1. Objectives of Training and Specialty Training Requirements

Date: 2005
(Please see also “Policies and Procedures” booklet.)

1.1 Definition

Urology is that branch of medicine and surgery concerned with the study, diagnosis, and treatment in adults and children of abnormalities and diseases of the genito-urinary tract of the male and the urinary tract of the female.

1.2 General Objectives

On completion of the educational program, the graduate physician will be competent to function as a consultant in urology. Residents must demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to urology. In addition, all residents must demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.

Because of the shared responsibility in patient care that characterizes the delivery of medical care in Canada, a close working relationship and integration of care delivery with primary care physicians referring patients to urologists is essential. There also needs to be a good working relationship with specialists in the fields of anesthesia, diagnostic radiology, pathology, pediatrics, internal medicine including nephrology, endocrinology and medical oncology, rehabilitation medicine, general surgery and radiation oncology.

During the course of the residency, the resident must acquire knowledge of the basic sciences necessary to the understanding and practice of urology. This may be done concurrently with the resident attending special courses in basic science or spending specific periods of full-time training in basic science related activity.

A urology resident must understand the normal function and the pathological processes and diseases that affect the adrenal gland, the kidneys, ureters, bladder, urethra in the male and female, and the prostate and external genitalia of the male. This includes an understanding, appropriate to the practice of urology of normal development and embryology, biochemistry and pharmacology, physiology, anatomy, and gross and microscopic pathology of the genito-urinary tract.

Management of a patient with a urological problem will require that the resident has the ability to:

1. take a history of the patient's problem
2. conduct a complete physical examination
3. understand the value and significance of laboratory, radiological and other diagnostic studies
4. understand the relative merits of various treatment alternatives
5. understand the indications, contraindications, types, variations and complications of surgical and non-surgical treatments
6. understand the significance of peri-operative and post-operative problems that might arise following urological surgical procedures

The professional characteristics to be demonstrated and developed include responsibility, intellectual curiosity, self-appraisal, compassion, the ability to communicate with peers and patients, and a commitment to continuing professional education.

1.3 Specific Objectives
At the completion of training, the resident will have acquired the following competencies and will function effectively as a:

Medical Expert/Clinical Decision-Maker
Urologists possess a defined body of knowledge and procedural skills which are to be used to collect and interpret data, make appropriate clinical decisions and carry out diagnostic and therapeutic procedures within the boundaries of their discipline and expertise. Their care is characterized by up-to-date, ethical and cost-effective clinical practice and effective communication in partnership with patients, other health care providers and the community. The role of medical expert/clinical decision maker is central to the function of specialist physicians and draws on the competencies included in the roles of scholar, communicator, health advocate, manager, collaborator and professional.

General Requirements

1. Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
2. Access and apply relevant information to clinical practice.
3. Demonstrate effective consultation services with respect to patient care, education and legal opinions.

Specific Requirements
The resident will demonstrate an understanding and a thorough knowledge of the following problems as they relate to the practice of urology.

Cognitive Skills
The practice of urology involves, aside from routine diagnostic and therapeutic activities, special knowledge and skills in the diagnosis and treatment of traumatic injuries of the genitor-urinary tract, congenital urologic problems, infections of the genitor-urinary tract, neoplasms (benign and malignant), of the genitor-urinary tract, andrologic problems including male factor infertility and male sexual dysfunction, problems relating to micturition including neurogenic voiding dysfunction and outlet obstruction, renal transplantation, renal obstructive disease including urolithiasis, and endocrine problems as they relate to the adrenal, testis, and prostate. To sustain the clinical knowledge required, a basic understanding of the physiology, pathophysiology and pharmacology of
the genitor-urinary system is required. The following is a listing of disease entities that are commonly included in the specialty of urology. This listing should be considered in its totality and not considered as exhaustive of the various disorders that involve the genito-urinary tract. The resident will be able to demonstrate a working knowledge of the following disease entities sufficient for the competent practice of the specialty.

Congenital and Developmental Abnormalities
  o Kidney and Ureter
    ▪ Cystic Diseases of the Kidney
    ▪ Horseshoe Kidney and Other Renal Anomalies
    ▪ Duplication, Retrocaval ureter and Other Anomalies
  o Bladder and Urethra
    ▪ Vesicoureteral reflux
    ▪ Epispadias and Exstrophy
    ▪ Hypospadias and chordee
    ▪ Other anomalies
  o External Genital Anomalies
    ▪ Intersex
    ▪ Undescended Testis
    ▪ Serotal and External Genital Anomalies

Obstructive Disease of the Upper Urinary Tract
  o Obstructive Uropathy, Hydronephrosis and Obstructive Renal Failure
  o Ureteropelvic Junction Obstruction
  o Urinary Fistulae

Obstructive Disease of the Lower Urinary Tract
  o Bladder Outflow Obstruction
  o Benign Prostatic Hypertrophy
  o Lower Urinary Tract Symptoms ("LUTS")
  o Posterior Urethral Valves
  o Functional Obstruction secondary to Neurological Disorders

Urinary Calculus Disease
  o Renal and Ureteral Calculi
  o Bladder Calculi

Urinary and Genital Infections, and Sexually Transmitted Disease
  o Bacterial (complicated and uncomplicated) and non-bacterial cystitis and urethritis
  o Pyelonephritis and other renal infections
  o Prostatitis including Prostatodynia
  o Sexually transmitted diseases
  o Genito-urinary tuberculosis
  o Genito-urinary parasitic diseases
  o Fungal/yeast urinary tract infections
  o Other granulomatous infections (including xanthogranulomatous disease)
  o Other Genital Infections (including Fournier's gangrene)
Trauma (including the management and evaluation of a patient with multisystem trauma involving the GU Tract and the role of the urologist in multidisciplinary approach to multisystem trauma)
  o Renal Trauma
  o Ureteral Trauma
  o Vesical Trauma
  o Urethral Trauma
  o External Genital Trauma

Renovascular Hypertension
  o Surgically Correctable Hypertension

Renal Transplantation
  o Organ donation
  o Recipient selection
  o Relevant transplantation immunology
  o Immunosuppresion (including principles of management of rejection)
  o Management of Surgical Complications of Renal Transplantation

Andrology
  o Male sexual function and dysfunction
  o Fertility and Male factor Infertility

Urological Oncology

For all tumours (benign and malignant) of the genito-urinary tract, residents will be able to describe the etiology, prevention, nutritional and environmental aspects of urologic malignant disease, natural history, histology and pathology, investigation and diagnostic techniques, grading and staging techniques in common use, principles of cancer management, role of surgery, radiotherapy (external beam and brachytherapy), chemotherapy, immunotherapy, angioinfarction and cryotherapy for each stage and the principles of management when cure is not the primary goal. Under each heading are listed other features about specific tumors, that the candidate will be able to describe.

  o Cancer of the kidney:
    ▪ Renal adenocarcinoma – etiology (including von Hippel Lindau syndrome)
    ▪ Wilms’ Tumour
    ▪ Transitional Cell Carcinoma of Renal Pelvis and Ureter
    ▪ Angiomyolipoma
    ▪ Other tumours
  
  o Cancer of the bladder:
    ▪ Transitional Cell Circcinoma
    ▪ Squamous Cell Circcinoma
    ▪ Other tumours
  
  o Cancer of the prostate:
    ▪ Adenocarcinoma
    ▪ Other tumours
  
  o Cancer of the testis:
    ▪ Germ cell (including seminoma and non-seminoma )
    ▪ Non-germ cell tumours
Cancer of the penis:
- Squamous cell carcinoma

Cancer of the urethra

Cancer of the adrenal:
- Pheochromocytoma
- Neuroblastoma
- Adrenal adenoma and adenocarcinoma
- "Incidentaloma"
- Other tumours

Metastatic Cancers to Genito-urinary Tract

Voiding Disorders including Relevant Neurourology
- Urinary incontinence (including stress urinary incontinence, urgency incontinence, total incontinence)
- Voiding dysfunction due to neurological disease
- Enuresis
- Functional Voiding Disorders

Adrenal Diseases
- Adrenal cysts, hyperplasia
- Adrenal hyperfunction and hypofunction and associated syndromes

Systemic Diseases and Other Processes Affecting the Urinary Tract
- Urological manifestations of systemic diseases (including e.g. diabetes mellitus, sepsis, AIDS, immunocompromised or immunoincompetent patients)
- The urinary tract in pregnancy (including normal physiologic and anatomic changes and management of urinary tract problems in the pregnant patient)

Miscellaneous
- External Genital problems (including hydrocele, varicocele, spermatocele, cysts)
- Torsion of testis, cord and appendages
- Inguinal hernia
- Dermatological lesions of the male external genitalia (including benign, pre-malignant and malignant lesions)
- Interstitial Cystitis

**Technical Skills**

Diagnostic Procedures and Techniques The Urologist in practice requires the availability and will utilize a number of investigational techniques and procedures. In addition to a thorough knowledge and understanding of routine investigative modalities, the resident will understand the indications for the following investigative techniques of specific importance to the practice of urology, the physiologic basis for each study and will demonstrate proficiency in interpretation of the results of these studies.

- Urinalysis
  - routine urinalysis
- urine culture techniques
- urinary collections for metabolic studies
- urine cytologic studies

○ Semen Analysis
  - qualitative and quantitative analysis

○ Prostatic Fluid examination *** microscopic examination

○ Biochemical Serum Studies
  - renal function tests
  - adrenal function tests
  - tumour markers - e.g. alpha-feto protein, b-HCG, PSA, etc.

Imaging Studies

○ Radiological Studies — Residents will demonstrate knowledge of the application of each of the following techniques to particular clinical situations, including the indications, interpretation, potential complications and management of complications for each technique, and the use of appropriate contrast agents when indicated:
  - intravenous excretory urography
  - retrograde urethrogram, cystography and pyelography
  - antegrade pyelography
  - angiography of the kidneys and pelvic vessels
  - loop-o-graphy
  - voiding cystourethrogram

○ Ultrasonography — The principles and application of ultrasound techniques for imaging:
  - kidney
  - bladder
  - prostate
  - scrotal contents
  - Doppler studies of renal, gonadal and penile vessels

○ Radioisotope Studies — The indications, application to clinical urology, principles, pharmacokinetics and application of radiopharmaceuticals used in:
  - renal imaging (including function studies)
  - voiding cystograms
  - testicular scans
  - bone scans for staging of malignant disease
  - scans for localization of inflammatory lesions
  - scans for adrenal localization

○ CT scanning and MRI scanning of the urinary tract

Urodynamic Studies

○ cystometrogram
○ uroflowmetry
○ voiding pressure studies
○ pelvic floor electromyography
○ videourodynamic studies

Phallodynamics
Vascular studies of the penis
- Diagnostic injection of vasoactive drugs
- Sleep studies (NPT)

Diagnostic Histopathology
The resident will be able to describe and recognize the gross and microscopic characteristics of the following:
- Malignant lesions of the kidney - renal cell carcinoma, Wilms’ tumour
- Benign lesions of the kidney - oncocytoma, angiomyolipoma
- Urothelial neoplasms of the renal pelvis, ureter, bladder and urethra
- Prostatic neoplasms - prostatic adenocarcinoma including prostatic intraepithelial neoplasia benign prostatic hyperplasia
- Testis tumours - including germ cell tumours, (seminoma and non-seminoma), functional tumours of the testis (Leydig tumours), Sertoli tumours
- Inflammatory lesions of the kidney - xanthogranulomatous pyelonephritis, tuberculosis, chronic pyelonephritis
- Inflammatory lesions of the lower urinary tract - interstitial cystitis, cystitis cystica, cystitis glandularis, cystitis follicularis, prostatitis

Therapeutic Technologies
The resident will be able to describe the basic physics and technological application of the following therapeutic modalities. He/she will be able to describe the indications, contraindications, peri-operative and post-operative complications specific for each modality:
- Electrosurgery
- Extracorporeal Shock Wave Lithotripsy
- Lasers in urology - carbon dioxide, Nd/YAG, Holmium-YAG, etc.
- Transurethral prostatic hyperthermia/thermotherapy and other alternative modalities used in the management of patients with benign prostatic hyperplasia

Surgical Skills
The list of surgical skills is divided into categories reflecting the frequency with which these procedures are encountered in urological practice and during residency training. All residents must be competent to independently perform the following procedures in List A, be able to manage a patient prior to, during and after all of the following procedures. Residents will be able to describe the management of the common complications that may occur following any of the listed procedures.

Surgical Procedures List A
- Endoscopic Procedures
  - Cystoscopy and urethroscopy, ureteric catheterization including ureteric stent insertion and removal, retrograde pyelography
  - Urethral dilatation and visual internal urethrotomy
  - Transurethral biopsy of bladder and urethra
  - Transurethral resection of prostate
  - Transurethral resection of bladder tumours
  - Transurethral resection/incision of ureterocele
  - Transurethral incision of external sphincter
- Manipulation of bladder calculi including litholapaxy,
- Ureteroscopy, lithotripsy and basket extraction of ureteric calculi
- Percutaneous renal surgery including nephrolithotomy with ultrasound/electrohydraulic/laser lithotripsy

- Open Surgical Procedures
  - Circumcision
  - Suprapubic catheterization
  - Urethral meatotomy, meatoplasty
  - Meatal repair for glanular hypospadias
  - Fulguration of venereal warts, biopsy of penile lesions
  - Cavernosal shunting procedures for priapism
  - Testis biopsy
  - Vasectomy
  - Vasovasostomy
  - Scrotal surgery - hydrocele, epididymal cyst, epididymectomy, simple orchidectomy
  - Inguinal surgery - varicocele, herniotomy, orchidopexy
  - Radical orchidectomy
  - Repair of testis torsion
  - Orchidopexy for undescended testis
  - Insertion testis prosthesis
  - Procedures for correction penile curvature and Peyronie's Disease
  - Penectomy
  - Urethrectomy
  - Perineal urethrostomy
  - Vesical neck suspension and procedures for correction of stress urinary incontinence
  - Ureteroneocystostomy
  - Augmentation cystoplasty
  - Repair of urinary fistulae - involving bladder, urethra, ureter, kidney
  - Urinary diversion procedures - ileal conduits
  - Radical cystectomy and anterior pelvic exenteration
  - Procedures for renal, ureteral and bladder trauma repair
  - Pelvic lymphadenectomy Vesical diverticulectomy
  - Simple retropubic prostatectomy
  - Radical prostatectomy
  - Pyeloplasty for ureteropelvic junction obstruction
  - Nephrectomy
  - Partial nephrectomy
  - Radical nephrectomy for cancer
  - Nephroureterectomy
  - Uretero-ureterostomy

The following procedures in List B are those that the resident will know how to do, including indications, management of a patient perioperatively. The resident may not
have actually done one of these procedures independently during the residency training program.

Surgical Procedures List B
- Open renal biopsy
- Open nephrolithotomy and ureterolithotomy
- Ureterolysis, ureteroplasty, uretero-pyelostomy
- Cutaneous ureterostomy/pyelostomy
- Vescostomy
- Uretero-ureterostomy
- Uretero-sigmoidostomy
- Inguinal lymphadenectomy for carcinoma penis
- Resection of posterior urethral valves
- Endoscopic pyeloplasty (endopyelotomy)
- Drainage of perinephric, perivesical and retroperitoneal abscess
- Deroofing renal cyst
- Anatorophic nephrolithotomy
- Extra-corporeal shock wave lithotripsy
- Renal transplantation
- Cadaveric and live donor renal harvesting for transplantation
- Transplant nephrectomy
- Adrenalectomy including surgery of pheochromocytoma
- Percutaneous nephrostomy
- Laparoscopy including adrenalectomy, nephrectomy and pelvic node dissection
- Laparoscopic Prostatectomy, pyeloplasty, live donor nephrectomy, and orchidopexy/orchiectomy
- Transrectal ultrasound guided biopsy of the prostate
- Insertion of penile prosthesis
- Insertion of artificial urinary sphincter
- Retroperitoneal lymph node dissection
- Radical nephrectomy with vena cava thrombus below diaphragm
- Correction of mid and distal shaft hypospadias

The following procedures in List C are those for which the resident will be able to describe the principles of the procedure, indications for referral for the procedure and particular perioperative problems that might be encountered.

Surgical Procedures List C
- Correction of proximal hypospadias and epispadias
- Surgical reconstruction for extrophy
- Vena cava resection and retrieval of atrial tumour thrombus for carcinoma kidney
- Open urethroplasty for urethral stricture
- Epididymo-vasostomy with microscope
Perineal prostatectomy
Post-chemotherapy retroperitoneal lymph node dissection

Communicator
To provide humane, high quality care, a Urologist must be able to establish effective relationships with patients, their physicians and allied health professionals. Excellent communication and interpersonal skills are essential for the functioning of a consultant for obtaining information and conveying information to patients and their families.

General Requirements

1. Establish therapeutic relationships with patients and families.
2. Obtain and synthesize relevant history from patients, families and communities.
3. Listen effectively.
4. Discuss appropriate information with patients and families and the health care team.

Specific Requirements: The resident will relate to patients in an understanding and empathetic manner, respecting the patient's dignity, individuality, and accept them as participants in decisions regarding their medical care. Residents must demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to urology.

To achieve these objectives, residents must develop the ability to:

1. Record accurately and succinctly data collected from patients, laboratory tests and radiological studies and to communicate conclusions based on these data to referring physicians and other involved health care personnel;
2. Be sensitive to patients’ fears, anxieties and needs for privacy;
3. Be able to obtain informed consent for urological procedures.
4. Be able to communicate opinions clearly in the form of consultation letters, telephone calls to family physicians, other consultant specialists and allied health professionals.
5. Be able to communicate bad news to patients and families in an empathetic manner.
6. Be able to explain clearly and concisely:
   diagnosis and management plans for urological problems that are understandable to patients, that motivates and facilitates patients' willing participation; management plans to other health care personnel in a way that ensures their effective participation; steps necessary for problem management when acting as a consultant for other physicians.

Collaborator
Urologists collaborate effectively with patients and multi-disciplinary team of expert health professionals for the provision of optimal patient care, education and research.
Therefore a resident must be able to work as a member in a multidisciplinary team taking care of complex urological problems including GU malignancies, renal failure and transplant, trauma, acute urological emergencies requiring intensive care. The resident will understand the roles and responsibilities of the other members of the team and where appropriate assume the leadership role.

**General Requirements**

1. Consult effectively with other physicians and health care professionals.
2. Contribute effectively to other interdisciplinary team activities.

**Specific Requirements**

To achieve these objectives, residents must develop the ability to:

1. Interact effectively with:
   - personnel in community service agencies,
   - other health care personnel,
   - patients from all varying lifestyles, socioeconomic backgrounds and value systems always respecting the confidentiality of the patient-physician relationship.
2. Accept responsibility for participation in activities that foster good patient care, including contributions to the administration of patient care facilities
3. Participate in professional organizations – local, provincial and national.

**Manager**

Urologists function as managers and they make every day practice decision involving resources, co-workers, tasks, policies and their own personal lives. They do this in the settings of individual patient care, practice organizations and in the broader context of the health care team. As managers, specialist Urologists take on positions of leadership within the professional organizations. As managers, Urologists incorporate quality assurance and quality improvement processes into their practices. General Requirements:

1. Utilize personal resources effectively to balance patient care, learning needs and outside activities.
2. Allocate finite health care resources wisely.
3. Work effectively and efficiently in a health care organization.
4. Utilize information technology to optimize patient care and life long learning and other activities.

Specific Requirements: To achieve these objectives, residents must develop the ability to:

1. Access appropriate urological diagnostic and therapeutic technology in a timely and efficient manner to benefit all of their patients.
2. Organize a priority list for patients waiting surgery.
3. Maintain a systematic program of self directed learning suitable for life long learning.
4. Be knowledgeable about issues pertaining to running a private office including staffing, billing and maintaining patient records.

**Health Advocate**
Urologists recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental and biological factors that determine the health of their patients and of society. Urologists recognize advocacy as a fundamental component of health promotion that occurs at the level of the individual patient and extends to the practice population and the broader community.

**General Requirements**
1. Identify the important determinants of health affecting patients.
2. Contribute effectively to improved health of patients and communities.
3. Recognize and respond to those issues where advocacy is appropriate.

**Specific Requirements**
To achieve these objectives, residents must develop the ability to:

1. Understand the role of community based patient support groups.
2. Understand the role and function of the Canadian Urological Association and related urological societies in support of urologists and of urological care in Canada and internationally.

**Scholar**
Urologists engage in a life-long pursuit of mastery of their domain of professional expertise. They recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the appraisal, collection and understanding of health care knowledge.

**General Requirements**
1. Develop, implement, and monitor a personal continuing education strategy.
2. Critically appraise sources of medical information.
3. Facilitate learning of patients, housestaff/students and other health professionals.
4. Contribute to the development of new knowledge.
5. To use information technology to optimize patient care, life-long learning and other activities.

**Specific Requirements**
To achieve these objectives, residents must develop the ability to:

1. Demonstrate continuing evaluation of their own capabilities and limitations.
2. Develop techniques for continuous improvement, information acquisition and information handling and participate in the quality improvement and quality assurance programs of the institutions in which they practice.
3. Maintain an inquisitive attitude, and understand the time commitment required for ongoing self study for the maintenance of competence.
4. Demonstrate the use of data bases for literature searches and reviews.
5. Formulate a research plan to answer a clinical question to include the following steps: recognize the gaps in knowledge and expertise around the clinical question, formulate a plan to fill that gap, conduct an appropriate literature search based on the clinical question, assimilate and appraise the literature, consult other professionals, propose a solution to the clinical problem, implement the solution in practice and evaluate the outcome and reassess the solution.
6. Understand the ethics of animal and human experimentation.
7. Describe basic statistical methods used in clinical trials.
8. Residents will be able to critically evaluate reports of clinical trials and research protocols. All residents must demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.

Professional
Urologists have a unique societal role as professional with a distinct body of knowledge skills and attitudes dedicated to improving the health and well-being of others. Urologists are committee to the highest standards of excellence in clinical care and ethical conduct, and to continually perfect mastery of their discipline.

General Requirements
1. Deliver highest quality care with integrity, honesty and compassion.
2. Exhibit appropriate personal and interpersonal professional behaviours.
3. Practice medicine ethically consistent with the obligations of a physician.

Specific Requirements
To achieve these objectives, residents must develop the ability to:

1. Demonstrate personal responsibility to patients by availability, confidentiality and respect for each patient's physical and emotional comfort.
2. Demonstrate adherence to the best available practice, including referral to other qualified practitioners when appropriate.
3. Demonstrate meticulous accuracy in reporting clinical and scientific information.
4. Demonstrate knowledge of the ethical problems of human organ procurement for the purposes of transplantation.
5. Demonstrate a working knowledge of provincial and federal laws and regulations related to the practice of medicine in general and urology in particular.
6. Demonstrate an understanding and appreciation for patients' legal rights in matters related to informed consent, delegated consent and informed decision making.

8. Be aware of their own feelings and biases and recognize any personal reactions which may be detrimental to physician-patient relationships because of these feelings or biases and explore and willingly accept possible ways of changing detrimental or prejudicial feelings.

9. Identify a colleague or faculty member with whom they may discuss personal and professional goals, conflicts and stresses.

Revised – June 2005

1.4 Specialty Training Requirements In Urology

These specialty training requirements apply to those who began training on or after 1 June 1994.

Minimum of five years of approved training.

This period must include:

1. Two years of core training in surgery (please see objectives for Core Surgery attached to this document).

2. Three years of approved residency training in urology, one of which must be in a senior residency position. Senior residency is defined as a year in which the resident is regularly entrusted with the responsibility for pre-operative, operative and post-operative care, including the most difficult problems in urology. The senior resident shall be in charge of a urological unit: no other resident shall intervene between the senior resident and the attending staff urologist.
   - Three clinical years in urology are required to allow residents to become proficient in both open and endoscopic procedures.
   - Experience at a community based teaching unit should be undertaken during the residency.

The five-year program outlined above will permit most residents to become proficient consultants in urology. It must be regarded as the minimum training requirement and additional years of training may be required by the program director to ensure that clinical competence has been achieved. Residents interested in research and other academic aspects of the specialty will require additional training to accommodate those career goals.

Revised – June 2005

1.5 Royal College Objectives of Training and Specialty Training Requirements
2. Format of the Examination in the Principles of Surgery

http://rcpsc.medical.org/residency/certification/examformats/348_e.php

The Principles of surgery (POS) examination is offered annually at all centres where Royal College examinations are written.

This examination, developed by an inter-specialty test committee, allows the other components of the examination process to be made more specific to the specialty concerned, and since it may be written after two years of surgical training, and since "feedback" will be provided, candidates will be helped in assessing their in-training progress.

The six-hour examination contains approximately 300 multiple choice questions covering the categories listed in the outline of contents for the POS examination. See Objectives of training

The POS examination is part of the examinations process leading to certification in:

- cardiac surgery
- general surgery
- neurosurgery
- orthopedic surgery
- otolaryngology
- plastic surgery
- urology

Candidates must pass the POS examination, the final examinations, and satisfactorily complete the required residency training to obtain Certification by the Royal College. At the present time, the POS examination is voluntary for candidates in the other surgical specialties. Candidates who pass the POS examination will receive credit and will not be required to repeat that examination if it has become mandatory in their specialty by the time they come to their final examinations.

Residents who wish to be ruled eligible for the final examinations in CARDIAC SURGERY, GENERAL SURGERY, NEUROSURGERY, ORTHOPEDIC SURGERY, OTOLARYNGOLOGY, PLASTIC SURGERY, AND UROLOGY, must have successfully completed the POS examination.

Revised September 2005
Web page updated: 22 October 2005
Format of the Comprehensive Objective  3. Examination in Urology

http://rcpsc.medical.org/residency/certification/examformats/360_e.php

Comprehensive objective examinations make it possible to obtain a more complete evaluation of the candidate's strengths and weaknesses. The important feature of comprehensive objective examinations is that candidates do not need to pass the written component in order to take the oral component. Success or failure is based on consideration of all components of the examination. The comprehensive objective examinations are considered a "whole" and cannot be fragmented. Candidates who are unsuccessful at this examination must, if within their period of eligibility, repeat all components of the examination.

3.1 Principles of Surgery Examination

This examination may be taken after a minimum of two years of training that meet the specialty training requirements in one of the surgical disciplines recognized by the College. All candidates must pass this examination to be eligible for the comprehensive objective examination.

3.2 Written Component

The written component consists of three, two-hour papers on the principles, practice and basic sciences as applied to Urology.

- Paper 1
  - Short-answer questions
- Paper 2
  - Part I: Multiple choice questions
  - Part II: Multiple choice questions

3.3 OSCE Component

The OSCE component consists of multiple standardized examination stations, of approximately five hours duration, which will:

- include structured oral questions based on clinical cases encountered in urological practice.
- consist of radiologic studies (organ imaging), photographs of imaging or histopathological sections and common neurourological findings (paper or computer). The candidates will be asked to review these and provide written answers to a series of related questions.
- include a standardized patient station. The candidate will be provided with information and will meet with a standardized patient or relative to discuss and answer questions related to the medical problem. Performance on this test will be marked by the standardized patient (or relative) and by an observing examiner.
- include a telephone consultation from a referring physician where candidates will be asked structured oral questions.
- may include an interview to reply to questions from a news reporter.
4. Urology Examination

The Royal College of Physicians and Surgeons of Canada: Urology Examination Information

5. Urologic Resident Evaluations: RCPS Review

The residents are evaluated as described in the original document submitted to the Royal College of Physicians and Surgeons. They are evaluated at the end of each of the rotations by their supervisor using the ITER developed for the program using the CANMEDS format.

They also undergo an oral examination of 45 minutes on a 6 month basis. This is followed later in the day with a meeting with the program director to review their progress.

During the first two years (Core Program) the residents take the CAGS exam with the general surgery residents. Beginning in the PGY3 year they will take the AUA in service examination.

If there are any particular difficulties during the rotation the residents and faculty are encouraged to meet and review the concerns and share them with the program director.

6. Journal Clubs and Rounds: RCPS Review

Urology grand rounds occur every Wednesday at 7:30 a.m in room G348 at the McMaster Institute of Urology Theatre in St. Joseph's Hospital. They alternate between subject-based rounds and case-based rounds and are attended by faculty, residents, and urologists from the surrounding community and pharmaceutical industry representatives. Dr. Fischer is in charge of organizing the rounds.

Visiting professors and speakers are integrated into the rounds. Typically, there are 3-4 visiting professors and speakers over the course of each academic year. The visiting professors speak on a Tuesday evening, give rounds on the next Wednesday morning, and then, they review case presentations from residents on Wednesdays after rounds. Journal club occurs once a month and is arranged by Dr. Anthony Fischer. The journal club is held in the evening and over dinner. The residents have expanded the journals covered to include not only the Journal of Urology, but important articles in the NEJM and JAMA. Once or twice a year, a speaker with training in the critical analysis of journal articles is invited to provide critical appraisal and teach the group proper analysis of an article.
In addition, a combined Pathology/Radiology/Urology is held once a month at St. Joseph's Hospital. As well, chief resident rounds are held every Friday morning at St. Joseph's Hospital. During these rounds, a junior resident presents a case that is new to the chief, and questions the chief on how s/he would handle the case. At least one faculty member is always present at these rounds. The goal is to prepare chiefs for their final oral exams and to improve their examinship.

7. Lecture Series and Subject Based Modules

PGY1 and PGY2 residents participate in the multi-disciplinary comprehensive Surgical Core Program to prepare for the Principles of Surgery Exam. This occurs every Wednesday morning and is coordinated by Dr. Deepak Dath.

PGY3, PGY4 and PGY5 residents attend a lecture series every Wednesday morning following the attached curriculum. It is based on the contents of the major textbook in Urology, Campbell's Urology, and the lectures are referenced to the related chapters in the book. All the residents are provided with this text when they enter the program. The residents are also provided with educational modules for each of the major disciplinary areas in urology including goals and objectives, classic articles and texts. Examples of these modules are included.

8. Schedule of Lectures for Residents: RCPS Review

8.1 Surgical Anatomy

1. kidney, retroperitoneum, adrenal glands- clinical- flank incisions, retroperitoneal node dissection, adrenal surgery, emergency laparotomy for trauma-2 lectures
2. pelvic anatomy, bladder, prostate, female anatomy-clinical- inguinal canal incisions, pfannenstiel incisions, gibson incisions, radical prostatectomy, radical cystectomy, radical groin dissection,-3 lectures
3. perineal anatomy-clinical- penile implant, urethroplasty, insertion of artificial sphincter-1 lecture

Covered in Chapters 1 and 2, Dr. Ball, Lecturer from the Department of Anatomy.

8.2 Laboratory Evaluation of the Urologic Patient (to be incorporated into nephrology lectures)

1. Urinalysis and microscopy
2. 24 hr urine collections
8.3 Imaging of the Urinary Tract

will also be covered in a combined radiology, urology, nephrology rounds to begin July 2005. Lecture series a total of 8 sessions covering these topics:

1. principles of imaging-contrast toxicity, allergy
2. excretory urography
3. retrograde pyelograms
4. cystourethrography
5. Ultrasonography, and transrectal ultrasound guided biopsy of the prostate
6. Computed Tomography and MRI
7. Nuclear Medicine
8. Angiography and percutaneous nephrostomy placement

Covered in Chapers 5 and 87 of Campbell’s Urology and Davidson’s Radiology of the Urinary tract

8.4 Renal Physiology

Chapter 6 of Campbell’s, lecture by nephrology faculty

8.5 Renovascular Hypertension

1. Evaluation of the patient with renovascular hypertension
2. Medical and radiologic treatments
3. Surgical treatment

Chapter 7, lecture by nephrology faculty but surgery covered in kidney surgery lectures.

8.6 Acute and Chronic Renal Failure

1. Acute Renal Failure-Chapter 8, lecture by nephrology faculty
2. Chronic Renal Failure-Chapter 8, lecture by nephrology faculty

8.7 Principles of Immunology

1. Immunology Physiology
2. Immunosuppression in Transplantation
3. Risks of Immunosuppression

Chapter 9, lecture by Dr. Arlen and Trelevan

8.8 Renal Transplantation

1. Assessing pre-transplantion patients
2. Donor selection
3. Transplant surgery
4. Rejection and Complications

Chapter 10, Dr. Kapoor

8.9 Physiology and Pharmacology of the Renal Pelvis and Ureter and Pathophysiology of Urinary Tract Obstruction-

Chapter 11 and 12, Dr. Whelan

8.10 Management of Upper Urinary Tract Obstruction

1. Uretero-pelvic junction obstruction
2. Retro-caval ureter
3. Ureteral Stricture
4. Retro-peritoneal Fibrosis

Chapter 13, Dr. Whelan

8.11 Infections and Inflammations of the Genitourinary Tract

1. Urinary tract infections
2. Prostatitis
3. Interstitial Cystitis
4. Sexually Transmitted Diseases
5. AIDS
6. Cutaneous diseases of the External Genitalia
7. Tuberculosis and Parasitic Diseases
8. Fungal Infections

Chapter 14, 16, UTI’s and Interstitial Cystitis, Dr. Piercey
Chapter 15, Prostatitis, Dr. Winter
Chapter 19 and 20, Dermatologist Dr. Murphy

8.12 Voiding Function and Dysfunction- 6 lectures

1. Bladder and voiding Physiology
2. Neurology and Pharmacology of the Bladder, Prostate and Urethra
3. Abnormalities of Bladder Function, storage versus emptying
5. Classification and treatment of neurogenic bladders
6. Incontinence, mechanisms, classification and assessment of patients
7. Post-prostatectomy incontinence
8. Treatment of female incontinence, non-surgical, injection therapy, procedures.
9. Sphincter Implanation
10. Surgery for vesicovaginal, urethrovaginal fistula, urethral diverticulum

Physiology and Pharmacology of Voiding, 1 and 2, Chapters 23, 4, 5, 6, Dr. Winter
Urodynamic Evaluation, Dr. Zikman
Incontinence 1, 2 and 3, Chapters 27, 8, 9, 30, 1, 2, 3, Dr. Piercey

8.13 Benign Prostatic Hyperplasia- 2 lectures

1. Prostatic physiology and the development of BPH
2. Evaluation of the patient with BPH
3. Pharmacologic treatments
4. Minimally Invasive treatments
5. Endoscopic surgery of the prostate
6. Open surgery of the prostate for benign disease.

BPH 1, Chapters 37, 8, 9, Dr. Matsumoto BPH 2, Chapters 40, 41, Dr. Matsumoto

8.14 Reproductive Physiology (3 lectures)

1. Physiology of male reproduction and Assessment of male infertility Chapters 42, 43, Dr. Fischer
2. Treatment of Infertility including surgery of the scrotum for infertility related conditions, Chapter 44, Dr. Fischer
3. Andrology and Andropause, Dr. Fischer

8.15 Erectile Dysfunction-2 lectures

1. Physiology of penile erection
2. Priapism
3. Medical treatment of ED
4. Surgical treatment of ED
5. Peyronnie’s disease

Chapter 45, Dr. Greenspan Chapter 46, Dr. Greenspan

8.16 Pediatric Urology (10 lectures)

1. Normal development of the urinary and genital tract
2. Development of renal function in the fetus and children
3. Intra-uterine and neonatal management of obstruction
4. Evaluation of the pediatric urologic patient
5. Renal disease in Childhood
6. Urinary tract infections in Children
7. Anomalies of the Upper Urinary Tract
8. Renal abnormalities
9. Ureteral pathology
   o UPJunction obstruction
   o Ectopic Ureter
   o Ureterocele
   o Other ureteral anomalies
10. Reflux and Mega-ureter
11. Prune belly syndrome, epispadius and extrophy
12. Urethral Valves
13. Dysfunction voiding in children, neuropathic and non-neurogenic lower urinary tract dysfunction
14. Hypospadius
15. Male Genital Anomalies
16. Abnormalities of the testes and scrotum
17. Sexual differentiation, normal and abnormal, intersex, female reproductive anomalies.
18. Pediatric Urologic Oncology
19. Urinary Tract Reconstruction

Suggest the following lectures:

1. Embryology of the Genito-urinary tract- Department of Anatomy, Dr. Ball, Chapter 49
2. Renal function and Nephrology in the Pediatric patient- Dr. Steele, Chapters 50, 53 and 56
3. Urinary Tract Infections, ? Pediatric ID person, chapter 54
4. Upper Tract Anomalies, (include pediatric UP jtn obstruction), Dr. DeMaria, chapter 55 and 57
5. Ureteral Anomalies and Reflux, Dr. DeMaria, chapters 58 and 59
6. Voiding dysfunction in children, Dr. Winter, chapter 64
7. Hypospadius, Male Genital Anomalies, and Abnormalities of the Testicles and scrotum, Dr. DeMaria, chapter 65, 66 and 7
8. Sexual differentiation and Intersex, Dr. DeMaria, chapter 68 and 69
9. Pediatric Oncology, Dr. DeMaria, chapter 70,
10. Reconstruction of the Urinary tract to include Prune Belly Syndrome, Epispadius and other reconstructive procedures, Dr. DeMaria, chapter 61, 2 and 3

8.17 Oncology

Molecular Genetics and Cancer Biology
- two lectures on the latest theories on the development of malignancies with a focus on the urologic tumours - Dr. Kawakami and Dr. Major.

Renal Tumour

Renal Cell Carcinoma
Other renal tumours
Radical Nephrectomy
Partial Nephrectomy
Laparoscopic Radical Nephrectomy

Two lectures Dr. Kapoor, Chapter 75, 102

**Urothelial Tumours of the Urinary Tract**
Upper Tract Tumours to include open and laparoscopic nephroureterectomy and segmental resection of the ureter as well as endoscopic and chemotherapeutic Rx
Dr. Kapoor- chapters- 76 and 80, two lectures

**Bladder Cancer**

- Superficial Bladder Cancer
- Intravesical Chemotherapy
- Role of Radiation and Radical Surgery
- Radical Cystectomy
- Ileal conduit and continent diversions
- Systemic Chemotherapy

Dr. Davis – chapters 76, 77, 78, 79 and 80, three lectures

**Testicular Neoplasms**

- Classification of Tumours
- Surgical Management of Testicular Cancer
- Chemotherapy and Radiation of Testicular Tumours

Dr. Davis, chapter 81 and 2, Radiation by Dr. Hemu Lukka and Chemotherapy by Dr. Sebastian Hotte

**Penile Tumours**

- Types of tumours
- Treatment of Squamous Cell Carcinoma
- Inguinal Lymph Node Dissection

Dr. Orovan, chapter 83, 4

**Prostate Cancer**

- Epidemiology, Etiology and Prevention
- Pathology, including Gleason Score
- Ultrasonographic Biopsy
- Diagnosis and Staging
- Radical Prostatectomy, Lap, Perineal, nerve sparing
Radiation therapy
Cryotherapy
Hormonal Therapy
Chemotherapy

Suggest the following lectures:

1. Etiology, Pathology and Diagnosis including role of PSA and Biopsy - Dr. Kawakami, Chapters 85, 6 and 8
2. Surgery of Prostate Cancer, Dr. Kawakami, Chapters 89, 90 and 91
3. Role of Radiotherapy - to include brachytherapy, Dr. Lukka, Chapter 92
4. Role of Hormonal therapy, Dr. Kawakami, chapter 94
5. Chemotherapy for Hormone Resistant Prostate Cancer, Dr. Sebastian Hotte, Chapter 95

8.18 Urolithiasis and Endourology

1. Etiology and Pathophysiology
2. Medical Evaluation and Treatment
3. Ureteroscopy
4. Percutaneous Surgery
5. Open Surgical Treatment
6. Extracorporeal Shock Wave Lithotripsy
7. Other Endourologic procedures

Dr. Whelan, three lectures

1. Etiology and medical treatment, Chapter 96
2. Ureteroscopy and Percutaneous surgery, Chapter 97, 98
3. Open surgery and ESWL, chapter 99

8.19 Adrenal Surgery

1. Classification of Adrenal Lesions
2. Evaluation of Adrenal Lesions
3. Open and Lap adrenal surgery

Dr. Piercey, Chapter 101

8.20 Penile and Urethral Surgery

1. Traumatic Injuries
2. Urethral Strictures
3. Urethroplasty
4. Fistulas of the Posterior Urethra
8.21 Principles of Laparoscopic Surgery

1. Pneumoperitoneum
2. Technical aspects of access, port placement, positioning
3. Complications
4. Specific Procedures

Dr. Kapoor, Chapter 100 and 104
Trauma

1. Evaluating the patient with genito-urinary trauma
2. Renal Injuries
3. Ureteral Injuries
4. Bladder Injuries
5. Urethral Injuries

Dr. Greenspan, Chapter 105

8.22 Bioethics

1. Dr. J. Miller

8.23 Practice Management

1. Don Price Associates

8.24 Medico-Legal Issues

1. McCarthy-Tetrault

9. Lower Urinary Tract Function and Dysfunction

Objectives and Requirements for Training in Urology

9.1 Definition

Lower urinary tract dysfunction includes abnormalities of the filling phase and those of the emptying phase. Filling phase dysfunction includes a rise of detrusor pressure (detrusor instability) or incompetence of the urethral sphincter mechanism (stress incontinence). Emptying phase dysfunction includes a failure of the detrusor to maintain
sufficient pressures to empty the bladder (detrusor hypotonicity) and obstruction of the urethra (outflow obstruction).

9.2 General Objectives

On completion of the educational program, the graduate urologist will be competent to diagnose and treat disorders of the lower urinary tract. The graduate urologist will also be familiar with the role of gynecologists, visiting and hospital based nurses, physiotherapists, and community resources involved in the care of patients with lower urinary tract disorders.

The management of lower urinary tract disorders requires an understanding of the embryology, anatomy and physiology of the lower urinary tract as well as the relevant neuro-anatomy and neuro-physiology of the central and peripheral nervous systems. Diagnosis of lower urinary tract dysfunction requires skills in relevant history and examination of the patient, interpretation of laboratory tests and imaging studies, cystoscopic examination, and urodynamic evaluation. Treatment skills include a knowledge of behavioral and lifestyle modification strategies and lower urinary tract pharmacology, as well as performance of endoscopic and open procedures for correction of stress incontinence and outflow obstruction.

The graduate urologist must understand and be able to convey to the patient the relative merits of diagnostic and treatment alternatives, based on their indications, contraindications, and complications. The graduate urologist must also be able to interpret the relevant urological literature and be able to incorporate new developments into his or her practice.

9.3 Specific Objectives

Cognitive Skills

The following is a listing of disease entities that are commonly included in the management of Lower Urinary Tract Dysfunction. The list is not exhaustive. The graduate urologist should be able to demonstrate a working knowledge for the following disease entities sufficient for the competent practice of the specialty.

1. Lower Urinary Tract Anatomy and Physiology
   - Pelvic Floor – muscles, ligaments, blood vessels
   - Organs – bladder, urethra, prostate, vagina
   - Neuroanatomy – CNS, peripheral nerves, somatic vs. autonomic
   - Differences between male and female
2. Lower Urinary Tract Dysfunction
   - Storage Phase disorders
     - Detrusor Instability (Overactive Bladder)
     - Hypereflexia (Neurogenic Bladder)
     - Non-compliance
     - Fistula
     - Prolapse
- Urethral incompetence
  - Emptying Phase Dysfunction
    - Detrusor Hypotonicity
    - Flaccid Neurogenic Bladder
    - Urethral Obstruction - BPH, Stricture disease etc.
    - Detrusor-sphincter dyssnergia

3. Neurological Disease Affecting the Urinary Tract
   - Spinal cord injury
   - Brain injury
   - Stroke
   - M.S.
   - Parkinsons
   - Diabetes

4. Idiopathic Disorders
   - LUT Symptoms
   - Pelvic pain
   - Abacterial prostatitis

5. Pharmacology of the lower urinary tract
   - Anticholinergics and Antispasmodics
   - Alpha Blockers
   - 5-DHT inhibitors
   - Alpha adrenergic agonists
   - Cholinergic agonists
   - Other

6. Behavior and Lifestyle Modification
   - Fluid and diet management
   - Intermittent catheterization
   - Indwelling catheter care
   - Padding and diapers

**Technical Skills**
The graduate urologist must be able to describe and basic biochemistry, physics and technological application of the following diagnostic and therapeutic modalities.

1. History and Examination
   - Urological findings
   - Relevant non-urological findings

2. Diagnostic Tests and Procedures
   - Urinalysis
   - Prostatic fluid examination
   - Imaging
   - Cystourethrography
   - Transrectal ultrasonography
   - Urodynamic Studies
   - Cystometrogram
3. Therapeutic Procedures List A
   - Endoscopic Procedures
     - Cystoscopy and urethroscopy
     - Urethral dilation, and visual urethrotomy
     - Transurethral biopsy of bladder and hydrodistension
     - Transurethral resection/incision of prostate
     - Transurethral incision of bladder neck
     - Transurethral incision of sphincter
     - Insertion of supra-pubic catheter
   - Open Surgical Procedures
     - Vesical neck suspension by needle or TVT
     - Open vesical neck suspension(Burch or Marshall Marchetti)
     - Insertion of artificial sphincter
     - Repair of urethral and bladder fistulae
     - Repair of bladder and urethral trauma
     - Vesical diverticulectomy
     - Simple retropubic prostatectomy
     - Anterior bladder repair

4. Therapeutic Procedures List B
   - Open Surgical Procedures
     - One and two stage open urethroplasty
     - Vaginal vault suspension
     - Augmentation cystoplasty

Faculty
Dr. Kevin Piercy
Dr. A. Leo Winter
Dr. Jerold Zikman
Medical and Surgical Management of 10. Nephrolithiasis

Renal stone disease is a common illness, affecting one in ten individuals at some time in their life. Although the pain can be excruciating, 85% of the stones will actually pass spontaneously. The management of the rest of the patients can be completed using relatively new endoscopic and minimally invasive techniques, resulting in open surgery being reserved for exceptional cases. This module will review the current status of medical and surgical treatment of urolithiasis and its prevention.

10.1 Medical Expert

Cognitive Skills

Required reading:
Residents will participate in a lecture series which will cover the following topics:

1. Physiology of Stone Formation- biochemistry of stone formation, role of the inhibitors, formation and chemistry of all types of stones
2. Medical Work-up of the recurrent stone former and the Prophylaxis of further Stone Disease- to include a critical assessment of the role for medical management in 2003, work-up of the patient with recurrent stones, dietary management and review of medications available to aid in prevention of stones
4. Management of Upper Ureteral Stones- to include a discussion of flexible ureteroscopy, role of ESWL and its success rate, antegrade ureteroscopy and ureterolithotomy. The different modalities used to fracture stones in the ureter will be reviewed at this lecture.
5. Management of the Lower Ureteral Stone- to include a discussion of indications for surgery, rigid ureteroscopy, and a review of the potential complications of ureteroscopy and their management.
6. Radiology of Stone Disease- to include a discussion of the role of Intravenous Pyelogram, CT scan, ultrasound and Retrograde Pyelogram in the management of stone disease. The radiologic anatomy of the kidney and the procedure of percutaneous nephrostomy tube insertion will be reviewed. Contrast toxicity in the renal failure patient will be reviewed.
7. Endourologic Procedures for non-Stone related Conditions-this lecture will discuss endopyelotomy, management of calyceal diverticulum, endoureterotomy, and other options in the management of ureteral strictures.

Lectures will be provided to review the physics of lasers and discuss laser physics as part of a laser safety course which will result in certification.

Technical Skills
Core Program Rotations:
Residents should focus on the following areas:

- developing a working knowledge of the cystoscopes, ureteroscopes and nephroscopes used in completing these procedures
- understand the differences in guidewires, stents and baskets and in particular the different characteristics of the materials used in these disposable items.
Develop a working knowledge of the anatomy of the urinary tract and understand the passage of catheters and guidewires from the ureteric orifice to the kidney. Residents should appreciate the role of fluoroscopy and how to safely utilize imaging with the minimum in radiation exposure. Insertion of ureteric stents and catheters following endoscopic procedures and for the diversion of urine where an obstruction is present.

**Urology - PGY, 4, 5**

Residents will learn to access the lower ureter with rigid and flexible ureteroscopes and determine when dilatation of the intramural portion of the ureter is indicated. They will learn how to pass the endoscope to the level of the stone and then determine whether it can be removed primarily or if some form of fragmentation is indicated. They will learn to safely fragment the stone and remove the fragments if indicated. Later in their training they will learn to access intra-renal stones and to fragment these in-situ or by moving them to the renal pelvis. The resident will learn dilatation of a percutaneous nephrostomy tube tract for the purpose of completing percutaneous nephrolithotripsy. They will learn to access the various regions of the calyceal system and then fragment the stone and remove it. Principles of drainage and indications for stenting will also be reviewed.

Senior residents will learn the indications for open stone surgery and develop an approach to the collecting system and ureter if this form of stone extraction is indicated.

Senior residents will visit an ESWL facility and observe the procedure. They will review the need for ancillary procedures with this modality and the management of steinstrasse.

Faculty for Cognitive and Surgical Skills
Drs. J.Paul Whelan and Edward Matsumoto: Endourology and Physiology of Stone Development
Dr. David Churchill: Medical Management of Stones
Dr. Julian Dobranowski: Radiology of the Urinary Tract

**10.2 Communicator**

**General:** Develop a therapeutic relationship with patients and their families and obtain information in an effective and caring manner.

**Specific:** As many of these patients will be in significant pain, the resident should be able to assess the analgesic needs of the patient and whether this needs to be addressed before a detailed interview is to occur. The resident should be able to assess the location and severity of the pain and any associated symptoms such as fever or hematuria. They should also learn to assess the frequency of stone passage and any family history of stones.
They should be able to record the data from the history, laboratory work and radiologic investigations in an effective manner and communicate it to others in order to develop a management plan.

The resident will learn to communicate the management plan to the patient and their family in a manner that facilitates patients’ willing participation.

**10.3 Collaborator**

**General:** Consult and work with physicians and other health care team members to resolve the acute and long term problems with urolithiasis.

**Specific:** Interact with dieticians, nephrologists and endocrinologists to deal with issues related to the prevention of stone disease.

- Arrange for patients to be properly prepared for transfer to an ESWL unit for treatment and to complete instructions from the treating urologist.
- Assess and review new technologies in stone disease and make appropriate recommendations to hospitals regarding acquisitions.

**10.4 Manager**

**General:** Utilize information technology and meetings to facilitate lifelong learning in the area of Urolithiasis. The resident will learn to organize a practice and work effectively within a health care organization.

**Specific:** The resident will learn to develop a system of prioritizing patients for surgery. They will learn to assess new technologies for diagnosis, treatment and prevention of stones.

**10.5 Health Advocate**

**General:** Identify the factors predisposing to this condition in their patients. Contribute to the prevention of urolithiasis and advocate for better treatment options.

**Specific:** Understand the risk factors for urolithiasis and how they may impact on individuals within a community.

Understand the role of the Canadian Urologic Association and other organizations in providing guidelines for treatment of stones and patient education information.

**10.6 Scholar**

**General:** Develop and implement a continuing personal learning strategy in the field of Urolithiasis. The resident will critically appraise the information and facilitate the education of others (housestaff, patients, staff, and other health professionals).

**Specific:** The resident will evaluate their own capabilities and limitations in the field of stone surgery and determine a course to improve and refine their skills and knowledge base. They will demonstrate an ability to research a topic using available data bases and critically evaluate the studies they find.

They will maintain an inquisitive attitude and may pursue the development of research protocols. If they pursue this they will be aware of the ethics of human and animal experimentation.

**10.7 Professional**
The resident will learn to deliver the highest quality care with integrity, honesty and compassion. They will practice ethically and demonstrate appropriate behaviour for a Urologic Consultant.

Specific: The resident will demonstrate personal responsibility by maintaining confidentiality, being available and being sensitive to the patient’s level of physical and emotional comfort. Be aware of best practice and where appropriate refer to a centre of excellence. Understand the process of informed consent, delegated consent and informed decision making as it applies to stone surgery.

11. Medical and Surgical Management of Male Factor Infertility

11.1 Introduction

Male factor infertility is a common illness affecting 10% of the population. Furthermore male factor infertility is involved in at least 50% of cases of couple infertility. Management of this clinical problem involves microsurgical techniques as well as a clear understanding of the use of assisted reproductive technologies. This module will be the current status of medical and surgical treatments of male factor infertility.

11.2 Medical Expert - Cognitive Skills

Required reading:

- Campbell’s Urology Volume II, male factor infertility.
- Infertility in the Male, 3rd addition, Author Larry Lipshultz, Stewart Howards Mosby Canada, 1997
- American Urologic Association; Guidelines Committee report on the Optimal Evaluation of the Infertile Male; Management of Obstructive Vasospermia and Management of Varicoceles


Our residents will participate in elective surgeries and will cover the following topics:

1. The physiology of male reproduction
2. Clinical evaluation of male factor infertility
3. Clinical evaluation of female infertility
4. Microsurgical management of male factor infertility to include discussion of varicocele surgery and obstructive azoospermia
5. Medical management of male factor infertility to include discussion of management of endocrinologic causes of male factor infertility
6. Management of infertility with assisted reproduction to include discussion on techniques available, indications and contraindications to use of assisted reproduction in male factor infertility
11.3 Technical Skills

Core program rotations
The residents should focus on the following areas developing a working knowledge of the operating microscope and microsurgical instruments used in completing microsurgical procedures. Understand the differences in sutures, characteristics of these sutures used in microsurgery of male infertility. Develop a working knowledge of the anatomy of the male genitourinary tract.

Urology PGY3, PGY4, PGY5 residents will learn to access the testicle via approaches both transscrotal and subinguinal. They will learn to perform testicular biopsy both open and percutaneous as well as how to access the vas deferens and epididymis. The resident will learn to perform lymphatic arterial sparing, subinguinal microsurgical varicocelectomy. Senior residents will learn the indications for testicular biopsy, percutaneous epididymal sperm retrieval, microscopic epididymal sperm retrieval, microsurgical subinguinal varicocelectomy, electroejaculation of vibration of ejaculation.

Faculty for Cognitive Surgical Skills
Dr. Marc Anthony Fischer, Diagnosis, Surgical Management and Medical Management of Factor Infertility
Dr. John Booth, Endocrinological Management of Male Factor Infertility
Dr. Ed. Hughes, Reproductive Technologies

11.4 Communicator

General: The resident would help the therapeutic relationship with patients and their partners and entertain information in an effective and caring manor.
Specific: Many of these patients will have significant social and psychological pressures, the residents should be able to assess and properly address these issues with the patients. The resident should be able to record data from history and physical examination, laboratory work in an effective manor and communicate to others in order to develop an effective management plan. The resident will learn to communicate the management plan to the patient and their family in manner that facilitates the patient’s appropriate management.

11.5 Collaborator

General: The resident will consult and work with physicians and other health team members to treat the infertility couple.
Specific: The resident will interact with gynecologists, nurses and geneticists and endocrinologists to deal with the issues related to male factor infertility.

11.6 Manager

General: The patient will utilize information technology and meetings to facilitate life long learning in the area of male factor infertility and will learn to organize their practice and work effectively within the health care organization.
Specific: The resident will develop a system of prioritizing patients for surgery and will be able to assess the appropriateness of assisted reproductive technologies for treatment of male factor infertility.

11.7 Health Advocate

General: The resident will identify factors predisposing to male factor infertility in their patients and will contribute to the prevention of male factor infertility and advocate for better treatment options.
Specific: The resident will understand the risk factors for male factor infertility and how they may be impacted in individuals in their community as well as understand the cost implications of reproductive technology for patients.

11.8 Scholar

General: The resident will develop a continued personal learning strategy in the field of male factor infertility and the resident will quickly appraise the information to facilitate the education of others including house staff, patient staff and the health care professionals.
Specific: The resident will evaluate their own capabilities and limitations in the fields of microsurgical and the general evaluation of male factor infertility and will develop a course to improve and refine their skills. They will demonstrate a research a topic using available data base and to critically evaluate the studies that they find. They will maintain an inquisitive attitude and may pursue to development of research protocols. They will also need to be aware of the ethics of assisted reproductive technologies.

11.9 Professional

General: The resident will learn to develop the highest quality of care with integrity, honesty and compassion. They will practice ethically and demonstrate appropriate behavior for a urologic consultant.
Specific: The resident will demonstrate personal responsibility by maintaining confidentiality, being available and being sensitive to the patients at a level of emotion and social discomfort. The patient will be aware of the best practice and where appropriately refer patients in terms of Centres of Excellence. The resident will understand the pros of informed consent and delegate an informed consent as it applies to male factor infertility.

12. Goals and Objectives for the McMaster University Urology Residency Program

The program utilizes the stated goals and objectives of the Royal College of Physicians and Surgeons as stated in the document Goals and Objectives of Training in Urology (see Appendix 3) as the basis for its training. It also utilizes the documents developed by the RCPS and by McMaster with respect to training in core areas in surgery. The objectives
stated in sections 13 and 14 are meant to complement these and be more specific to the rotations.

In December of 2001, a meeting was held with the Division of Urology, the CEO’s of both hospital corporations, the hospital Chiefs of Surgery and the Chairman of Department of Surgery. At this meeting it was agreed that the lead hospital for the Urology Residency Program would be St. Joseph’s Healthcare and that Hamilton Health Sciences would also play a pivotal role in the development of the training program. Further to this St. Joseph’s has gone forward with recruitment to bring its complement of urologists to 6 individuals with all of the faculty geographic full time. Hamilton Health Sciences has recruited an additional urologist with expertise in uro-oncology who is geographic full time and this brings their complement to 5 with 2 being geographic full time.

**12.1 Content and Sequence of Training**

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<th>Program Year</th>
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<td>PGY1</td>
<td>Urology 3 Months</td>
<td>General Surgery 3 Months</td>
<td>Pediatric General Surgery 3 Months</td>
<td>Nephrology 2 Months</td>
<td>ER 1 Month</td>
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<td>General Surgery 3 Months</td>
<td>GU Pathology 1 Month</td>
<td>Urology 3 Months</td>
<td>Uro-Radiology 1 Month</td>
<td>ICU 2 Months</td>
<td>General Surgery 2 Months</td>
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<td>PGY3</td>
<td>Urology 6 Months at SJH</td>
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<td>PGY4</td>
<td>Pediatric Urology (MUMC) 3 Months</td>
<td>Minimally Invasive Surgery Transplant 1 Month</td>
<td>Uro-Oncology 3 Months</td>
<td>Infertility and Neuro-Urology 2 Months</td>
<td>Community Urology Elective 3 Months</td>
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**13. Site-Specific Goals and Objectives**

**13.1 St. Joseph’s Hamilton Healthcare- Site Specific Objectives**

[PDF]Click here to download the site-specific objectives for the St. Joseph's Hamilton Healthcare site.

**13.2 Hamilton Health Sciences - Site Specific Objectives**

[PDF]Click here to download the site-specific objectives for the Hamilton Health Sciences site.
13.3 Mississauga Credit Valley Hospital and Etobicoke General Hospital - Site Specific Objectives

These sites will be used for the completion of the community practice elective in the PGY4 and provide exposure to highly motivated, well trained urologists within a community setting. Dr. Rajiv Gupta at The Etobicoke General and Dr. Munir Jamal at Mississauga Credit Valley Hospital are both experienced teachers having taken residents from the University of Toronto Urology Residency Program for many years.

Rotation-Specific Goals and Objectives

14.1 PGY1 Urology Rotation
[PDF] Click here to download the rotation-specific objectives for the Urology rotation in the PGY1 year.

14.2 PGY1 General Surgery Rotation
[PDF] Click here to download the Goals and Objectives for the PGY1 General Surgery rotation.

14.3 PGY1 Nephrology Rotation
[PDF] Click here to download the Goals and Objectives for the PGY1 Nephrology rotation.

14.4 PGY1 Emergency Medicine Rotation
[PDF] Click here to download the Goals and Objectives for the Emergency rotation.

14.5 PGY2 Urology Rotation
[PDF] Click here to download the Goals and Objectives for the 3-month PGY2 Urology rotation.

14.6 PGY2 Plastic Surgery Elective Rotation
[PDF] Click here to download the Goals and Objectives for the Urology Resident in a Plastic Surgery Rotation.

14.7 PGY2 Vascular Surgery Elective Rotation
[PDF] Click here to download the Goals and Objectives for the Urology Resident in a Vascular Surgery Rotation.

14.8 PGY2 Radiology Rotation
[PDF] Click here to download the Goals and Objectives for the PGY2 Radiology rotation.

14.9 PGY2 General Surgery Rotation
[PDF] Click here to download the Goals and Objectives for the PGY2 General Surgery rotation.
14.10 PGY2 ICU Rotation
[PDF]Click here to download the Goals and Objectives for the PGY2 ICU rotation.

14.11 PGY3 Urology Rotation
[PDF]Click here to download the Goals and Objectives for the PGY3 year in Urology.

14.12 PGY4 Pediatric Urology Rotation
[PDF]Click here to download the Goals and Objectives for the PGY4 Pediatric Urology rotation.

14.13 PGY4 Transplantation and Minimally Invasive Surgery Rotation
[PDF]Click here to download the Goals and Objectives for the PGY4 rotation in Transplantation and Minimally Invasive Surgery.

14.14 PGY4 Uro-Oncology Rotation
[PDF]Click here to download the Goals and Objectives for the 3-month PGY4 rotation in Urology-Oncology.

14.15 PGY4 Community Urology Elective Rotation
[PDF]Click here to download the Goals and Objectives for the 3-month elective in the PGY4 year.

14.16 PGY4 Infertility, Erectile Dysfunction, Urodynamics and Incontinence Rotation
[PDF]Click here to download the Goals and Objectives for the HHS Urology rotation in Infertility, Erectile Dysfunction, Urodynamics and Incontinence in the PGY4 year.

14.17 PGY5 Urology Rotation
[PDF]Click here to download the Goals and Objectives for the PGY5 year in Urology.

15. Resident Relationships with the Pharmaceutical and Manufacturing Industry Representatives
Residents will refrain from accepting gifts or funds for travel from industry representatives without written approval from the program director.
Residents will not attend social activities with industry representatives unless the event has been approved by the program and all members of the resident staff have been invited to the event.
If residents are offered funds from an industry representative for travel to a meeting or for books, they should direct the representative to the program director so that the funds can be placed in an account to be used for this purpose and to be distributed by the program director.

Residents will not make presentations for any industry at meetings and, in particular, will not receive honorariums for making presentations.

If you have concerns that what you are doing is not endorsed by the program or is unethical, then review it with the program director before starting down a path that could endanger your position in the program or your license to practice medicine.