

***Residency Program
Master of Surgery (MS)
Curriculum (Phase-B)***

Urology



**Bangabandhu Sheikh Mujib Medical University
Dhaka, Bangladesh**

C o n t e n t s

01.	Introduction	03
02.	Goals and Objectives	05
03.	Admission Requirements for Phase-B Training	08
04.	Phase-B Curriculum Structure	08
05.	Teaching and Learning Methods	09
06.	Record of Training	11
07.	Research	12
08.	Assessment	12
09.	Supervision and Training Monitoring	15
10.	Curriculum Implementation, Review and Updating	16
11.	Phase-B Syllabus	17

1. Introduction:

1.1. Overview of the Speciality

The speciality of urology developed as a sub-specialization of surgery, and deals with the care of patients with disorders of the urinary system including suprarenal in male and female and, in addition, the genital system in male. It is a branch of surgery concerned with prevention, investigation and therapy of, and research on urological diseases. Care of patients with urological disorders embraces a wide range of clinical activities and urologists need a broad view of individual patients and the communities in which they live including an understanding of any prevailing healthcare inequalities. This requires knowledge of not only the diagnostic and therapeutic modalities available, but also an appreciation of the importance of the epidemiology and potential for prevention of urological diseases.

As a branch of surgical speciality, urology has a long history of surgical intervention especially in the field of stone disease and stricture of urethra. The present day urology is a highly practical skill based speciality. It includes a wide range of invasive and interventional skills as high-profile components of the workload. However, the knowledge and competence in the background areas of practice such as clinical approach, urological pharmacology and urological imaging are equally important.

Urologists generally work as hospital based specialists and need to integrate their work with other hospital based physicians, e.g. nephrologists, diabetologists cardiologists, as well as work closely with anesthesiologists, pathologists and the imaging specialities, e.g. radiology and nuclear medicine. In a community having referral system the urologists, like other specialities, need to integrate their work with the community

based primary care colleagues. In Bangladesh, a well organized referral system with associated feedback culture is yet to be developed.

With the tremendous worldwide development in knowledge and technology in treating urological disorders, sub-specialization within urology has become a commonplace with individuals focusing the development of their expertise in a particular field. Moreover, in places, it has rather been institutionalized as separate units such as, endourology, uro-oncology, pediatric urology, female urology, andrology, transplant urology, neuro urology etc. Bangabandhu Sheikh Mujib Medical University (BSMMU) possesses many of these subspecialty units in the urology department.

1.2. Urology Residency Program

After the completion of Phase-A of 2 years duration, the residents will undertake a three years intensive Phase-B training in order to achieve the levels of knowledge, skills and expertise required for clinical practice in the field of urology. The urology residency program is a competency-based program emphasizing on meaningful integration and contextualization. The two years Phase-A training program is designed to introduce into and develop the broad range of core knowledge, skills, attitudes and behaviors required to become a competent surgeon. The knowledge and skills acquired during Phase-A training are further focused and refined during Phase-B training, which is a 3 years Speciality-specific training in urology.

The teaching, learning and assessment of the curriculum is facilitated by the provision of comprehensive, educationally oriented supervision and support, which is provided to all trainees across both the phases of the Program.

2. Goals and Objectives:

2.1. Overall Goals:

- To prepare urologists who would be able to meet and respond to the changing healthcare needs and expectation of the society.
- To develop urologists possessing knowledge, skills and attitudes enough to ensure that they would be competent to practice urological medicine, safely and effectively.
- To ensure that they have appropriate foundation for lifelong learning and further training in their speciality.
- To help them develop to be critical thinkers and problem solvers when managing health problems in the community they serve.

2.2. General Objectives:

The educational and training process aims to produce urologists who: -

- Can address all aspects of the healthcare needs of patients and their families
- Maintain the highest standards appropriate in their professional field
- Are aware of current thinking about ethical and legal issues.
- Are able to act as safe independent practitioners whilst recognizing the limitation of their own expertise and are able to recognize their obligation to seek assistance of colleagues where appropriate.
- Are aware of the procedures, and able to take appropriate action, when things go wrong, both in their own practice and in that of others.

- Will be honest and objective when assessing the performance of those they have supervised and trained
- Can take advantage of information technology to enhance all aspects of patient care
- Can develop management plans for the 'Whole patient' and maintain a knowledge in other areas of medicine which impinge on the speciality of urology.
- Understand that more effective communication between them and their patients can lead to more effective treatment and care
- Apply appropriate knowledge and skill in the diagnosis and management of patients.
- Develop clinical practice which is based on an analysis of relevant clinical trials and to have an understanding of their research methodologies.
- Are able to apply the knowledge of biological and behavioral sciences in clinical practice.
- Are able to identify and take responsibility of their educational needs and the attainment of these needs.
- Have developed the skills of an effective teacher.

2.3. Specific Objectives:

In Phase-B the residents will learn general urology and different branches of urology. In this context it is expected that the residents will be able to (i) acquire knowledge [of common conditions, emergencies & rehabilitations], (ii) acquire skill [diagnostic, clinical and decision making] and (iii) develop attitude [caring, learning & ethical]. By the end of their training the residents are expected to be competent in all aspects of adult and paediatrics urology, including open and endourological procedures. Residents' progress will be

reviewed individually every three months (block) by mentor.
The residents should:

- Acquire sufficient theoretical knowledge (the "core" knowledge)
- Be able to take full history and be competent in performing a full physical examination of urological patients
- Decide whether the patient requires ambulatory care or hospitalization or referral to other health professionals
- Become competent in interpreting and evaluate the presenting symptoms and physical signs (haematuria, retention of urine, LUTS).
- Be able to interpret and evaluate the laboratory reports lying with the patients
- Plan investigations and interpret them
- Decide and implement suitable treatment
- Maintain follow up of patients
- Competent and confident to handle common emergencies and common chronic conditions including rehabilitation
- Orientation of urological instruments.
- Develop skill of good prescribing
- Establish appropriate doctor-patient relationship
- Established appropriate relationship with nurses and medical aids
- Be able to maintain the ethical and professional standard
- Develop sufficient expertise in performing the enlisted procedures : [the list is not exhaustive and the level of performance may vary

3. Admission Requirements for Phase-B Training:

- A. Residents who has successfully completed Phase-A training and passed Phase-A Final Examination are eligible for enrolment in the Phase-B Program.
- B. Candidates with FCPS / MS in General surgery can be enrolled directly into Phase-B of the residency Program.

4. Phase-B Curriculum Structure:

The training is designed to develop both the generic and speciality-specific attributes necessary to practice independently as a consultant urologist. The aim is to train individuals to provide the highest standard of service to patients with urological disorders. This includes the development of positive attitudes towards lifelong learning and the ability to adapt to future technological advances and the changing expectations of society

4.1. Phase-B: Urology Speciality Training:

In-depth speciality-specific educational and training program in this phase will make the resident competent and prepare them for the speciality qualification. It will provide educational Program covering the speciality of urology and its subspecialties, Biostatistics, Research Methodology and Medical Education along with rotation specific clinical training.

4.1.1. Expected outcomes at the completion of the Phase-B Program:

Residents of this training Program will be equipped to function effectively within the current and emerging professional, medical and societal contexts. At the completion of the training program in urology, as defined by this curriculum, it is expected that a new urologist will have developed the clinical

skills and have acquired the theoretical knowledge for competent urologist practice. It is expected that a new urologist will be able to:

- Utilize effective communication with patients and their families and with professional colleagues
- Be devoted to lifelong learning
- Be equipped to manage both acute and chronic urological diseases
- Identify the path physiology and manifestations of urological diseases, and modern therapeutics, which can be applied to patient diagnosis and management
- Apply appropriate skills to perform necessary diagnostic and therapeutic decisions
- Demonstrate a capacity to rationally analyze clinical data and published work
- Demonstrate an understanding of and commitment to the role of research in advancing medical care of urological disease
- Develop a commitment to compassionate ethical professional behavior
- Identify urological health issues of importance to the community and contribute constructively to debate about those issues
- Apply primary and secondary prevention strategies in urological disease

5. Teaching and Learning Methods:

The bulk of learning occurs as a result of clinical experiences (experiential learning, on-the-job learning) and self-directed study. The degree of self-directed learning will increase as trainees became more experienced. Teaching and learning occurs using several methods that range from formal didactic lectures to planned clinical experiences. Aspects covered will

include knowledge, skills and practices relevant to the discipline in order to achieve specific learning outcomes and competencies.

The theoretical part of the curriculum presents the current body of knowledge necessary for practice. This can be imparted using academic sessions like lectures, tutorials, clinical meetings, case presentation session, literature and presentations, grand teaching rounds, clinico-pathological meetings, morbidity/mortality review meetings, medical audit, , journal clubs, self-directed learning, conference, workshops and seminars.

The learning of the practical procedures is the essence of a curriculum of a subject related to surgery. The present day urology, being a highly practical skill based speciality that includes a wide range of invasive and interventional skills, requires a systematic, devoted, supervised training Program. Faculties directly supervise all clinical activities of the residents, including those in the operating room, where faculties work closely with the residents to develop surgical skills.

5.1. Phase-B Training Rotations:

Urology speciality training comprises rotations in:

General Urology	- 18m
Uro-onchology	- 6m
Paediatric Urology	- 3m
Transplant Urology	- 3m
Female Urology & Andrology	- 3m
Neurourology	- 3m

5.2. Training Attitude:

All the rotations require the whole-hearted presence of the residents in the respective inpatients, outpatients, emergency room, minor and major procedure rooms. The trainees will

uphold a positive attitude with sympathy and kindness address all aspects of the healthcare needs of patients and their families. Maintain the highest standards appropriate in their professional field. Are aware of current thinking about ethical and legal issues.

6. Record of Training:

The evidence required to confirm progress through training includes:

- Details of the training rotations, the training plan approved with weekly timetables and duty rosters; and numbers of practical procedures and outcomes.
- Confirmations of attendance at events of the educational Program, at departmental and Interdepartmental meetings and other educational events
- Confirmation (certificates) of attendance at subject-based/skills-training/instructional courses.
- Recorded attendance at conference and meetings.
- A properly completed logbook with entries capable of testifying to the training objectives which have been attained and the standard of performance achieved.
- CME activity
- Supervisor's reports on observed performance (in the workplace): of duties, practical procedures, of presentations made and teaching activity: of advising and working with others, of standards of case notes, correspondence and communication with others.

6.1. Logbook:

Residents are required to maintain a logbook in which entries of academic/professional work done during the period of training should be made on a daily basis, and signed by the

supervisor. Completed and duly certified logbook will form a part of the application for appearing in Phase Final Examinations.

6.2. Portfolio:

This is a collection of evidence documenting trainee's learning and achievements during their training. The trainee takes responsibilities for the portfolio's creation and maintenance. It will form the basis of assessment of progression.

7. Research:

Development of research competencies forms an important part of curriculum of the Residency Program as they are an essential set of skills for effective clinical practice. Undertaking research helps to develop critical thinking and the ability to review medical literature. Every Resident shall carry out the work on an assigned research project under the guidance of a recognized supervisor; the project shall be written and submitted in the form of a Thesis.

8. Assessment:

The assessment for certification of the MS degree of the University is comprehensive, integrated and phase-centered attempting to identify attributes expected from specialists for independent practice and lifelong learning and covers cognitive, psychomotor and affective domains. The assessment keeps strict reference to the components, the contents, the competencies and the criteria laid down in the curriculum. Assessment includes both Formative Assessment and Summative (Phase final) Examinations.

8.1. Formative Assessment:

Formative assessments will be conducted throughout the training phases. They will be carried out for tracking the

progress of residents, providing feedback, and preparing them for final assessment (Phase completion exams).

There will be Continuous (day-to-day) and Periodic type of formative assessment

- **Continuous (day-to-day) formative assessment** in classroom and workplace settings provides guide to a resident's learning and a faculty's teaching / learning strategies to ensure formative lesson / training outcomes.
- **Periodic formative assessment** is quasi-formal and is directed to assessing the outcome of a **block placement or academic module completion**. They are held at the end of Block Placement and Academic Module Completion. The contents of such examinations include **Block Units** of the Training Curriculum and **Academic Module Units** of the Academic Curriculum.

End of Block Assessment (EBA): End of Block Assessment (EBA) is a periodic formative assessment and is undertaken after completion of each training block, assessing knowledge, skills and attitude of the residents. Components of EBA are written, Clinical and oral examination, Structured Clinical Assessment (SCA), medical record review, logbook assessment and Portfolio assessment. Unsatisfactory block training must be satisfactorily completed by undergoing further training for the block to be eligible for appearing in the next phase complete examination.

End of Block Assessment (EBA) Sheet

Category of assessment	Assessment scale (score/grade)	Score/grads achieved
Written examination	Total marks 100	
Clinical examination	Total marks 100	
Structured clinical Assessment	Total marks 50	
Oral examination	Total marks 50	
Medical record review	Satisfactory: 80-100 % satisfactorily completed Unsatisfactory: <80% satisfactorily completed	
Log book assessment	Complete: 80-100% of the task satisfactorily completed Recoverable: 60-79 % of the task satisfactorily completed Irrecoverable: <60% of the task satisfactorily completed	
Portfolio assessment	Up to date : 80-100% completed and satisfactory Deficient: <80% completed and satisfactory	
Resident work-based Competence assessment: a) Clinical competency b) Communication skill c) Scholarship d) Professionalism	Average Rating scale 1 to 10	

Formative assessment for Academic modules for Biostatistics and Research Methodology and Medical Education is done in the first nine months of Phase-B training. Residents getting unsatisfactory grade must achieve satisfactory grade by appearing the re-evaluation examination before sitting for the Phase-B Final Examination for certification.

8.2. Summative Examination:

The Phase-B Final Examination can be undertaken only after passing the Phase-A Final Examination and after successful completion of Phase-B Training. The Phase-B Final Examination is considered as the exit examination.

Phase Final examinations will have following components:

- Written examination: paper-1 and paper-2
- Clinical examination:
 - Long case (1)
 - Short cases (4)
 - SCA (10 Stations)
- Oral examination
- Thesis Evaluation

9. Supervision and Training Monitoring:

Training should incorporate the principle of gradually increasing responsibility, and provide each trainee with a sufficient scope, volume and variety of experience in a range of settings that include inpatients, outpatients, emergency and intensive care. All elements of work in training rotation must be supervised with the level of supervision varying depending on the experience of the trainee and the clinical exposure. Outpatient and referral supervision must routinely include the opportunity to personally discuss all cases. As training progresses the trainee should have the opportunity for increasing autonomy, consistent with safe and effective care for the patient. Trainees will at all times have a named Supervisor, responsible for overseeing their education.

Supervisors are responsible for supervision of learning throughout the program to ensure patient and / or laboratory safety, service delivery as well as the progress of the resident with learning and performance. They set the lesson plans based on the curriculum, undertake appraisal, review progress

against the curriculum, give feedback on both formative and summative assessments as well as sign the logbook and portfolio. The residents are made aware of their limitations and are encouraged to seek advice and receive help at all times.

The Course Coordinator of each department coordinates all training and academic activities of the program in collaboration with the **Course Managers**. The **Course Director** of each faculty directs guides and manages curricular activities under his / her jurisdiction and is the person to be reported to for all events and performances of the residents and the supervisors.

10. Curriculum Implementation, Review and Updating:

Both Supervisors and Residents are expected to have a good knowledge of the curriculum and should use it as a guide for their training Program.

Since urology has historically been rapidly changing speciality, the need for review and up-dating of curricula is evident. The curriculum is specifically designed to guide an educational process and will continue to be the subject of active redrafting, to reflect changes in both urology and educational theory and practice. Residents and Supervisors are encouraged to discuss the curriculum and to feedback on content and issue regarding implementation at Residency Course Director. Review will be time tabled to occur annually for any minor changes to the curriculum. The Curriculum will be reviewed with input from the various subspecialties of urology.

Close interaction of the faculty members with the residents during the rotational framework is the key to a successful implementation of the curriculum. The faculty members will be deeply involved in the learning process both in educational activity and in supervised patient care activity during clinical training rotations.

More ever they will be a part of assessment process and will thoughtfully recommend positive feedback on learning and assessment process so as to achieve rotation specific competency objectives.

11. Phase-B Syllabus:

The educational process in urology aims to provide basic knowledge, intellectual, clinical and transferable skills to produce competent specialists in urology. These specialists will be capable of providing specialized care of the highest order to patients with urological disorders in the community as well as tertiary centers. They shall recognize the health needs of the community and carry out professional obligations ethically and keeping their standards by engaging in continuing medical education. The program also aims to introduce the candidate to the basics of scientific medical research.

11.1. Scientific basis of urology

11.1.1. Basic Principles in urology

- Explain genitourinary physiology and anatomy
- Explain genitourinary biochemistry
- Apply clinical skills to diagnose and manage genitourinary conditions and diseases

11.1.2. Presentations and Manifestations of Urological Disease

- Assess and treat patients presenting with acute retention of urine
- Assess and treat patients presenting with chronic retention of urine
- Assess and treat patients presenting with pain in loin, flank, lower abdomen, groin and scrotum.
- Assess and treat patients with acute renal failure
- Assess and treat patients with chronic renal failure
- Assess and treat patients with haematuria.
- Assess patients presenting with urological manifestations of non-urological disorders

11.1.3. Congenital and inherited Disease

- Diagnose and manage patients with inherited **Urological** disease
- Diagnose and manage patients with common forms of congenital **Urological** disease

11.1.4. At Risk individuals and Groups

- Assess and treat urological disease in patients who are pregnant or planning pregnancy
- Assess and manage urological disease in elderly patients
- Assess and manage urological disease in patients with co-morbidity
- Explain the risk of driving following a urology illness and advise patients on fitness to drive

11.2. Diseases and Presentations**11.2.1. General Urology**

11.2.1.a. Aim: At the end of the rotation a student should

(In out- patient department)

- Obtain complete and accurate patient histories
- Perform thorough and appropriate physical examination
- Order and interpret appropriate laboratory and radiological tests,
- Integrate information meaningfully and coherently
- Generate appropriate differential diagnosis
- Be able to identify and discuss pathophysiology of urologic disease processes
- Intelligently discuss diagnosis, evaluation and treatment of common urologic disorders
- Apply knowledge to solve clinical dilemmas
- Understand rationale for varied approaches to clinical problem

- Be able to perform basic urologic studies including: urine analysis, bladder scan, transrectal ultrasound and biopsy of the prostate urodynamic studies, etc.

(In in-patient department)

- Develops appropriate evaluation and treatment plan for preoperative and postoperative patients
- Can discuss rationale and risks of commonly performed surgical cases
- Reads about surgical procedures in advance
- Counsel the patients & relatives regarding the procedure & its outcome.
- Demonstrates surgical proficiency and technical ability during endoscopic procedures such as cystoscopy, ureteroscopy and percutaneous renal surgery
- Demonstrate surgical proficiency in ESWL
- Show surgical proficiency and technical ability during commonly performed open surgical procedures
- Effectively documents operative details, post operative advice, discharge summary /case summary of patients
 - Demonstrates surgical proficiency and technical ability during laparoscopic procedures
 - Effectively identifies and manages postoperative clinical problems
 - Plans outpatient follow-up visits as needed

11.2.1.b Syllabus

- Applied Basic science
Anatomy, Physiology, Biochemistry, Pharmacology and Pathology including Genetics, immunology etc. of the genitourinary tract

- Genitourinary & urological emergencies:-
 - Trauma to genitourinary tract
 - Priapism
 - Torsion of the testis
 - Acute retention of urine
 - Clot retention
 - Iatrogenic injury of genitourinary system
 - Strictures of genitourinary tract
 - Acute scrotum
- Obstructive uropathy
Phimosis, Meatal stenosis, Urethral stricture, PUV, BNO, BPH, Neurogenic bladder, Mega ureter, VUJ obstruction, Ureteral obstruction, PUJ obstruction.
- Radiology/ Imaging:-
 - Basics of radiography, contrast agent
 - Plain abdomen KUB film
 - Urography(IVU,RGU,MCU,RGP,Percutaneous)
 - Angiography
 - Sonography(Conventional,Colour Doppler,TRUS)
 - CT scan, CT urogram, MRI
 - Radio-Isotope Scan(DTPA, DMSA, Bone scan)
- Urolithiasis:-
 - Urinary stone disease
 - Medical renal diseases due to urolithiasis
- Diseases of adrenal gland
- Varicocele, Inguinoscrotal swelling
- Prostatitis, Genitourinary infection, Interstitial cystitis
- Cystic diseases of kidney,Retroperitoneal mass & fibrosis, Urinary fistula
- Minimal Invasive Surgery(Laparoscopy)
- Endoscopic procedures (Endourology)
- ESWL, PCNL
- Open surgical procedures
- Urological Audit
- Recent advance in urology.

11.2.1.c. Block content

<p>General Urology Block-1 Basic clinical & technical aspects History taking of an urological patient General exam of urological patients Interpretation of common urological investigations Orientation of urological armamentarium Care of urological instrument Haematuria Retention of urine LUTS.</p> <p>General Urology Block-2</p> <p>Obstructive uropathy and Office urology Phimosis Meatal stenosis Urethral stricture PUV BNO BPH Neurogenic bladder. Mega ureter. VUJ obstruction . Ureteral obstruction. Puj obstruction.. Nuclear studies.</p> <p>General Urology Block-3 Genitourinary & urological emergencies Trauma to genitourinary tract Priapism.</p>	<p>General Urology Block-4 Urolithiasis & office urology Stone disease, ESWL Medical renal diseases due to urolithiasis. Radiology/ Imaging. Office urology procedures.</p> <p>General Urology Block-5 Diseases of adrenal gland . Varicocele. Hydrocele. Incomplete descend of testis. Prostatitis. Genitourinary infection. Interstitial cystitis. Cystic diseases of kidney. Retroperitoneal mass & fibrosis. Urinary fistulas.</p> <p>General Urology Block-6 MIS and Endoscopic procedures Open surgical procedures Urological Audit Decision making in urology.</p> <p>Urooncology Block-1 Tumors of the adrenal gland. Renal parenchymal neoplasm Urothelial carcinoma (upper tract) Testicular tumor. FNAC</p>
--	---

Torsion of the testis. Acute retention of urine. Clot retention. Iatrogenic injury of genitourinary system. Strictures of genitourinary tract. Acute scrotum.	Histopathology/Cytology Tumor markers TNM classification CIS Bladder biopsy, Prostate biopsy Urine cytology
--	--

11.2.2. Uro-Oncology

11.2.2.a. Aims:

(In out- patient department)

- obtains complete and accurate patient histories
- performs thorough and appropriate physical exam
- orders and interprets appropriate laboratory and radiological tests
- integrates information meaningfully and coherently
- generates appropriate differential diagnosis
- is able to identify and discuss pathophysiology of urooncologic disease processes
- can intelligently discuss diagnosis, evaluation and treatment of common urologic malignancy.
- Counsel the patient relative about the disease, operative complications and follow up.
- understands rationale for varied approaches to clinical problem
- Can know the technique of breaking the bad news

(In the in-patient department)

- develops appropriate evaluation and treatment plan for preoperative and postoperative patients
- can discuss rationale and risks of commonly performed surgical cases
- reads about surgical procedures in advance

- demonstrates surgical proficiency and technical ability during commonly performed open surgical procedures
- demonstrates surgical proficiency and technical ability during laparoscopic procedures
- effectively identifies and manages postoperative clinical problems
- plans outpatient follow-up visits as needed

11.2.2.b. Syllabus

- Tumours of the adrenal gland
- Renal parenchymal neoplasm
- Urothelial carcinoma (upper tract)
- Testicular tumour
- FNAC, Histopathology, Urine cytology
- Tumour markers, TNM classification
- CIS, Bladder biopsy, Prostate biopsy
- Tumours of the bladder, prostate, urethra & penis
- Chemotherapy of urological tumours
- Radiotherapy & Brachytherapy of Genitourinary tumours
- Urinary diversions & bladder substitution
- Intravesical therapies
- Immunotherapy, Hormone therapy
- Palliative care in urological malignancy
- Childhood urological tumours.

11.2.2.c. Block content

Urooncology Block-1	Urooncology Block-2
Tumors of the adrenal gland.	Tumors of the bladder, prostate, urethra & penis
Renal parenchymal neoplasm	Chemotherapy of urological tumors.
Urothelial carcinoma (upper tract)	Radiotherapy & brachytherapy of Genitourinary tumor.
Testicular tumor.	Urinary diversions & bladder substitution
FNAC	Intravesical therapies
Histopathology/Cytology	Immunotherapy, hormone therapy
Tumor markers	Palliative care in urological malignancy.
TNM classification	Childhood urological tumour
CIS	
Bladder biopsy, Prostate biopsy	
Urine cytology	

11.2.3. Paediatric Urology**11.2.3.a. Aims :****(In out- patient department)**

obtains complete and accurate pediatric histories through parent performs thorough and appropriate physical exams orders and interprets appropriate laboratory and radiological tests integrates information meaningfully and coherently generates appropriate differential diagnosis is able to identify and discuss embryology/pathophysiology of pediatric urologic disease can intelligently discuss diagnosis, evaluation and treatment of common pediatric urologic disorders applies knowledge to solve clinical dilemmas understands rationale for varied approaches to clinical problem able to perform pediatric urodynamic studies

(In in-patient department)

develops appropriate evaluation and treatment plan for preoperative and postoperative pediatric patients can discuss rationale and risks of commonly performed surgical cases with patient and parent reads about surgical procedures in advance demonstrates surgical proficiency and technical ability during endoscopic procedures such as pediatric cystoscopy, ureteroscopy demonstrates surgical proficiency and technical ability during commonly performed open surgical procedures: pyeloplasty, ureteroneocystostomy, hypospadias repair effectively identifies and manages postoperative clinical problems plans outpatient follow-up visits as needed

11.2.3.b. Syllabus

- Perinatal diagnosis of urological disease & counseling
- Congenital anomalies:-
 - Hypospadias, Epispadias, Ectopia vesicae
 - VUR, PUV, PUJO, VUJO, Megaureter
 - Incomplete descent of testis
 - Ambiguous genitalia
- Phimosis, Paraphimosis, Circumcision
- Enuresis, Incontinence of urine
- Urinary tract infection in children
- Voiding dysfunction in children, Neurogenic bladder
- Acute scrotum
- Genitourinary trauma in children
- Childhood urological tumours
- Urolithiasis in children
- Renal failure in children & Paediatric renal transplantation
- Anaesthesia for paediatric urological procedures.

11.2.3.c. Block content

Paediatric Urology Block	Incomplete descent of testis
Perinatal diagnosis of urological disease & counselling	Inguinoscrotal swelling
Congenital anomalies:- like	Enuresis
Hypospadias	Urinary tract infection in children.
Epispadias	Incontinence of urine
Ectopia vesicae	Voiding dysfunction in children, Neurogenic Bladder.
VUR	Acute scrotum.
PUV	Genitourinary trauma in children, Childhood urological tumor
Ambiguous genitalia	Urolithiasis in children.
Megaureter	Renal failure in children & paediatric renal transplantation.
PUJO	Anaesthesia for paediatric urological procedure.
VUJO	
Phimosis	
Paraphimosis	
Circumcision	

11.2.4. Female Urology & Andrology**11.2.4.a. Aims****Female Urology**

- Review of anatomy, physiology & pathology of disorder of female urogenital tract.
- Evaluation of female urogenital disorder specially urinary incontinence, pelvic
- floor prolapse, voiding dysfunction , UTI , urethral syndrome etc through history and physical exam.
- To understand and be able to perform examination of female urogenital tract.
- Be able to gain knowledge and to manage incontinence related disorder in female.
- Be able to get expertise to manage pelvic organ prolapse disorder.
- To gain knowledge of operative management of female urinary many disorder and their complication.

Andrology**(In out- patient/ in-patient department)**

- Demonstrate a thorough understanding of the physiology and pathophysiology of male reproduction, including the process of spermatogenesis.
- Understand the embryology, anatomy, and physiology of the male reproductive system.
 - To understand and be able to perform a comprehensive diagnostic evaluation of the infertile male.
 - Demonstrate knowledge of the commonly performed diagnostic and therapeutic procedures for male factor infertility including the techniques available, indications for each procedure, potential complications, and success rates.
 - To gain exposure to the basic microsurgical techniques used in the surgical treatment of male infertility.

11.2.4.b. Syllabus:**Female Urology**

- Congenital anomalies of female genitourinary system
- Genitourinary fistula [VVF,UVF(ureterovaginal),UVF(urethrovaginal),RVF(rectovaginal)]
- Incontinence of urine, Cystocele, Rectocele
- Urological problem during pregnancy
- Female sexual dysfunction

Syllabus: Andrology

- Congenital anomalies of male genitalia
- Hypogonadism, Male infertility, Peyronies disease
- Karyotyping, Semen analysis, Testicular biopsy
- Male sexual dysfunction, Penile prosthesis
- Vesectomy, Vesectomy reversal
- ART(assisted reproductive technique).

11.2.4.c. Block content

Female Urology & Andrology Block. Female urology : Congenital anomalies of female genitourinary system. Incontinence of urine Genitourinary fistula Cystocele Rectocele Urological problem during pregnancy Urodynamic study. Female sexual dysfunction	Andrology : Congenital anomalies of male genitalia. Hypogonadism. Male infertility Karyotyping Peyronies disease Male sexual dysfunction Penile prosthesis ART, Vesectomy, Vesectomy Reversal
--	---

11.2.5. NEURO-UROLOGY**11.2.5.a. Aims**

- Review of anatomy, physiology & pharmacology of the neural control of lower urinary tract.
- Evaluation of urinary incontinence, voiding dysfunction through history and physical exam.
- To understand and be able to take history and perform neurological examination.
- Be able to gain knowledge and to manage incontinence related disorder.
- To gain knowledge of non-operative management of neuropathic disorders involving GU system
- To gain knowledge of operative management of neuropathic disorders involving GU system and their complication.

11.2.5.b. Syllabus

- Neurophysiology of lower urinary tract
- Neuropharmacology of lower urinary tract
- Uroflowmetry, Urodynamic study

- Overactive bladder, Neurogenic bladder, Sensory disorder of bladder
- Urinary incontinence, CISC
- Operations for neurogenic bladder
- Voiding dysfunction-Female, Children, Adult.

11.2.5.c. Block content

Neurourology Block. Neurophysiology of lower urinary tract Neuropharmacology of lower urinary tract Uroflowmetry. Urodynamic study. Overactive bladder.	Neurogenic bladder. Sensory disorder of bladder. Urinary incontinence. CISC Operations for neurogenic bladder Voiding dysfunction in-Female, Children and Adult
---	---

11.2.6. Transplant Urology**11.2.6.a Syllabus**

- Organ act 1999, organ trading, organ trafficking
- Evaluation of donor, CT angiogram, IVU, HLA Tissue typing
- Evaluation of recipient
- Psychiatric evaluation for transplant patient
- Overview of medical renal disease
- Donor Nephrectomy, Cadaver kidney harvesting for transplantation
- Renal perfusion, Bench surgery
- Recipient surgery (Kidney transplantation)
- Complications of Renal transplantation (Lymphocele, Urinary leakage, Rejection, Vascular complication)
- Immunosuppressive drugs
- Renal biopsy
- Catheterization for vascular access
- Dialysis (Haemodialysis, Peritoneal dialysis, CAPD)

- Post operative management & Follow up of kidney donor & recipient
- Colour Doppler, Nuclear imaging for transplant evaluation.

11.2.6.b. Block content

Transplantation Block. Vascular access for haemodialysis Organ act 1999, organ trading, organ trafficking Evaluation of donor, CT angiogram, IVU, HLA Tissue typing Evaluation of recipient Psychiatric evaluation transplant patient for. Overview of medical renal disease Donor Nephrectomy, Cadaver kidney harvesting for transplantation. Renal perfusion, Bench surgery Recipient surgery (Kidney transplantation)	Complications of Renal transplantation-Lymphocele -Urinary leakage - Vascular complication - Rejection Immunosuppressive drugs Renal biopsy Catheterization for vascular access Dialysis- Haemodialysis Peritoneal dialysis CAPD Post operative management & Follow up of kidney donor & recipient Colour Doppler & Nuclear imaging for transplant evaluation
--	--

11.3. Practical Performance, Procedures and Investigations

I. Urinary drainage

- Urethral catheterization, Suprapubic catheterization, PCN

II. Neurourological procedures

- Perform and interpret uroflowmetry, urodynamics, Urological ultrasonography

III. Urological imaging:

- Use radiation equipment in the diagnosis, assessment and treatment of urological patients
- Define the indications for nuclear urology and interpret the results of common urological nuclear medicine investigations
- Explain the applications and limitations of urological computed tomography (CT) and urological Magnetic resonance (CMR) imaging
- Perform and interpret urological angiography

IV. Ambulatory Care

- Assess and manage patients in the ambulatory care (outpatient) setting