

CURRICULUM
Master in Surgery (MS)
UROLOGY PROGRAM
LIAQUAT UNIVERSITY OF
MEDICAL & HEALTH SCIENCES JAMSHORO



DEPARTMENT OF UROLOGY
LIAQUAT UNIVERSITY OF MEDICAL & HEALTH
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Message from the Chairman Urology

Welcome to the urology residency program of the Department of Urology, Liaquat University of Medical and Health Sciences Jamshoro. Our educational philosophy is based on adult educational theories of self directed and experiential learning. These are learner dependent and learner centered.

The objective of the Urology Program at the Liaquat University of Medical and Health Sciences Jamshoro (LUMHS) is to produce urologists of the highest quality with the knowledge, clinical acumen and surgical skills to care for the entire spectrum of urological disorders. We believe in a rigorous academic training program with both formal and informal teaching, clinical and surgical skills development and a valuable research experience.

Emphasis is placed on teaching our residents the importance of establishing strong physician-patient relationships by providing patient centered compassionate care with commitment to continuity of care. We believe that faculty must dedicate themselves to teaching and that residents must demonstrate a strong commitment to learning. We expect that the residents trained in our program will become leaders in the urology community and that they will practice urology with professional integrity, high ethical standards, and respect for the rights of patients entrusted to their care.

The educational goals are based on attaining the objectives set forth by the PGME, LUMHS and ACGME General Competencies of resident education.

Evaluation Methods comprise of both formative and summative assessments–

1. End of rotation evaluations
2. Global faculty evaluation
3. In Service examination conducted by European Board of Urology
4. 360 degree evaluation
5. PGME in-service mid-term and annual examination

We believe that resident trained at LUMHS will provide high quality, cost effective, holistic and ethical care to the patients requiring urological care. These highly qualified and trained professionals would contribute to the future academic and service needs of the country.

Prof. Zakir Hussain Rajpar

Chairman Department of Urology

Liaquat University Of Medical and Health Sciences

Contributors.

Urology Faculty.

Version.

Preface.

Table of Contents

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PREFACE

Medical education is a life long process and revision of curriculum is a part of education starting from pre-medical education, medical and proceeding to house job, post-graduation, professional development.

Curriculum of a subject is said to be the throbbing pulse of a nation. By looking at the curriculum of a subject, one can judge the state of intellectual development and progress of a nation. The world has turned into a global village, new ideas and information are pouring in a constant stream. It is, therefore, imperative to update our curricula by introducing the recent developments in the relevant fields of knowledge. The curricular model should be grounded in educational theory and adult learning principles, which promote learning. Curricula should ensure building of analytical and critical thinking, clinical and lifelong learning skills, and desired professional behaviors in post graduates by appropriate multi-modal teaching, learning and assessment and feedback strategies.

This Final draft is discussed and prepared by the Department of Urology.

Reviewed and rearranged; following the Guiding principles of Harden in the Curriculum Development, by Department of Medical Education, keeping in mind all the new trends in the curriculum setting with introducing new educational strategies for promotion of educational environment.

TABLE OF CONTENTS

1. Introduction and Overview
 - a. Mission Statement
 - b. Vision
 - c. Introduction
2. Structure of the Residency Program
 - a. Duration of the Program
 - b. Eligibility criteria
3. Aims and the Objectives of MS Urology training Program
 - a. Competency in Patient Care
 - b. Competency in Knowledge & Critical Thinking
 - c. Competency in Knowledge & Critical Thinking
 - d. Competency in Communication Skills
 - e. Competency in Technical Skills
 - f. Competency in the Teamwork
 - g. Competency Development in Research
 - h. Competency in Self-Education and Teaching Skills
4. General Objectives
 - a. Professionalism
 - b. Specific Learning Objectives
5. Syllabus
 - a. Basic Sciences
 - b. Core Surgical Knowledge
 - c. Investigation and Technical Aspects
 - d. Specific Urology Conditions
6. Procedural Competencies
7. Annual Academic & Training Schedule based on credit hours (HEC based category).
8. Training Schedule
9. Academic Activities
10. Dissertation
11. Assessment and Evaluation
 - a. Formative
 - b. Summative
12. Recommended Text Books, Journals and Guidelines.

INTRODUCTION AND OVERVIEW.

MISSION STATEMENT

The purpose of Liaquat University of Medical and Health Sciences Urology Residency Training Program is to train world-class urologic surgeons, expert in clinical practice or academics. With their patient-centered care approach, they will contribute diverse and cutting edge innovations and research to the community and be the role models of evidence based practice in the field of urology.

VISION STATEMENT

To produce, at certification, competent doctors able to deliver excellent outcomes for patients as consultant Urologist, Equipping trainees with the generic professional and specialty-specific capabilities needed to manage the full range of acute and elective urological conditions

INTRODUCTION:

The training of a surgeon involves a complex interaction between trainee and the trainer. Before entering the chosen field of Urology a trainee should be of firm conviction that it will involve a long period of learning and no set time table will make him/her a good urologist. He/she has to be dedicated and anxious to learn. A large part of any surgical experience is a self-learning process, as no two operations are alike. Every operative procedure teaches you new things and if one does not learn from the previous mistake he/she is never going to learn the art.

The memory of previous surgical procedures should stay vivid in the mind of the operator as only when one recalls previous operative procedures can one be guided for the next one.

The other asset, a good Surgeon should possess is instinct the unseen guide.

As maturity in surgery is achieved, the instinct becomes sharper.

The learner should be methodical, neat and precise in his ordinary affairs. Most doctors cannot be made surgeons. It is an inclination one is born with.

We aim to sharpen these qualities in the developing Urological surgeon. A mature surgeon exhibits a commitment to the art of surgery, which will be used to benefit the patient and not be driven by other forces. Ethical work in practice will lead to excellent results.

Our MS Urology Residency program offered 5 years training in urology. Before joining the program of urology the resident should have background of general surgery and should be able to tackle general surgical complications, which may arise in the course of urology training. The basic surgical skills are of paramount importance for the further gearing-up trained into the specialty of urology. Further it is mandatory to have a comprehensive knowledge from standard text.

Structure of the Residency Program

The competency-based structured Urology Residency Program at Liaquat University of Medical & Health Sciences encompasses 5 years. The aim of five years MS program in Urology is to train residents and acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

In initial two years residency program is focused on teaching core principles of general surgery including peri and post-operative care. The three years are focused on specialty of urology. As the seniority increases, the exposure to the major procedures increases.

Program Duration: 5 years Program

Eligibility Criteria

- MBBS graduate from one of the recognized medical University / college shown in schedule I & II of the Pakistan Medical & Dental Council.
- Valid Registration with Pakistan Medical & Dental Council Practitioner.
- One Year resident house job in PMDC recognized institution.
- Foreign Graduates will have to produce equivalence of their degree from PMDC.

Required Documents

- One Passport Size Photographs
- MBBS Degree Certificate
- MBBS Final Year Marks Certificate.
- Valid PMDC Registration Certificate
- House Job Certificates (One Year)
- Domicile Certificate
- Computerized National Identity Card (CNIC)
- N.O.C for In-service Candidates from their employer. (Mandatory)

Fee Structure

Application Form & Entry Test Fee: Rs.20,000/-

Admission Fee PKR 30000/-

Tuition Fee PKR 70000/- (Per Year)

Total Fee: Rs. 100,000/-

Aims and Objectives of the MS Urology Training Program:

The aim of the MS Urology training program is to produce urologists with integrated competencies of knowledge, skills and attitudes for the specialist care of urological patients. The concept of current urology training model is driven from world-wide shift of apprenticeship model (“See one, do one, teach one”) to modern structured competency based education system with emphasis on patient safety, standard educating/ learning objectives and standard objective assessment.

Collage of physicians and Surgeons Pakistan (CPSP) is the largest training body for the specialty of urology in Pakistan. The department of Urology LUMHS is also training CPSP Urology trainees based on the CPSP outlined competency based guidelines.

Our MS urology training Model is predominantly driven from the “CPSP guidelines for urology residency program” as it is practically not feasible, moral or ethical to train two urology residents (MS Urology/ CPSP Urology) on two different guidelines.

Taking the opportunity, here we also acknowledge The Aga Khan Hospital Urology Residency Program (Manual 2023) for giving us valuable insight in the methods of academic activities, general training and formal assessment methods.

Competency in Patient Care

Throughout the world, all health care professionals are bound to be educated to deliver “patient centered care”. Patient care should encompass him/her as a whole having optimal and evidence-based standards.

In Urology, Patient care starts from the entry point points in the hospital. Which includes Outpatient clinics, the emergency department and inpatient wards. Each area has different spectrum of patient care and management. In each area of patient care, residents are supervised to provide best possible care and also acquire different sets of skills and achieve gradual and the highest level of competency.

The important areas of patient centered care in which Urology residents must demonstrate competency building are:

- Medical knowledge.
- Counsel and consent from the patient and their relatives.
- Detailed and comprehensive History taking and Thorough Examination.
- Making Working Diagnosis and offering affective investigations.
- Evidence Based therapeutic decision making.
- Affective Pre-operative preparation and Post procedural care of patient
- Deliver affective management plan to the in-patient and out-patient.
- Identify systematically manage the life threatening urological conditions in the emergency department.
- Competently perform all surgical procedures in elective list patients and as emergency procedures.
- Follow up and preventive strategies.

Competency in Knowledge & Critical Thinking

In this domain Residents are expected to demonstrate the application of current and the evidence based knowledge and possible outcomes in patient care.

The indicators of competency building in knowledge and critical thinking are

- Shows thorough understanding of history and examination findings and application of targeted investigations to reach on definitive diagnosis.
- Demonstrate to differentiate disease process and symptomatology.
- Demonstrate patient specific and evidence based line of management.
- Demonstrate prescription of evidence based pharmaceutical and non-pharmaceutical agents for specified urological conditions
- Identify the current treatment related ‘adverse drug reactions’ and their management.
- Demonstrate understanding of disease progression and accordingly change in treatment dynamics
- Demonstrate the timely decision making of surgical or non-surgical intervention if indicated.
- Demonstrate multitask management skills and multi-patient care without compromising patient care.
- Demonstrate effective patient and family counseling skills.

Competency in Communication Skills

Residents must demonstrate effective communication skills in terms of verbal, non-verbal and written communication skills.

Verbal communications skills:

- Must communicate clearly with the patient/ patient's attending to accomplish comprehensive history taking and making mutual patient-doctor relationship.
- Must be very clear and commanding in disclosing the differential and provisional diagnosis with the patient/ patient's attending.
- Must be effectively communicating with the team members, faculty and junior colleagues about the patient care plan.
- Must be clear in communication with other disciplines regarding patient's care.

Nonverbal communication skills:

- Must show good gesture, respect and kindness towards patients, patient's attending, team member, faculty and junior colleagues.
- Must use appropriate verbal and body language throughout in-campus stay.

Written communication skills:

- Must be able to write clear, accurate, detailed and orderly history and examination findings in medical records.
- Must be able to write clearly about the advised lab investigations.
- Must be able to clearly write medication names, doses and duration with instructions.
- Must be able to maintain the medical records and summarize the histories when indicated.
- Must be able to clearly write the medical/ discharge summaries, referral letters and format multidisciplinary team decisions
- Residents must be able to write research, academic articles and grant proposals.

Competency in Technical Skills

Residents must demonstrate the highest level of surgical and non-surgical skills:

Surgical Procedure related Skills:

- Demonstrate Procedure specific peri-operative patient's positioning and preparation.
- Demonstrate procedure specific peri-operative surgical skills
- Demonstrate post-operative orderly instruction skills in recovery room and in-patient stay area.

Non-surgical procedural skills:

- Demonstrate detailed explanation of operative procedure and take informed and written consent.
- Demonstrate orderly preparation of patient for surgery
- Demonstrate post-operative briefing skills with the patient/ patient's family
- Demonstrate technical skills in immediate postoperative care.
- Demonstrate long term follow-up skills and decision making for further intervention if indicated.

Competency in the Teamwork

Residents must demonstrate good interpersonal relationships with the team members, colleagues, faculty members, paramedical nurses and working staff.

- Resident must demonstrate effective team collaboration for uninterrupted patient care.
- Resident must demonstrate mutual sharing of knowledge and developing surgical skills.
- Residents must follow the chain of commands from the chief resident for the effective patient care, hospital business and residents progression.
- Chief resident must be competent to demonstrate leadership qualities.

Competency Development in Research

All residents are expected to produce a dissertation or two article publications during the residency training.

- Resident must be competent to conduct the research under the supervision or as a team member with other urology residents.
- Resident must pursue and come with the research objective(s).
- Resident must be able to highlight the research methodology, format results and conclude with impactful note.
- Resident must be involved in collecting the data and minimize the confounding and biased factors.
- Resident must be able to justify and defend the research proposal in front of ethical review committee.
- Resident must be competent to write dissertation and/ or research articles.
- Resident is expected to participate in journal clubs and critically appraise the published research data.
- Resident must be able to present the research data at the national and international data.

Competency in Self-Education and Teaching Skills

Residents are expected to be accustomed with adult learning theories and effective learning and teaching skills.

- Residents are expected to incorporate international guidelines and algorithms in patient care.
- Residents are expected to prepare and present the cases, topic presentations and understand the core knowledge and application in different scenarios.
- Senior residents are expected to supervise and educate the junior residents in terms of core knowledge and surgical skills.
- All residents are expected to have command on effective teaching skills to small and large groups, topic oriented teaching on power point presentation
- Hands on skill teaching in dry and wet lab and teaching of task oriented clinical skills on real or dummy patient.

GENERAL OBJECTIVES.

Resident Obligation.

The resident(s) must be in communication with the urology faculty and address any substantial change in the condition or status of a patients under the care of respective urology ward including admission, transfer to a hospital area providing a higher level of care, discharge and the development of any medical or surgical complications.

Decorum.

A professional conduct is expected of residents at all times. Which includes appropriate dress, appearance, and attitude with attending staff, peers, nurses, patients, and patients' families. Residents not following proper decorum may be liable to severe consequences.

Working Hours and Patients Hands Off.

Working hours, inclusive of in house call activities, will normally be limited to 72 hours per week. In-house calls do not exceed 32 hours including 24 hours of on call.

Night Duties/On Call Responsibilities.

The objective of on-call activities is to provide residents with continuity of patient care experiences throughout a 24-hour period. In-house call is defined as those duty hours beyond the normal work day when residents are required to be immediately available in the assigned institution. In-house call is scheduled no more frequently than every third / fourth night, averaged over a four-week period.

Moon lighting.

Moonlighting is not permitted. Moonlighting is defined as any activity associated with the practice of medicine from which the resident receives compensation in cash or kind in exchange for functioning as a private physician.

Professionalism.

Professionalism is exhibited through an obligation to carrying out core responsibilities, adherence to ethical principles, and compassion to a miscellaneous patient population. Residents are expected to demonstrate a set of model behaviors that include but are not limited to:

1. Demonstrate the ability to handle day-to-day situations unique to the urology patients.
2. Demonstrate honesty, responsibility, an absolute respect, kindness, patient support, and commitment to patient care that supersedes self-interest.
3. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of staff/family/patient's interests/information, and informed consent.
4. Residents are expected to show sensitivity and responsiveness to patients' suffering, emotional state, culture, age, gender and disabilities.
5. Demonstrate the ability to discuss death honestly, sensitively, patiently, and compassionately.
6. Provide cost effective health care and resource allocation that does not compromise quality of care.
7. Demonstrate team work by participating in the health team, giving them respect and positive regard, supervising their activities, supporting their morale, and helping them solve problems.
8. Demonstrate openness and responsiveness to the comments of other team members, patients, families, and peers.
9. Demonstrate a commitment to excellence and continuous professional development.

SPECIFIC LEARNING OBJECTIVES

On completion of the training program, Urology trainees pursuing an academic pathway will be expected to have demonstrated competence in **all aspects of the published syllabus**. The specific training component would be targeted for establishing clearly defined standards of knowledge and skills required to practice Urology at secondary and tertiary care level with proficiency in the basic and applied clinical sciences, intensive care, accident and emergency (A&E) medicine related to Urology and complementary surgical disciplines.

Overall, the urology trainee must master the complete spectrum of urology encompassing:

- Urology core knowledge for comprehensive interpretation of patient's history and Examination
- Logically application of laboratory and radiology investigations their interpretation.
- Evidence based Judgment for the decision of surgical and non-surgical management.
- Comprehensive peri and post-operative care and management plan of anticipated complications.

SYLLABUS

APPLIED PATHO-PHYSIOLOGY, NEPHROLOGY, TRANSPLANTATION AND PRINCIPLES OF UROLOGY.

Urology residents should have knowledge of principles of basic sciences (anatomy, biochemistry physiology, pharmacology, and pathology) at the time of entry into the program. During training the core knowledge to be acquired includes basic sciences as well as clinical sciences related to Urology as under basic sciences and core surgical knowledge:

BASIC SCIENCES

Knowledge specific to specialty including regional anatomy, molecular biology, and laboratory based scientific research and relevant systemic pathology. Some of these points are outlined in individual sections given below with particular reference to:

- Normal structure; (macroscopic and microscopic), physiology and function, including relevant neurology, neuropharmacology, biochemistry and cellular & molecular biology
- Disordered function; etiology, pathophysiological response (at macroscopic, microscopic and molecular level) and local, distant and systemic consequences
- Knowledge of statistics and trial design
- Principles of cell biology, cell structure and biochemistry
- Principles of renal physiology, effects of disease, renal failure
- Common metabolic problems seen in urological patients
- Principles of stone formation
- Structure and function of lower urinary tract
- Male sexual function & organ receptor, prostate physiology
- Embryology and intersex
- Principles of immunology
- Clinical trials and screening
- Principles of wound healing, inflammation and coagulation

CORE SURGICAL KNOWLEDGE

- Scientific principles of surgical and non-surgical treatment of urological disorders
- General principles of tumor biology applied to urology
- Principles of anesthesia and local anesthesia
- Pain control
- Applied cardio-respiratory patho-physiology relevant to clinical examination and surgery
- Patho-physiology in children, elderly and those with intercurrent disease

INVESTIGATIVE & TECHNICAL ASPECTS

- Understanding of biochemical, hematological and bacteriological tests used in urology
- Measurement of renal function by biochemical means
- Methods used in histopathology with specific reference to biopsy techniques & initial handling of surgical specimens
- Principles of urological investigations with particular emphasis on safe use of X-rays, radioisotopes and lasers
- Imaging urinary tract radiologically and by ultrasound; use of nuclear medicine techniques
- Principles of sterilization and asepsis, particularly as applied to endoscopes
- Radiobiology and principles of therapeutic use of external beam radiotherapy and radioisotopes
- Principles of diathermy and associated hazards

SPECIFIC UROLOGICAL CONDITIONS.

Benign Prostatic Hyperplasia

- Anatomy of prostate with particular reference to “zones” and glandular/stromal tissue
- The embryology of prostate-Growth factors in prostate
- Function of prostate and its role in ejaculation and fertility
- Endocrine control of prostate
- Etiology and pathogenesis of BPH o Pathology of BPH
- Clinical features of BPH

- Concepts of benign prostatic hyperplasia, prostatic enlargement, bladder outflow obstruction & lower urinary tract symptoms; their interrelationship and correlation
- Role and value of symptom scores in the assessment of patients with lower urinary tract symptoms
- Appropriate use of investigations and their pitfalls, particularly in relation to flow rate studies & urodynamics
- Interpretation of flow rates and urodynamic studies in relation to the diagnosis of outflow obstruction.
- The urodynamic nature and pathophysiology of outflow obstruction
- Urodynamic definition of outflow obstruction; the relationship between detrusor instability and outflow obstruction
- Inter-relationship between BPH, detrusor instability, detrusor failure and ageing
- Management of BPH and bladder outflow obstruction
- Management of acute and chronic retention of urine and other complications of BPH
- Standard surgical treatments of prostate, particularly transurethral resection and their complications
- Follow up and assessment of results of treatment of bladder outflow obstruction
- TUR and other alternatives to prostatectomy in treatment of BPH; their results shown in literature
- Physiological basis of alpha blockers and 5 alpha reductase inhibitors ;indications and their value
- Catheterization - role of lasers, stents and other new technology

Andrology

- Spermatogenesis, sexual behavior, erection & ejaculation and their endocrine control
- Age related changes in erectile dysfunction and fertility
- Effect of urological disease and its treatment on erectile function, ejaculation and fertility
- Causes of erectile dysfunction
- Causes and treatment of retrograde ejaculation
- Causes of infertility

- Investigation of erectile dysfunction with an appreciation of sources of error in their interpretation.
- Role of penile prosthesis in the treatment of erectile dysfunction
- Peyronie's disease-its nature, clinical features & treatment
- Priapism-its causes, their differentiation and treatments available
- Controversy surrounding varicocele and its effect on fertility; technique, pitfalls and interpretation of semen analysis and use of hormone assays
- Role of scrotal exploration, vasography & testicular biopsy
- Treatment of infertility including appropriate use of surgery and non-surgical treatments
- Vasectomy including counselling prior to vasectomy,
- techniques, early and late complications
- Vasectomy reversal including pre-operative counselling, technique and results
- Various types of artificial conception and principles of such treatments

Bladder Dysfunction

- Anatomy, physiology & pharmacology of the lower urinary tract
- Physiology and hydrodynamics of bladder filling and emptying and higher centers involved in their control.
- The effect of various pharmacological agents on these activities and their mechanism of action
- Clinical assessment of bladder dysfunction and its pitfalls
- Urodynamic evaluation of lower urinary tract function Distinction between disorders of contractility & disorders of compliance
- Detrusor instability - its nature, causes, diagnosis and treatment
- Impaired detrusor contractility- its nature, causes, clinical features, diagnosis and treatment and particularly its association with ageing & with bladder outflow obstruction
- Clean intermittent self-catheterization; its use, value and complications
- Drugs used in treatment of bladder dysfunction and details of their pharmacological action and side effects Contributions of the ISC Standardization Committee Role of electrical stimulation in the treatment of bladder dysfunction

- Neuro-urology, management of spinal injuries with respect to disordered bladder function.
- Surgical management of neurogenic bladder dysfunction

Trauma

- Assessment and general management of a patient following injury
- Hypovolemic shock; patho-physiology, clinical features, diagnosis and management
- The nature, presentation and distinction between different types of blunt and penetrating injury
- Inter-relationship between urological and other types of injury and their relative importance
- Renal injury - types, classification, investigation, management and indications for surgery
- The causes, presentation, investigation and management of ureteric injury with particular reference to gynecological and urological iatrogenic trauma
- Causes, presentation, investigation and management of bladder trauma
- Causes, presentation, investigation and management of urethral trauma with particular reference to pelvic fracture injuries and straddle injuries
- Causes, presentation, assessment and management of genital injury including fractured penis & domestic injuries

Female Urology

- Hormonal influences on female bladder function, effects of pregnancy (infection and ureteric obstruction)
- Use of antibiotics, including pregnancy and with oral contraceptives
- Urethral syndrome-nature, presentation, diagnosis and management
- Interstitial cystitis and related sensory disorders- nature, presentation, diagnosis and management
- Urinary fistulae of female genital tract-causes, presentation, diagnosis and management
- Nature, presentation and effect of vaginal prolapse and its inter-relationship with urinary and ano-rectal dysfunction

- Assessment and management of females with genuine stress incontinence alone and when combined with detrusor instability, voiding dysfunction or prolapse
- Causes, pathophysiology, clinical features, investigation and treatment of genuine stress incontinence including non-surgical and surgical treatments
- Role of transvaginal and open surgery; techniques, success rates and complications (short and long-term). The artificial urinary sphincter and its role in genuine stress incontinence
- Role of periurethral injections and other minimally invasive treatments in genuine stress incontinence
- Urethral diverticulum - causes, presentation, diagnosis and management
- Cystic/mass lesions palpable through the anterior vaginal wall

Reconstructive Urology

- Role of reconstructive surgery in treatment of patients with congenital anomalies of urinary tract
- Indications and techniques of augmentation and substitution cystoplasty and continent diversion
- Long-term complications of enterocystoplasty with particular reference to acid base balance and its consequences, bacteriuria and malignant change
- Role of urethroplasty in treatment of patients with urethral strictures
- Techniques used in management of ureteric injury
- Medico-legal aspect of iatrogenic and traumatic injury and their implications in management of such patients
- Adolescents with urological problems as a result of congenital anomalies and their sexual connotation

Oncological Urology

- General pathology of cancer:
 - Causes
 - Development
 - Invasion and spread

- Clinical features and diagnosis
- Tumour markers and related diagnostic and prognostic factors
- Role of surgery, radiotherapy, chemotherapy and immuno therapy
- Care of terminally ill patient
- Genetic basis of urological malignancies
- Histopathology, presentation, investigation, assessment and management of a patient with **renal cell carcinoma** including results of surgical treatment and role of radiotherapy, chemotherapy, immuno therapy, endocrine therapy and embolisation
- Technique of radical nephrectomy
- Tumours simulating renal cell carcinoma; their distinction and management
- Role of partial nephrectomy in managing renal tumours- Von Hippel-Lindau disease and other conditions with which renal cell carcinoma is associated
- Transitional cell carcinoma -etiology, pathology, staging, grading and progression including its presentation as an industrial disease
- Chromosomal and molecular biological factors involved in progression from normal urothelium to malignancy and invasiveness and metastases
- Clinical presentation, assessment and management of transitional cell carcinoma
- Superficial bladder cancer; incidence, determination and prognostic factors, surgical treatment and role of intravesical chemotherapy.
- Industrial bladder cancer, occupations at risk, principles of case control studies and other methods of investigation
- Surgical treatment of advanced bladder cancer and role of radiotherapy
- Role of systemic chemotherapy in locally advanced or metastatic bladder cancer
- Techniques of orthotopic bladder substitution or continent urinary diversion as an alternative to ileal conduit diversion after cystectomy
- Transitional cell carcinoma of renal pelvis and ureter; presentation, diagnosis and management
- Squamous cell carcinoma and adenocarcinoma of the bladder; etiology, prognosis and management
- **Prostate cancer:**

- Etiology, pathology, staging, grading, invasion & spread
- Epidemiology including geographical and racial variations in incidence and familial prostate cancer
- Clinical features and presentation
- PSA; its role in screening, diagnosis and follow up
- T1 prostate cancer, with reference to incidental disease found at TURP and T1c disease
- Investigation including appropriate use of PSA, bone scan and other staging investigations
- Management of early cancer, selection of patients for radical prostatectomy and radiotherapy
- Role of wait & watch policy, hormonal treatment and Radiotherapy in with advanced cancer
- Principles of endocrine therapy-the treatment of metastatic cancer
- Inter-relationship between gynaecological and colorectal malignancy and urinary tract
- Penis; pre-malignant lesions, etiology, histopathology, development, spread, diagnosis and management of squamous cell carcinoma of penis
- **Tumors of testis**
- Etiology
- Classification with particular reference to seminoma and non-seminomatous germ cell tumors
- Tumor markers & their role in diagnosis, management and follow up
- Carcinoma in situ of the testis and the role of contralateral testicular biopsy
- Management of testicular tumors other than adult germ cell tumors including the role of surgery, chemotherapy and radiotherapy
- The principles of statistics with particular reference to trial design and studies of cancer treatment

Paediatric Urology

- Peri-natal urology
- Embryology of renal tract, anatomy and physiology.
- Assessment of renal function in neonate

- Antenatal diagnosis and management of anomalies.
- Foreskin, its anomalies and complications.
- Circumcision; history, indications, techniques, results and complications. Relationship to penile cancer
- Undescended testis; current views on etiology, presentation, diagnosis, management and its association with infertility and testicular tumors.
- Acute scrotum in childhood:
 - Torsion of testis and torsion of Hydatid.
- Scrotal swellings in childhood, congenital hydrocoele and its management.
- Penile abnormalities:
 - Hypospadias; clinical assessment and principles of surgical correction
- Chordee, epispadias and micropenis - general principles. Diagnosis and investigation of urinary tract infection in neonates and in childhood. Significance of urinary tract infection in boys and in girls
- Vesico-ureteric reflux; pathophysiology, grades of severity, implications for renal function, assessment & management. Principles and rationale of surgical treatment
- Renal masses and their differential diagnosis. Pathology and management of Wilms' tumor
- Assessment and management of urinary incontinence in childhood
- Pelvi-ureteric junction obstruction; nature, pathophysiology, presentation, diagnosis and treatment including diagnostic problems and the relative roles of available investigational modalities.
- Duplications of upper urinary tract and ectopia; understanding of basic anatomy and clinical relevance
- "Wide ureter"; classification, diagnosis and management
- Posterior urethral valves; clinical diagnosis
- Congenital conditions (e.g. prune belly syndrome) which can be associated with urological abnormalities
- Intersex - basic overview including clinical diagnosis and principles of surgical management of common conditions such as congenital adrenal hyperplasia
- Imaging techniques in children; differences with investigation of adults.

- The role and interpretation of antenatal ultrasound in detection of urinary tract abnormalities in fetus

Stones and Endourology

- Stone disease; etiology, presentation, investigation and management
- Biochemical and biophysical factors involved in generation of urinary stone disease with particular reference to calcium oxalate, urate and triple phosphate stone disease
- Biochemical investigation of patients with recurrent urinary stone disease
- Surgical treatment of renal calculi including PCNL & open surgery
- Mode of action of extracorporeal energy sources used in the treatment of stone disease and their application to patients with renal and ureteric calculi
- Significance and management of infective staghorn calculi
- Ureteric calculi and their endoscopic treatment
- Assessment and management of bladder stones; PCNL, ureteroscopy and other aspects of endourology
- Endourological treatment of upper tract malignancy
- Principles of laparoscopy
- Laparoscopic procedures applied to urology

Urinary Tract Infection

- Bacteriology of acute pyogenic upper and lower urinary tract infection
- Etiology, presentation, clinical features, investigation, diagnosis and treatment of upper and lower urinary tract infection
- General principles of antibiotic chemotherapy and chemoprophylaxis with reference to urinary tract
- Diagnosis and management of gram negative septicaemia
- Etiology, clinical features, investigation, diagnosis and treatment of prostatitis
- Viral diseases of genital tract including urethral condylomata, AIDS and herpes
- Etiology, clinical features, investigation, diagnosis, surgical and non-surgical treatment of tuberculosis of urinary tract
- Management of radiation induced cystitis

- Etiology, clinical features, investigation, diagnosis, non-surgical and surgical treatment of schistosomiasis affecting the urinary tract
- Drug and chemical induced cystitis; management and Prophylaxis

Nephrology and Transplantation

- Structure and function of kidney including glomerular and tubular physiology
- Obstructive nephropathy with particular reference to pelvi-ureteric junction obstruction, its pathophysiology, investigation and treatment
- Etiology, pathophysiology, diagnosis and treatment of acute renal failure with particular reference to hypovolemic shock, septicemic shock and obstructive nephropathy
- The causes, investigation and management of chronic renal failure from surgical perspective
- Inter-relationship between hypertension and renal disease.
- Analgesic nephropathy
- Glomerular and tubular disease of kidney; manifestations and investigations
- Role of peritoneal dialysis, haemodialysis and haemofiltration in management of acute and chronic renal failure
- General principles of access surgery
- Techniques of renal retrieval and renal transplantation including ethical issues and selection of organ donors
- Principles of immunology and immuno-suppression
- Results and complications of renal transplantation with particular reference to urological complications.

PROCEDURAL COMPETENCIES

The clinical skills, which a specialist must have, are varied and complex.

A complete list of the same necessary for trainees and trainers is given below. It is arranged year wise and the level of competence to be achieved each year is arranged as follows:

1. Observer status
2. Assistant status
3. Performed under supervision
4. Performed independently

A candidate is expected to attain the laid down level of Competence for the following procedures by the end of each year as given below:

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
KIDNEY							
open							
Simple nephrectomy	2	5	2	10	3	5	20
Donor nephrectomy	-	-	-	-	2	5	5
Radical nephrectomy	1	5	2	5	3	5	13
Radical nephrectomy with caval thrombectomy	-	-	-	-	1	1	1
partial nephrectomy	1	2	2	3	2	3	8
Nephroureterectomy	2	2	2	3	3	1	6
Pyelolithotomy	2	5	3	5	4	5	15
Pyeloplasty	2	5	2	5	3	5	15
Drainage of abscess	2	5	3	5	4	5	15
Per cutaneous nephrostomy	2	5	3	5	4	10	20
Percutaneous renal biopsy	1	3	1	3	2	2	9
Renal transplantation	-	-	-	-	2	5	5
laparoscopic*							
Nephrectomy	1	5	2	5	2	5	15
Nephroureterectomy	1	1	2	1	2	2	4
Decortication of cyst	1	3	2	3	3	3	9
Pyeloplasty	1	2	2	2	2	3	7

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
Percutaneous /endoscopic							
PCNL	2	10	2	10	3	10	30
Ureteroscopy							
Rigid	2	20	3	20	4	10	50
Flexible	1	5	2	5	2	5	15
Retrograde pyelography	2	20	3	20	4	20	60
Insertion of d.j stent	2	10	3	20	4	20	50
URETER							
Open							
Ureterolithotomy	2	5	3	5	4	3	13
Ureterolysis	-	-	-	-	1	3	3
Ureterocalicostomy	-	-	-	-	1	2	2
Ureteric re- implantation	1	3	2	3	2	3	9
Boari's flap	1	2	2	2	2	2	6
Uretero-ureterostomy	-	-	-	-	1	2	2
Ureterostomy	-	-	-	-	1	2	2

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
BLADDER							
open							
Vesicolithotomy / cystolithotomy	2	5	3	5	4	5	15
Suprapubic cystostomy/ supra pubic catheter		5	4	10	4	5	20
Vesical diverticulectomy	1	3	2	3	3	3	9
Partial cystectomy	1	1	2	1	2	1	3
Radical cystectomy	1	3	2	3	2	3	9
Repair fistula, Vesico colic, Vesico ureteric , VVF	1	2	2	3	2	3	8
Augmentation cystoplasty adult*	1	3	2	3	2	3	9
Endoscopic							
Cystolitholapexy	2	5	4	5	4	5	15
Cystoscopy (flexible)	2	10	4	20	4	10	30
Cystoscopy (rigid)	3	10	4	10	4	20	50
TUR-BT	2	10	2	10	3	10	30
Removal of dj stent	2	10	4	10	4	20	40
Biopsy of bladder lesions	2	5	3	5	4	10	20

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
PROSTATE							
Open							
Transvesical Prostatectomy	1	3	2	3	3	3	9
Simple Retropubic Prostatectomy	1	3	2	3	3	3	9
Radical Retropubic Prostatectomy*	1	2	2	2	2	3	7
Endoscopic							
TURP	2	10	3	15	4	15	40
TUIP	2	5	3	5	4	7	17
Laser Prostatectomy*	1	2	1	3	2	3	8
URETHRA							
Urethral Catheterization	4	30	4	30	4	30	90
Urethral Dilatation	2	10	3	10	4	30	30
Open							
Urethroplasty	1	5	2	5	2	5	15
Uretherectomy	-	-	1	1	2	1	2
Insertion of sphincter*	-	-	-	-	1	1	1
Repair of hypospadias (proximal)	2	3	2	3	2	3	9
Repair of hypospadias (distal)	2	3	2	3	3	2	8
Repair of fistulae	1	1	1	1	2	1	3
Repair of Epispadias	-		-		1	2	2

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
Endoscopic							
Optical urethrotomy	2	10	3	10	4	10	30
PENIS							
Correction of cordae (Peyronie's disease)	1	1	1	1	1	1	3
Correction of priapism	1	2	2	2	2	2	6
Intracavernosal	2	3	3	3	3	3	9
Circumcision	3	5	4	5	5	5	15
Penectomy*	-	-	-	-	1	1	1
Insertion of prosthesis*	-	-	-	-	1	1	1
VAGINA							
Neovaginal reconstruction*	-	-	-	-	1	1	1
Repair of fistulae (VVF) vaginally	1	2	2	2	2	2	6
AMBIGUOUS GENITALIA							
Clitorectomy	-	-	-	-	1	1	1
Phalloplasty	-	-	-	-	1	1	1

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
TESTIS							
Open							
Testicular biopsy	1	2	2	2	3	5	9
Orchidectomy	2	5	3	5	4	5	15
Radical Orchidectomy	2	5	3	5	4	3	13
Laparoscopic							
Orchidopexy	1	2	2	2	2	2	6
SCROTUM							
Open							
Hydrocelectomy	2	5	4	5	4	5	15
Vasectomy	2	5	4	5	4	5	15
Excision of epididymal cyst	2	5	4	5	4	5	15
High ligation of varicocele (open)	2	5	3	5	4	3	13
Insertion of testicular prosthesis *	-		-		1	1	1
Laparoscopic							
Varicocele ligation/microscopic varicocelectomy	2	5	2	5	5	5	15

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
PROCEDURES							
Ureterosigmoidostomy	1	2	2	2	2	2	6
Ileal conduit	1	5	2	5	3	3	13
Continent reservoir reconstruction	1	2	1	3	2	3	8
Kock pouch							
Ileal neobladder							
Ileocolic neobladder							
Gastrocystoplasty							
Sigmoid neobladder							
MISCELLANEOUS							
Open							
Pelvic lymphadenectomy	1	5	2	5	3	3	13
Retroperitoneal lymphadenectomy	1	2	2	2	2	2	6
Inguinal hernia repair	3	3	4	3	4	3	9
Pelvic exenteration	-	-	-	-	1	1	1
Seminal vesiculectomy	-	-	-	-	1	1	1
Open adrenalectomy	1	2	1	2	2	2	6
Vasovasostomy	-	-	-	-	1	1	1

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
laparoscopic							
Pelvic lymph node dissection	1	1	1	1	1	1	3
Adrenalectomy	-	-	-	-	1	1	1
TVT/TOT	1	2	2	3	2	3	8
ICSI/TESSA	-	-	-	-	1	2	2
Trauma							
Nephrectomy	1	1	2	2	2	2	5
Repair of urinary tract injuries	1	1	2	2	2	2	5
PAEDIATRIC PROCEDURES							
Open							
Nephrectomy simple	1	5	2	5	3	3	13
Wilms nephrectomy	1	2	2	2	2	2	6
Pyeloplasty	2	5	2	5	3	3	13
Ureteric reimplant	1	5	2	5	2	5	15
Ureterostomy	1	5	2	5	3	5	15
Vesicostomy	1	5	2	5	2	5	15
Closure Vesicostomy	1	5	2	5	3	3	13
Orchidopexy for undescended testis open	2	5	3	5	4	5	15
Torsion testis	2	5	4	5	4	5	15
Hypospadias distal repair	2	5	3	5	4	3	13

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
Hypospadias 2 stage repair	1	5	2	5	2	5	15
Hypospadias fistula repair	2	5	2	5	3	3	13
Augmentation of bladder*	1	3	2	3	2	5	11
Mitrofanoff procedure*	1	3	2	3	2	5	11
Paediatric procedures endoscopic							
Cystoscopy	2	5	3	5	4	5	15
Ureteroscopy	1	5	2	5	3	5	15
Fulguration PUV	1	5	2	5	2	5	15
Injection deflux/ macroplastique for VUR	1	5	2	5	2	5	15
PCNL in child	2	10	2	10	3	5	25
Laparoscopic nephrectomy child*	1	5	2	5	2	5	15
Laparoscopic Pyeloplasty child*	1	3	2	3	2	3	9
ESWL	1	10	1	20	3	10	40
URODYNAMICS (insert number against procedure)	1	10	3	10	4	10	30
Cystometry							
UPP							
Videourodynamics							

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
VASCULAR ACCESS SURGERY*							
AVF	2	5	3	5	4	5	15
Vascular graft	1	2	1	2	2	2	6
PERM catheter	1	2	1	2	1	2	6
Tenchkoff	-	-	-	-	1	1	1
RADIOLOGY							
X-Rays reporting/ Interpretation	3	20	4	20	4	20	60
IVU reporting/ Interpretation	3	20	4	20	4	20	60
CT scan (NHCT/ Contrast CT reporting/ Interpretation	2	10	3	10	3	10	30
MRI reporting/ Interpretation	2	5	2	5	2	5	15
PET scan reporting/ Interpretation	1	2	1	2	2	2	6
Ultrasound							
Performing ultrasound Abdomen (KUB)	2	10	3	4	4	20	50
Perform TRUS	1	5	2	3	3	5	15
Perform TRUS biopsy	1	5	2	3	3	5	15
Renal Angiography	1	2	1	1	1	2	6
Ultrasound guided drainage kidney	1	5	2	2	2	5	15
MCUG/ DMSA Scan reporting/ Interpretation	2	10	3	4	4	10	30
Urethrogram Interpretation	2	10	3	4	4	10	30
Isotope Scans Interpretation	1	5	2	3	3	5	15
Others							

Competencies	Year - 1		Year - 2		Year -3		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	
Skills Development Training							
Endotrainer*	3	20hr	3	20hr	3	20 hr	60hr
Simulator training*	3	5hr	3	5hr	3	20hr	30hr
Hands on workshops	3	5hr	3	5hr	3	5hr	15hr
Research and scholarship							
Publications	author self presented	1	author self presented	1	author self presented	1	3
Presentations at scientific meetings		1		1		2	4
Participation in urology meetings,		5		5		5	15
Local/regional/national or international							

ANNUAL ACADEMIC & TRAINING SCHEDULE FOR THE MASTER OF SURGERY (MS) IN UROLOGY RESIDENCY PROGRAM (5-YEAR).

The Master of Surgery (MS) in Urology Program - follows an annual examination system. Credit hours are calculated using HEC-defined weekly contact-hour equivalence per academic year.

- 32 teaching weeks per year (excluding exams)
- Credit hours calculated using HEC weekly contact-hour equivalence
- Urology Core meetings are not conducted on the day of morbidity & Mortality schedule.
- Tumor board meetings and urological association meetings are scheduled for every month, however the meeting is rescheduled in the month of Ramazan and in the month of annual urology conference.
- Clinical service (night calls) reported separately from credit hours.

Activity	Frequency	Duration per session (Hour)	Weekly equivalent (hrs)	Annual teaching weeks	Annual contact hours
Urology Core meeting.	1 / week	1	1.0	29	29
Morbidity and Mortality meeting	1 every 4 th monthly	1	-	03	3
General ward round	1 / week	2	2.0	32	64
Consultant round	1 / week	2	2.0	32	64
Journal club	1 / week	1	1.0	32	32
Uro-Radiology meeting	1/ week	0.5	0.5	32	16
Urological association meeting (case presentation)	1 / month	1	0.25	10	10
Urology Tumor Board Meeting	1/ month	1	0.25	10	10
Operative Room-Direct Supervised hands on Surgical training.	3/week	5 hrs	15	32	480
Protected research time	Weekly	6 hrs	6.0	32	192
Total structured teaching contact hours per year					990

Activities NOT counted as credit hours (mandatory service training)

Activity	Frequency	Duration	Reporting method
Night duties/on-call	2 per month (approx.)	36 hrs each	Logbook + supervisor sign-off
Emergency cover	As roster	Variable	Competency-based assessment

Note: These hours are essential for clinical training but are not credit-bearing under HEC rules and therefore excluded from credit-hour computation.

Credit-hour conversion used:

- Theory / academic activity: 1 credit hour = 1 hour/week
- Practical / clinical / research: 1 credit hour = 3 hours/week
- Annual system expressed as two 16-week teaching blocks per academic year (32 teaching weeks/year)

A. Credits per 16-week teaching block (½-year equivalent)

Component	Weekly hrs	Category	Formula	Credits/block
Academic teaching (rounds, CME, JC, case conf, M&M, seminars)	7.0	Theory	$7.0 \div 1$	7.0
Operative Room Direct Supervised Hands on Surgical Training	15.0	Practical	$15 \div 3$	5.0
Protected research	6.0	Practical/Research	$6.0 \div 3$	2.00

Total per block = 7.0 + 5.0 + 2.00 = 14.00 credit hours

(Rounded to 2 decimal places)

B. Credits per academic year

Item	Credits
Credits per 16-week block	14.00
Blocks per year	× 2
Credits per year	28.00 CH

C. TOTAL PROGRAM CREDIT HOURS (4 years)

Item	Credits
Credits per year	28.00
Years	× 5
TOTAL MD PROGRAM CREDIT HOURS	140.00 CH

TRAINING SCHEDULE:

Residents are bound to strictly follow the rules and regulations of the institution.

MS Urology Resident is required to perform 72 hours duty per week encompassing two or three 24-hours in-hospital calls in 4 weeks schedule.

SCHEDULE OF TRAINING

TOTAL DURATION: Five Years

The initial one year of the MS Urology Resident will be in Urology, so that the urology resident is well supervised and accustomed to the urological conditions and pre-requisites of the field.

The second year is for the mandatory elective rotations. Which include 6 months of general surgery rotation and two rotations of 3 month each from the any 2 disciplines of Plastic Surgery, Pediatric Surgery or Orthopedic surgery.

ELECTIVE ROTATION

Resident will go on elective rotation for one year once he/she has worked one year in Urology.

General Surgery:

This will be six months rotation in any of the surgical ward at LUMHS Jamshoro on the mutual agreement of resident, supervisor particular ward and Postgraduate section. Main objective of this rotation is to have good overview of abdominal surgical anatomy and its proper handling. He/ She should be able to perform surgical procedures like appendectomy, hernia, and emergency laparotomy. Be able to handle the management and care of all surgical emergencies. Have read a standard text book of general surgery (e.g. Short Practice of Surgery by Bailey and Love).

Plastic surgery:

This will be three months rotation in Plastic Surgery ward LUMHS Jamshoro.

Objective of this rotation is to see reconstructive methods of different procedures especially for urological diseases like Hypospadias, Scrotal reconstruction etc.

Paediatric surgery:

This will be three months rotation at Paediatric ward LUMHS Jamshoro.

Objective of this rotation is to have proper tissue handling in children and see common abdominal surgical problems.

RESIDENT R1

1. Be able to take proper history and carry out an examination of the patients.
2. Detailed Urological examination.
3. Be fully capable of ordering relevant Urological investigation.
4. Interpretation of results and know urine exam in detail.
5. Should have read the Text book of General Urology by the end of year.
 - a. Be able to pick a topic and write a synopsis for the Dissertation
 - b. Be able to read simple ultrasounds and Interpret Plain x-rays and simple IVPs.
 - c. Assist in simple procedures like cystoscopies, retrograde and other endoscopic procedures and open surgical procedures.
6. At the end of year shall identify all endoscopic Urological instruments and their function.
7. Should be able to know their use with different combinations and have knowledge of their keep up maintenance.
8. Practically should be able to perform.
 - a. Supra-pubic cystostomy.
 - b. Urethral dilatations.
 - c. Metal dilators.
 - d. Soft bougies.
 - e. Perform transrectal biopsies of prostate.
 - f. Be able to pass CVP line.
 - g. Cardiac arrest: CPR and resuscitation of trauma patient.
9. Know about catheters of different types, when and how to use these and their management.

RESIDENT R2

1. Journal club: attend at least once week. Read at least 2 articles a week and make summary or abstract and submit it for review by the supervisor.
2. Be able to teach the House Staff the basic Urological procedures as in Year-I.
3. Attend classes and seminars in the learning of computers.
 1. Words/MS-Office 2000.
 2. Database for analysis.
 3. Power point/Excel.
4. Attend at least on international symposium held in the city OR local symposium of the different hospitals. Attend workshops in urology.
5. Attend classes for research writing and publications including statistical analysis.
6. be able to prepare a presentation of a simple subject for presentation at a local symposia and get over the “stage fright”.
7. Operative procedures: should be able to carry out at end of year-2 independently under direct supervision.
 - a. Cystoscopy.
 - b. Ureteroscopies.
 - c. Cystoretrograde.
 - d. Cystobiopsies of bladder.
 - e. Cystolitholapaxy.
 - f. Cystolithotomy.
 - g. Hydrocelectomy.
 - h. Bilateral Orchidectomy.
 - i. Ligation of Varicocele.
 - j. Pass DJ stent.
 - k. Optical Urethrotomy
 - l. Basics of TUR
 - m. Ureto-lithotomy
 - n. Pyelolithotomy
 - o. Simple Nephrectomy

8. PCN: should be able to perform a PCN.
9. Lithotripsy: Understand the principles of different Lithotripsy procedures and be able to focus a calculus on a machine.
10. be able to do an ESWL
11. ER. Be able to handle initial resuscitation of an injured patient particularly the Urological aspect.
12. To know the principles of dialysis and observe few patients on dialysis.

RESIDENT 3

1. The trainee should be competent now to take a history and examination to make a consultant level diagnosis. He/She should be able to order the relevant investigation implement the proper treatment with through knowledge of each action taken.
2. He/She should be fully versed with the investigation and now be competent to interpret ultrasound, IVP and CT scans.
3. The text should be fully read at this stage revision of each subject with literature search should start.
4. He should make presentations of different urological topics with recent update.
5. The research aspect of the dissertation should be complete by mid year and 6 months for writing and completing the dissertation, which should be totally finished by end of year-3.
6. Present cases of morbidity and mortality.
7. Operative procedures which He/She should be able to carry out independently.
 - a) Hydrocelectomy.
 - b) Orchidectomy.
 - c) Cystolithotomy.
 - d) Ureterolithotomy of middle and upper ureter.
 - e) Make a flank incision for kidney procedure
 - f) Meatoplasty.
8. Be able to do under direct supervision/independently: Simple pyelolithotomy.

9. Operative procedures He/She should be fully capable to perform without any assistance or guidance.
 1. Cystoscopy and its interpretation.
 2. Cystoretrograde.
 3. Internal Urethrotomy.
 4. Litholapaxy.
10. Be able to resect under supervision in a TURP or TURBT.
11. See URS and assist and be able to retract a URS properly out of ureter.
12. Be able to enucleate the prostate in supra public prostatectomy.
13. First assistant in all major renal surgeries.
 1. Tumours.
 2. Pyelo Nephrolithotomy (Complex calculi)
 3. Pyeloplasty
 4. Complex pelvis ureterolithotomy.
 5. Reimplantation of ureters.
 6. Cystectomy.
 7. Cystoprostatectomy.
 8. Suspension procedures. (Burch, stommy)
 9. VVF.
 10. Urethroplasty.
14. By end of year-3 have full knowledge of urodynamics, should have seen the procedure and preferably performed it.

RESIDENT 4

1. All decisions should be of a consultant level.
2. Be able to teach all students, postgraduate and house staff.
3. Well versed in attending all emergencies of complicated nature.
4. Should start writing up an original article.
5. Complete all the text and should be fully versed with modern concept. The maximum time should be spent in reading journals.
6. Apart from above should now be able to carry out following procedures independently.

- a) Do simple nephrectomy independently while complicated and tumours with assistance.
- b) Pyelolithotomy.
- c) All complex ureterolithotomy.
- d) Open prostatectomy.
- e) Endoscopies: Should be able to perform all lower tract endoscopic procedures.
- f) TURP on at least 10 patients.
- g) TURBT on at least 10 patients.
- h) URS and pneumatic lithotripsy on at least 5 patients.
- i) The paper for publication should be ready by end of year-4.
- j) Be able to conduct morbidity and mortality meeting.
- k) Be able to conduct a proper grade round like a consultant.

The aim of the training program is to produce a urological surgeon who is Safe.

- Know his limitations.
- Would be able to handle his own complications.
- Think methodically.
- Ethical.
- Have excellent knowledge (theoretical) of the subject.
- Keen to learn more and apply all he knows for betterment of patient having urological disease.

Academic Activities

Learning in clinical setting is primarily the responsibility of the Resident him / herself, under direct and indirect supervision of the faculty. The responsibility of the program administration is to provide and monitor the learning opportunities for residents. The residency program in Urology has developed a number of teaching and learning forums that can help build and improve the capabilities of the residents. Attendance to all the following meetings is mandatory.

CORE CURRICULUM MEETING

This activity is designed to fulfil the requirements of the core curriculum for residents in core years. It consists of one session every week, held every Friday from 8:00-9:00 a.m. It is mandatory for all core year residents to attend these sessions, which are supervised by the faculty. The meeting awards 1 contact hour equivalent credit hour based on the HEC criteria.

WARD ROUNDS

The chief resident leads the round with entire urology team including students, interns and residents. Cases are presented by the undergraduate and post graduate trainees followed by discussion and bed side teaching. This is bedside learning about patient care, clinical decision making and communication/counseling skills. The ward round academic activity is usually consist of 2 hours and 2 credit hours are designated per week.

The Faculty round is also a part of ward rounds. This 2 hour activity is lead by the departmental head and the faculty members. Residents experience unique flavor of multi-faculty management approaches to the patient's condition. This activity also awards 2 credit hours per week.

JOURNAL CLUB

This activity is designed to review current literature and develop in residents an ability to critically analyze the publications and data on Urology as well as to enhance orientation in clinical research. The discussion at the end of the presentation includes emphasis on both strengths and weaknesses of the work under consideration. The Chief Resident along with the faculty is the facilitator for the weekly Journal Club meeting which is held on every Friday from 12:00 – 1:00 p.m.

MORTALITY & MORBIDITY MEETING

This is the forum for the Urology Mortality & Morbidity meeting. It is held on first Friday of every fourth month between 8-9 am. Complex clinical problems and management options are discussed in this forum. The aim of this meeting is to critically reflect on the adverse outcomes. The idea of the exercise is to analyze each case and to see if something could have been done differently and document consensus and learning point for future. The resident should be cognizant of each and every detail of the case and be prepared to answer questions which will follow his presentation. Dos and Don'ts of the urology cases are discussed and risk management is addressed in detail. This meeting is credited with 1 hour academic activity and the total of 3 credit hours on annual basis.

URO-RADIOLOGY MEETING

This activity takes place on every Tuesday morning ward round where radiological images of interesting/complicated cases are displayed with brief clinical history. Urology faculty member facilitate the residents learning and helps in interpretation of imaging and clinical decision making. The 30 minutes activity is credited with 0.5 credit hours per week.

UOLOGICAL ASSOCIATION MEETING

Hyderabad chapter of Pakistan Association of Urological Surgeons organizes city wide monthly meeting in last week of month to be held in one of the tertiary care hospitals. LUMHS hosts this meeting frequently. Two case presentations/topic presentation by the residents followed by discussion by the faculty and residents. This meeting provides opportunity to the residents to interact and learn not only by the faculty from all over the city but also by the peers.

UROLOGY TUMOR BOARD MEETING

This is a multidisciplinary urology oncology hosted by LUMHS Uro-oncology team. The Residents present cases. This is held every Monthly between 9:00 – 10:00 a.m. where surgeons, pathologists and oncologists discuss presentation, histopathology, investigation and management of different patients in current perspective. Residents are expected to come prepared with literature search about the cases and are encouraged to participate in clinical decision making.

PGME LECTURES & WORKSHOPS

All urology residents will attend mandatory sessions held by PGME covering the core content for all residency programs. These sessions are part of centralized teaching organized by the PGME.

DISSERTATION

One of the training requirements is a dissertation on a topic relevant to the major subject of specialization. Dissertation topic must be approved and registered with the Advance Studies of Research Board, LUMHS within the first 12 months of training period.

The dissertation should be a piece of work embodying either a discovery of new facts or a fresh interpretation of facts or theories; in either case the work should show the candidate's capacity for data collection, data analysis, critical examination, clinical evaluation of conclusive judgment.

PRE-REQUISITE FOR SUBMISSION OF DISSERTATION

1. After completing at least one academic year from the date of registration.
2. To be submitted within the tenure of training and at least six months before the examination.
3. The student shall give at least eight presentations to the entire faculty on the topic of research and other interesting cases during the course of his/ her study.
4. The language of the thesis shall be English only.
5. Student shall submit of 11½ x 9" size in the format prescribed by the university. After approval of the Board, the thesis shall be hard bound having LIGHT GREEN colour cover.

If the thesis, though inadequate in the opinion of any of the examiners, is of sufficient merit, the examiners may recommend the grant of permission to the student to resubmit it in a revised form within a period of 6 months from the date of reviewers on a dissertation permitted to be resubmitted shall be conveyed to the candidate to enable him/her to improve it. The student shall be allowed only once chance for resubmission of dissertation in a revised form. If he/ she fails to get the dissertation accepted by majority of the reviewers even on second time, the dissertation shall be rejected.

If the dissertation is found to be satisfactory a certificate to this effect will be issued by the Advance studies of Research Board LUMHS and this certificate will form a part of the document to be submitted with the application form for taking the examination.

ASSESSMENT& EVALUATION

1. FORMATIVE EVALUATION

- Workplace Based Assessment (WPBA)
 - Mini Clinical Evaluation Exercise (Mini-CEX)
 - Direct Observation of Procedural Skills (DOPS)
 - Feedback from colleagues, faculty heads of the rotational departments.
- Feedback Proforma (Student Course Evaluation Questionnaire)
 - [HTTPS://WWW.LUMHS.EDU.PK/ADMINISTRATION/QEC/DOCS/STUDENT_COURSE_EVALUATION_QUESTIONNAIRE.PDF](https://www.lumhs.edu.pk/administration/qec/docs/student_course_evaluation_questionnaire.pdf)
- Logbooks
- Internal Evaluation
 - Single best questions
 - Long cases(presentation and discussion)
 - Daily ward rounds
 - Resident presentation in meetings

Mini-CEX:

A Mini-Clinical Evaluation Exercise is a concise, validated method of assessment consisting of a supervisor observing a trainee during a consultation with a real patient (History taking, physical examination, advising justified investigations, making differential diagnosis and discussing management options) and providing feedback to the trainee about their performance.

DOPS:

Direct observation of practical skills assessment is used for assessing competence in the practical procedures that trainees undertake. Trainee is assessed while performing

some practical/ surgical procedure. This assessment tool assesses the trainee's theoretical knowledge and procedural skills. The assessments should be made by different assessors and cover a wide range of procedures.

Mini Clinical Evaluation Exercise (Mini-CEX)

During training in Urology one Mini-CEX in each quarter on any of the following topics is to be conducted as under:

- Mini-CEX is entirely a formative tool of assessment and is to be accompanied with constructive feedback.
- Each Mini-CEX encounter extends for about 20 minutes with 05 minutes for feedback and further action plan.
- In case of unsatisfactory performance of the resident, a remedial has to be completed within stipulated time frame.
- The topics given below are to be covered accordingly, focusing each time on a different area/topic.
- Non-compliance by the resident has to be reported in quarterly feedback.
- The performance is by the supervisor of the candidates to the PG Director - MS Urology program.
- **The Designated Day for Mini-CEX Assessment is Every Friday**

Topics List of Mini-CEX:

First Year:

- History taking for Flank Pain
- History taking for Haematuria
- Counseling/Informed Consent for Surgery
- Pre-operative Management (Preparation) of Diabetic Patient for Surgery
- Pre-operative Management (Preparation) of Hypertensive Patient for Surgery
- Pre-operative Management (Preparation) of Ischemic Heart Disease Patient for Surgery
- Proper Writing of the Calls to Different Departments
- Proper Discharge Plan (Report)
- External Genitalia Examination for Hydrocele
- External Genitalia Examination for Varicocele

- External Genitalia Examination for Epididymal cyst
- Hypospadias Examination
- Digital Rectal Examination
- Suprapubic Catheter Examination
- Abdominal Incision Examination

Second Year:

- Structured IPSS History
- Prescription Writing for Medical Management of Benign
- Enlarged Prostate
- Pre-operative Counseling
- Pre-operative Patient Education
- Reviewing a Patient for Discharge
- Extrophy-Epispadias Examination
- Urethral Fistula Examination
- Perineal Scar(s) Examination
- Peyronie's Disease Examination
- Forearm/Arm Examination for Suitability of Arteriovenous Fistula
- AV Fistula Examination

Third Year:

- Management Plan for Non-Muscle Invasive Bladder Cancer (NMIBC)
- Management Plan in Active Intervention for Urolithiasis
- Decision Making for Surgical Options
- Management Plan for Renal Cell Carcinoma (Partial Nephrectomy vs. Radical Nephrectomy)
- Assessment of Renal Transplant Patient
- Post-Operative Patient Education
- Write Follow up Plan for Urocancers
- Counsel the Patient: Dietary Modification for Prevention of Urolithiasis
- PCN Tube Examination
- Renal Mass Examination
- Abdominal Mass Examination
- Double Lumen Examination

- Grafted Kidney Examination
- Femoral Line Examination
- Post-operative Drain(s) Examination
- Examination for Ambiguous Genitalia
- Testicular Tumor Examination
- **Additional Topics related to common Clinical presentations.**

Direct Observation of Procedural Skills (DOPS)

During training in Urology one DOPS in each quarter on any of the following topics is to be conducted as under:

- DOPS is entirely a formative tool of assessment and is to be accompanied with constructive feedback
- Each DOPS encounter extends for about 20 minutes with 05 minutes for feedback and further action plan
- In case of unsatisfactory performance of the resident, a remedial has to be completed within stipulated time frame
- The topics given below are to be covered accordingly, focusing each time on a different topic/procedure
- Non-compliance by the resident has to be reported in quarterly feedback.
- The performance is by the supervisor of the candidates to the PG Director - MS Urology program.
- **The Designated Day for DOPS Assessment is Every Monday**

Topics List of DOPS:

First Year:

- IV Cannulation
- IM Injection
- Blood Transfusions
- Urethral Catheterization
- Positioning of Critical Patients in Ward
- Making Lithotomy Position in OT

- Making Flank Position in OT
- Assembly of Equipment

Second Year:

- Percutaneous Nephrostomy (PCN)
- Ultrasound KUB
- Suprapubic Catheterization
- Flexible Cystoscopy
- Rigid Cystoscopy
- Double J-Stent (DJS) Placement
- Assembly of Trans-urethral Resection (TUR) System
- Rolly Ball in Trans-urethral Resection (TUR)
- Retrograde Pyelogram (RGP) in Percutaneous Nephrolithotomy
- Percutaneous Nephrolithotomy (PCNL) Puncture

Third Year:

- Extracorporeal Shock Wave Lithotripsy (ESWL)
- Urodynamics
- Suprapubic Catheterization
- Trans-urethral Incision of the Prostate (TUIP)
- Trans-urethral Resection of the Prostate (TURP) Median Lobe only
- Opening/Closing for Open Surgery
- Trans-urethral Resection of Bladder Tumor (TURBT) [Small Tumor]
- Percutaneous Nephrolithotomy (PCNL) Tract Dilatation
- Nephroscopy and Stone Retrieval
- **Additional Topics related to commonly performed procedures**

2. SUMMATIVE EVALUATION

MS part 1 examination:

This will be conducted by examination department before commencement of training.

This paper will be consisting of 100 questions in BSQ format.

Mid-Term Evaluation

Theory

- MCQs – Single Best Type 200 Questions

Clinicals

- Task Oriented Clinical Skills (TOCS) stations =10

MS part 2 Examination

Theory

- MCQS – Single Best Type 200 Questions

Clinical

- Task Oriented Clinical Skills (TOCS) stations = Minimum 10
- 4 Short Cases
- 1 Long Case

FORMAT OF LONG CASE

Candidate will have total of one, 30 minutes for history taking and clinical examination and 30 minutes for relevant discussion regarding the case

The areas for the assessment of long case will be:

- Introduction to patient.
- Informed consent
- Patience
- Art of history taking
- Able to elicit the clinical findings by appropriate clinical methods

- Way of presentation
- Ordering proper investigations regarding the case
- Differential diagnosis
- Treatment options with special emphasis on recent treatment modalities
- Discussion on prevention and prognosis

FORMAT OF SHORT CASES

Candidate will have 4 patients for short cases, 10 minutes will be allotted for each short case, candidate will move from one short case to another one after 10 minutes when set timer indicates.

Skills regarding reflexes of candidate in pressure time for relevant history, clinical examination and treatment plan.

The successful candidate must secure at least 60%marks in all these components.

BOOKS RECOMMENDED

Text

1. Textbook of Urology by Campbell-Walsh
2. General Urology by Smith.
3. Clinical Methods by Hutchison.
4. Rob and Smiths Operative Surgery (Urology).
5. Urodynamics
6. Textbook of Operative Urology.(Marshall's)

Journals

1. Journal of Urology.
2. British Journal of Urology.
3. European Urology
4. Urologic clinics of North America
5. Arab Journal of Urology.

Guidelines:

1. European Association of Urology (EAU)
2. American Association of Urology (AUA)
3. National Institute of Health and Care Excellence (NICE)



The Department
of Urology
LUMHS.
Jamshoro

DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

Specialty: MS Urology LUMHS

Time Duration = 20 mins (15 mins assessment and 5 mins feedback)

PLEASE COMPLETE THE QUESTIONNAIRE BY FILLING/CHECKING APPROPRIATE BOXES

Assessor: _____ Assessment Date: _____

Resident's Name: _____

Hospital Name: _____ R&RC Number: _____

Year of Residency: ☐ R1 ☐ R2 ☐ R3 ☐ R4 ☐ R5
Quarter: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th
Setting: ☐ O.T. ☐ Procedure Room ☐ Other: _____

Diagnosis of Patient: _____ Patient Age: _____ Sex: _____

Name of Procedure: _____

Complexity of Case/ Procedure: ☐ Low/Easy ☐ Moderate/Average ☐ High/Difficult ☐ N/A

Number of times procedure performed by Resident: _____

Please grade the following areas on the given scale:	Not Observed / Applicable	Below Expectation		Satisfactory	Above Expectation	Excellent
		1	2			
Indications, anatomy & steps of procedure						
Informed consent, with explanation of procedure and complications						
Preparation for procedure						
Use of Anesthesia, Analgesia or sedation						
Observance of asepsis						
Safe use of instruments						
Use of accepted techniques						
Management of unexpected event (or seeks help)						
Post-procedure instructions to patient and staff						
Professionalism						
Overall ability to perform whole procedure						

Assessor's Satisfaction with DOPS:

(Low) 1 2 3 4 5 (High)

Resident's Satisfaction with DOPS:

(Low) 1 2 3 4 5 (High)

Strengths	Suggestions for Improvement

Encounter to be repeated ☐ YES ☐ NO

Assessor's Signature



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Jamshoro

CLINICAL EVALUATION EXERCISE (CEX)

Specialty: MS Urology LUMHS

Time Duration = 20 mins (15 mins assessment and 5 mins feedback)

PLEASE COMPLETE THE QUESTIONNAIRE BY FILLING/CHECKING
APPROPRIATE BOXES

Assessor: _____ Assessment Date: _____

Resident's Name: _____

Hospital Name: _____ R&RC Number: _____

Year of Residency: ☐ R1 ☐ R2 ☐ R3 ☐ R4 ☐ R5

Quarter: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th

Setting: ☐ Ward ☐ Outdoor (Hospital/Community) Others: _____

Diagnosis of Patient: _____ Patient Age: _____ Sex: _____

Clinical Area: **Counseling/ Informed Consent for Surgery**

Complexity of Case/ Procedure: ☐ Low/Easy ☐ Moderate/Average ☐ High/Difficult ☐ N/A

Focus of Clinical Encounters: ☐ History taking ☐ Physical Examination ☐ Management
☐ Communication Skills ☐ Other

Please grade the following areas on the given scale:	Not Observed / Applicable	Below Expectation		Satisfactory	Above Expectation	Excellent
		1	2			
Informed Consent of patient						
Interviewing Skills						
Systematic Progression						
Presentation of positive & significant negative findings						
Justification of actions						
Professionalism						
Organization/Efficiency						
Overall clinical competence						

Assessor's Satisfaction with Mini-CEX:

(Low) 1 2 3 4 5 (High)

Resident's Satisfaction with Mini-CEX:

(Low) 1 2 3 4 5 (High)

Strengths	Suggestions for Improvement

Encounter to be repeated ☐ YES ☐ NO

Assessor's Signature