appearances of the external genitalia which suggest the possibility of intersex
A. Become familiar with the work-up of intersex disorders
B. Know the criteria upon which the sex of rearing is based.
C. Become familiar with the medical and surgical management for intersex disorders.
D. Understand the psychological impact on parents, family, and patient and provide needed counseling services.

22. Demonstrate knowledge of the basic anatomy, pathophysiology, and clinical features of vesicoureteral reflux, and its evaluation and management.
A. Describe the embryological development of the ureteral bud and explain its maldevelopment in producing reflux, ureteroceles, and duplication anomalies.
B. Understand the basic mechanism of reflux
C. Understand the grading system used to classify reflux and its impact on spontaneous resolution rates.
D. Discuss the implications of the presence of a Hutch diverticulum on spontaneous resolution rates.
E. Discuss the relationship of reflux, infection, intrarenal reflux, and reflux nephropathy.
F. Discuss ancillary measures to aid in reflux resolution – antibiotic prophylaxis, anticholinergics, voiding retraining.
G. Demonstrate knowledge of the indications for, techniques used in, and competence in performing surgical correction of VU reflux.
H. Discuss the complications of antireflux surgery and their management.

23. Demonstrate the ability to evaluate, diagnose, and treat a patient with cryptorchid testis.
A. Discuss the normal embryologic development, descent, or abnormal arrest of descent of testes.
B. Discuss the normal timing of descent.
C. List the problems posed by undescended testes – malignant degeneration, infertility
D. List the appropriate evaluation tests when faced with cryptorchid testes
E. Identify the pharmacological and surgical techniques in the treatment of cryptorchid testis.
F. Demonstrate competence in the performance of orchidopexy (single stage surgery, staged orchidopexy, Fowler-Stevens technique, and laparoscopic techniques for diagnosis and management.

24. Identify the clinical situations, which warrant augmentation cystoplasty and define its goals.
A. Demonstrate knowledge of preoperative assessment, surgical performance, and postoperative management of patients undergoing augmentation cystoplasty.
B. Be familiar with the physiology, and indications, and possible risks and complications of various bowel segments used.
C. Demonstrate the technical skills required for this procedure.
D. Identify possible complications, discuss their prevention and/or management
E. List the diagnoses in the pediatric population which may require augmentation cystoplasty
F. Define the indications for and demonstrate competence in performing:
   1) Appendicovesicostomy (Mitrofanoff Procedure) in conjunction with an augmentation.
   2) Ileocystoplasty
   3) Sigmoidocystoplasty
   4) Cecocystoplasty
   5) Transverse colon cystoplasty
   6) Gastric cystoplasty
   7) Autoaugmentation (Detrusorectomy)
   8) Ureteral bladder augmentation
G. Consider and discuss the various secondary factors affecting recommendations for this procedure
   1) Physical limitations of the patient
   2) Mental limitations of the patient
   3) Renal function
   4) Motivation

25. Discuss the etiology, types, presentation, pathophysiology, and management of megaureters.
A. Select the appropriate diagnostic studies for evaluating megaureters and discuss their advantages and disadvantages.
B. Discuss the various treatment options, considering: timing, advantages, hazards, potential complications, and management of complications, and follow-up.

26. Diagnosis and management of benign prostatic hyperplasia (BPH).
A. Discuss the incidence / prevalence of BPH
B. Discuss its pathophysiology with reference to the following:
   1) Androgen dependence and the role of DHT and 5 alpha reductase enzyme – explain mechanism of action of finasteride
   2) Stromal and epithelial cell interaction and proliferation
   3) Alpha adrenergic mediated smooth muscle tone in the prostate and bladder neck – explain mechanism of action of alpha –1 blockers (Cardura and Hytrin) and the newer super selective alpha-1-C blockers (tamsulosin or Flomax).
C. Demonstrate competency in assessing a patient’s lower urinary tract symptoms (LUTS) and determining their AUA Symptom Score and their symptoms effect on quality of life (“bothersomeness”).
D. List the specific indications for upper tract imaging and / or endoscopy in the evaluation of a man with moderate LUTS compatible with BPH.
E. Describe the possible usefulness of uroflow studies, pressure / flow studies, CMG, PVR determinations, serum creatinine determinations, and urinalysis in evaluating BPH.

F. Discuss the appropriateness of surgical intervention in men with serious complications of BPH, including urinary retention, intractable hematuria, bladder stones, and renal failure secondary to BPH.

G. Discuss various treatment options and their relative risks, benefits, costs, and side effects.

H. Discuss indications and demonstrate technical ability in preoperative, operative, and postoperative management of open subtotal prostatectomy for BPH.

I. Discuss indications and demonstrate technical ability in performance of endoscopic management of BPH.

1) Demonstrate competence in the procedures: TURP and TUIP and discuss their relative indications and results.

2) Demonstrate knowledge of and ability to manage intraoperative and postoperative complications of TURP.

3) Be able to discuss the principles of electrocautery and its risks and benefits:

J. Discuss the rationale, indications, relative effectiveness, and complications of the newer minimally invasive therapies for BPH, including laser prostatectomy (or ablation) [using contact, noncontact, or interstitial laser applications], balloon dilation, hyperthermia, thermal coagulation therapies, stents, and intraprostatic injection of absolute alcohol.

K. Discuss the appropriate follow up of patients undergoing watchful waiting, as well as those on medical therapy and those having received one or more of the minimally invasive surgical alternatives.

27. Demonstrate an understanding of the neurology and muscle physiology of the bladder and urethra, and their relationship to male continence and incontinence.

A. List the types of male urinary incontinence including: overflow, urge, total, stress, functional, and enuretic.

B. Discuss the history in differentiating the various etiologies including: congenital anomalies, neuropathic bladder dysfunction related to disease or injury to the CNS or peripheral nerves, trauma to sphincter, iatrogenic (including post-surgical), neoplasm, stricture, radiation induced, and psychogenic.

28. Describe the anatomic and physiological causes and effects of renal vascular hypertension.

A. Provide a differential diagnosis and discuss management of the various types

B. Select and interpret appropriate diagnostic studies and discuss treatment recommendations and results.

1) Medical antihypertensive management

2) Percutaneous transluminal angioplasty (PTA)

3) Surgery including: bypass operations / revascularization / nephrectomy (or partial nephrectomy), endarterectomy aneurysmectomy, and autotransplantation

29. Identify the signs and symptoms of urogenital trauma, clinically select the appropriate diagnostic studies, interpret them correctly, and then manage cases of trauma to the upper and lower urinary tract.

30. Discuss management of blunt and penetrating injuries to the kidney, ureter, bladder, urethra, and external genitalia. Discuss the results and complications of each course of treatment selected.

31. Demonstrate knowledge of cell and molecular biology pertaining to urologic diseases.

A. Describe the mechanism of DNA storage, RNA transcription, and mRNA transcription & translation.

B. Identify the critical steps involved in the selective expression of eukaryotic cells.

C. Demonstrate an awareness of the molecules involved in hormone action and cellular signal transduction, e.g., growth factors that mediate cellular function and reproduction.

D. Discuss and provide examples of specific molecular defects associated with GU tumors and certain benign urological diseases.
E. Identify specific molecular defects associated with various GU malignancies and discuss processes of gene amplification, gene deletion, gene rearrangement, and integrated viral gene activity.

F. Discuss and provide specific examples of the classes of gene products associated with oncogenesis of the GU tract, including oncogenes, tumor suppressor genes, and cell death (apoptosis) suppressor and initiator genes.

G. Discuss the molecular defects associated with benign GU diseases, e.g., papillomatosis and renal cystic disease.

32. Through supervised daily medical practice and through participation in clinical competency-based evaluation exercises, you should continue to acquire the necessary skills to achieve clinical competence in the six (6) medical competencies: Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-Based Learning and Improvement, and Systems-Based Practice.

I have reviewed with the resident his/her progress toward accomplishment of the stated goals & objectives for the current level of training and have provided individual feedback evaluation.

Signed: _________________________________  Date:_____________

Program Director

Note to Resident: At the end of each training year you will also be asked to self-evaluate your personal attainment of each educational goal and objective. You will indicate your perception of accomplishment of each stated goal and objective by marking in the margin alongside each the following coded response:

“+” indicates satisfactory accomplishment of this particular goal or objective.

“√” indicates exposure to, but incomplete acquisition of, knowledge or experience.**

“-” indicates perceived deficiency in knowledge or clinical experience in this area.**

** You are expected to carry these goals & objectives over to subsequent years.

I have reviewed with the Program Director my understanding of educational goals and objectives expected during this year / level of training (prior to beginning this year), and have received individual feedback regarding my degree of accomplishment of the stated goals and objectives (at the completion of this year) – including acquisition of competency in the six (6) designated competencies of Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-Based Learning and Improvement, and Systems-Based Practice.

Signed: _________________________________  Date:_____________

Urology Resident