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# UROLOGY

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## M.Ch Program



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PONDY-CUDDALORE MAIN ROAD  
607402

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## Acknowledgement

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# Sri Balaji University

Mahatma Gandhi Medical College & Research Institute

## Department of Urology

### MCh Superspeciality Program

#### **1. Preamble:**

The purpose of PG education is to create super specialists who would provide high-quality health care and advance the cause of science through research & training. The purpose of Mch Urology is to standardize Urology teaching at the Post Graduate level throughout the country so that it will benefit in achieving uniformity in undergraduate teaching as well and resultantly creating competent urologists with appropriate expertise. The purpose of this document is to provide teachers and learners with illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by subject-content specialists. The Reconciliation Board of Academic Council has attempted to render uniformity without compromise to the purpose and content of the document. Compromise in the purity of syntax has been made in order to preserve the purpose and content. This has necessitated the change of heading “domains of learning” to “competent learning”.

#### **2. Program Educational Objectives (PEO):**

- o **PEO1:** Specialist who can provide comprehensive care related to Urology over and above the physician of the first contact.
- o **PEO2:** Leader and team member who understands the health care system and acts to provide safe patient care with accountability and responsibility.
- o **PEO3:** Communicator possessing adequate communication skills to convey the required information in an appropriate manner in a various health care settings.
- o **PEO4:** Lifelong learner keen on updating oneself regarding the advancement in the health care field and able to perform the role of researcher and teacher
- o **PEO5:** Professional who understands and follows the principle of bio-ethics / ethics related to the health care system.

### **3. Program Outcome (PO):**

After three years of the residency program, postgraduate should be able to

o **PO1:** Diagnose and appropriately manage common urological ailments in a given situation.(C1,C2)

o **PO2:** Perform common minor & major Urological procedures and provide Peri- operative care. (C2, C3, C4)

o **PO3:**Identify situations calling for urgent or early uro - surgical intervention and refer at the

The optimum time to the appropriate centers ( C2, C3, C4)

o **PO 4:**provide and coordinate emergency resuscitative measures in acute uro - surgical

Situations including trauma (C2, C3)

o **PO5:** Identify patient safety and system approach to medical errors. (C2, C4)

o **PO6:** Perform a surgical audit on a regular basis and maintain records (manual and/or electronic) for life. (C2, C4)

o **PO7:** Communicate with stakeholders of the health care system.

o **PO8:** Update knowledge in recent advances and newer techniques in the management of the patients.(C4).

o **PO9:** Develop & execute a protocol for a scientific research project, collect and analyze the data and scientifically communicate to the others

o **POD10:** Perform Self Directed Learning and Critical appraisal of medical literature. .(C2, C4)

o **PO11:** 1. The student will show integrity, accountability, respect, compassion, and dedicated patient care.(C2, C4)

o **PO 12:** The student will demonstrate a commitment to excellence and continuous professional development..(C2, C4)

**PO 13:** The student should demonstrate a commitment to ethical principles relating to providing patient care, the confidentiality of patient information, and informed consent..(C2, C4)

**PO14.** The student should show sensitivity and responsiveness to patients' culture, age, gender, and disabilities..(C2, C4)

## **4. COURSE AND COURSE OBJECTIVES**

At the end of urology residency for 3 years - Each resident is expected to assimilate all the following components of the course and course objectives.

### **COURSE -1 [C1]: BASIC SCIENCES (APPLIED)**

- Apply the basic knowledge of Urology discipline essentially in practice of clinical urology inclusive of molecular & cellular urology, at all levels.

### **COURSE - 2 [C2]: CLINICAL UROLOGY INCLUDING PEDIATRIC UROLOGY**

- Consistent with rational clinical decision making in urology.
- Competent to observe the universal protocol and management as applied urological practice in adult and geriatric population as well, as applied to the local and regional community perspectives.
- Basic approach and guidelines of management of male reproductive and sexual medicine.
- Should have acquired basic approaches and management in urological ailments from prenatal, postnatal & adolescent age groups.

### **COURSE - 3 [C3]: DIAGNOSTIC AND OPERATIVE UROLOGY**

- Adequate knowledge of all modality of imaging sciences, diagnostic and interventional as applied in current urology practice.
- Competent to handle all uncomplicated endo-urological procedures.
- All open urological procedures from ablative to reconstructive procedures with access to renal transplantation procedures as part of the team.

### **COURSE - 4 [C4]: RECENT ADVANCE IN UROLOGY**

- Absolutely updated with the current publications of indexed journals related to clinical urology .
- Also expected to have basic knowledge of experimental urology as applicable to clinical practice as a future prospective - promoting translational research from bedside to practice.



## **4.1 DOMAIN**

### **4.1.1 COGNITIVE**

- 1) To diagnose urological diseases based on clinical methods.
- 2) To interpret relevant laboratory, radiological and urological investigations for the purpose of diagnosis.
- 3) To arrive at a treatment plan/s based on 1 & 2 and discuss the pros and cons with the patient and his family.
- 4) Be able to carry out efficient management of all types of urological emergencies after quickly assessing the patient and available clinical and investigational information. To keep abreast of the current knowledge and recent advances in the field by self-learning and /or participating in continuing Medical Education programmers.
- 5) To deliver preventive and rehabilitative care.
- 6) To organize and manage administrative responsibilities for routine day to day work as well as emergent/urgent situations.
- 7) To understand the functional principles of various biomedical equipments used in invasive and non invasive urology.
- 8) To carry out research and publications in the field.
- 9) To teach the medical and other paramedical students/staff and develop learning resource material for them.

### **4.1.2 SKILLS:**

#### **Clinical Urology**

The candidate would be given adequate training during the course so that he/she will be able to perform and interpret various non invasive techniques including:

- a. Urodynamics
- b. Ultrasonography related to kidney, ureter, bladder region and Transrectal Ultrasound.
- c. Penile Doppler related to impotence.

The candidate would be given adequate exposure in choosing other non invasive urological investigatory techniques including CT, MRI & Nuclear Scan appropriate to the situation.

### **Operative Urology**

Special attention will be paid to improve the operative skill of the candidate. He/ She shall be trained to take independent operative decision. In a time bound schedule, an opportunity will be accorded to perform all the major open as well as endoscopic procedures so as to let him develop mastery in the essential procedures. Candidates will be required to maintain a logbook of operative procedures with details of complications, if any, and their management. This will be reviewed every three months. Completed logbook is to be submitted before the practical examination and will be reviewed by the external examiners.

#### **0 – 6 Months**

A candidate is supposed to master the following procedures.

1) **Diagnostic Procedure:** Cystourethroscopy, retrograde pyelography, DJ Stenting etc. Interpretation of normal and abnormal findings in relation to gross inflammation, obstructive and neoplastic changes in the lower urinary tract.

2) **Minor Urological Procedure:** Needle biopsy of the prostate, dilatation, trocar cystostomy, open cystostomy, orchiectomy, circumcision, meatotomy/meatoplasty, Arterio – venous shunts, excision of urethral caruncle.

3) **Uro – Radiological Procedures:** During this period a candidate should perform various uro-radiological & imaging procedure like Retrograde Urethrogram & Micturating Cystourethrogram, Cystogram, Nephrostogram, Sinogram, Antegrade Pyelography, Interpretation of Ultrasound & Computerized Tomography scans and Renography, Renal Angiography including Digital Subtraction Angiography & Venography

and MRI.

### **06 – 09 Months**

1. A candidate should learn, perform and interpret Urodynamics studies like Cystometrogram, Electromyography & Urethral Pressure Profilometry & Video Urodynamics.

2. He / She will also perform interpret various test, Doppler and Rigiscan.

### **09 – 23 Months**

He / She will assist and perform following procedures.

1) **Endoscopic Surgery:** Internal urothrotomy, Bladder neck Incision, Litholopaxy, cystolithotripsy, insertion & retrieval of bladder & ureteral stent, ureteral meatotomy, endoscopic suspension of bladder neck, Transurethral resection of bladder tumour.

2) **Surgical Procedures:** Simple nephrectomy, radical nephrectomy, cystolithotomy ureterolithotomy, pyelolithotomy, nephrostomy, pyeloplasty, various urethroplasties. Retropubic & Transvesical prostatectomy, surgery for undescended testis, partial and total amputation of penis, extended pyelolithotomy, VVF repair.

### **24 – 36 Months**

#### **Open Surgery**

Candidate should learn more complex surgical procedure like – Transpubic Urethroplasty, Hypospadias Repair, Augmentation Cystoplasty, Anatomic Nephrolithotomy under hypothermia, Boari's Flap Procedure, Exstrophy Closure, Urinary Diversion, Ureteroneocystostomy, Partial and Total Cystectomy, Nephroureterectomy, penile prosthesis, Artificial Urinary Sphincter, Microsurgical, Vasoepididymostomy and Vasovasostomy, Undiversion, Renal Transplant Surgery and AV Fistulae, Retroperitoneal Lymphadenectomy and Basic Laparoscopic Procedures.

## **Endoscopic Procedure**

Transurethral Resection of Prostate, Percutaneous Nephrolithotomy, Uretero – Renoscopy, Laser Surgery, Other Endourological Procedures etc.

Efforts will be made that the candidate is able to perform the following minimum stipulated number of procedures within three years of his training.

1. Endoscopies – 100
2. Urethroplasties – 05
3. Internal Urethrotomy – 20
4. Internal Tract Reconstructions – 05
5. Repair of Vesicovaginal Fistulae – 02
6. Pyeloplasty – 05
7. Hypospadias Repair – 05
8. Transurethral Resection of Prostate – 25 - 50
9. Uretero – Renoscopy – 25
10. Percutaneous Nephrolithotomy – 15

In addition to above mentioned procedures candidates will perform/assist minimum of two to five of each of following procedures depending upon the availability of the material.

1. Nephrectomy for Pyonephrosis.
2. Surgical Treatment of stress Urinary Incontinence.
3. Radical Cystoprostatectomy.
4. Radical Prostatectomy.
5. Radical Nephrectomy.
6. Ureteroneocystostomy.
7. Retroperitoneal lymph node dissection.
8. Ileal replacement.

9. Orthotopic Neobladder.

10. Surgical management of Renal and Urethral Trauma.

11. Transpubic Urethroplasty.

12. Augmentation Cystoplasty.

13. Nephroureterectomy.

14. Undiversion.

15. Anatomic Nephrolithotomy.

16. Laparoscopic Urology Surgery.

17. Paediatric Urological Procedures.

### **In Course Training**

Since it will be a full time residency course, a candidate will be responsible for the total care of the patients. He/ She will be encouraged to take independent decisions. Every day there will be at least one hour academic activity to a maximum of 10 hours/week in which all the faculty members & residents will participate. Case discussion will take place weekly with 3<sup>rd</sup> year resident as a moderator. Other academic activities like journal clubs, seminars, group discussions, statistical meeting will be a fortnightly feature where deaths, complications, operations and consultations rendered will be discussed. Consultation to the other department and in emergency will only be attended by the 2<sup>nd</sup>&3<sup>rd</sup> year Senior Residents with supervision of the attending consultants. Consultations given to other departments should also be discussed every morning with the respective consultants. In OPD, candidate will see the case under supervision and will make all the pertinent notes.

A candidate will have to attend all post mortem examination done for the department. Interdepartmental meetings like uroradiology, uro-nephrology, uroradiotherapy & medical oncology, uropathology, uroimaging etc. will provide an opportunity for open discussion on a common subject and it will

also provided an opportunity to learn views of the specialists on these subjects.

#### **4.1.3 AFFECTIVE DOMAIN:**

- 1.To adopt ethical practices in dealing with patients, colleagues, subordinates, superiors and health care workers.
- 2.To promote cordial interpersonal relations.
- 3.To perform as a team.
- 4.To learn to be a leader when the need arises.
- 5.To learn to order investigations and prescribe drugs rationally.
- 6.To be aware of ethical issues in human and animal research.
- 7.To take rationale decision in the face of ethical dilemma in urological diseases, demonstrate sympathy & Human approach towards patients & their families & Exhibit interpersonal behavior in accordance with social norms & expectations.

## **5.SYLLABUS**

From theoretical examination point of view, basically the following components could be categorized under four papers.

**Paper 1 – Basic Science Applied to Urology.**

**Paper 2 – Clinical Urology including Pediatric Urology.**

**Paper 3 – Diagnostic and Operative Urology.**

**Paper 4 – Recent Advances in Urology.**

It will cover a wide spectrum of diseases of urogenital system & retro peritoneum. Apart from the clinical aspect of these subjects, candidate has to acquire in-depth knowledge of the related basic subject like applied anatomy, embryology, physiology; biochemistry, pharmacology, pathology, microbiology epidemiology, immunology etc.

1. Anatomy and Embryology of GU tracts, adrenal & retro Peritoneum.

2. Applied physiology and biochemistry pertaining to Urology, Nephrology, Renal Transplantation and Reno-Vascular hypertension.
3. Investigative urology & Genito-urinary radiology and imaging including nuclear medicine.
4. Infertility, Andrology and Urological Endocrinology.
5. Sexual dysfunction-investigations and management.
6. Perioperative care, management of urological complications and care of the critically ill patients
7. Urodynamics and Neuro-urology.
8. Genitor – urinary trauma and other urological emergencies.
9. Urolithiasis – Medical, Biochemical & Surgical aspects.
10. Uro-oncology – Adult & Paediatric.
11. Reconstructive Urology.
12. Paediatric Urology – congenital malformations and acquired diseases.
13. Urinary tract infections and Sexually Transmitted Diseases.
14. Obstructive Uropathy.
15. Renal transplantation (including transplant immunology, medical & Surgical aspects).
16. Gynaecological urology.
17. Newer Developments in Urology.
18. Operative Urology – Open, Laparoscopic & Endourology.
19. Behavioural and Social aspects of Urology.
20. Neonatal problems in Urology.
21. Electro Coagulation, Lasers, Fiberoptics, Instruments, Catheters, Endoscopes etc.
22. Retroperitoneal Diseases & Management.
23. Medical aspects of the Kidney Diseases.
24. Energy Sources in Urology.
25. Robotic in Surgery.

- 26.Sutures in Surgery
- 27.Nutrition in Urology.
- 28.Men's Health

Apart from the above mentioned subjects, each candidate should have basic knowledge of the following:

- I.Biostatistics & Epidemiology.
- II.Computer Science.
- III.Experimental & Research Methodology and Evidence Based Medicine.
- IV.Scientific Presentation.
- V.Ethics in Medicine.

## **6.LEARNING RESOURCE MATERIALS**

### **6.1 BOOKS AND JOURNALS**

The following books, journals and periodicals should be made available through Central / Departmental Library for perusal of residents to enable them to keep abreast with latest developments in the field of Urology.Text book (Indicates latest editions)

#### **6.1.1 RECOMMENDED BOOKS**

- 1)Campbell Walsh Urology (11<sup>th</sup> Edition) by Alan J. Wein MD PhD(Hon), Louis R. Kavoussi MD, Craig Peters and Alan W. Partin MD PhD
- 2)The Kelalis – King – Bellman Textbook of Paediatric Urology by Steven G. Docimo, Douglas Canning and Antoine Khoury (6<sup>th</sup> Ed., Informa Healthcare - 2018)
- 3)Smith's Textbook of Endourology (3<sup>rd</sup> Edition,2011) by Arthur D. Smith.
- 4)Urethral Reconstructive Surgery by Steven B. Brandes (Humana Press; 2008)
- 5)Andrology: Male Reproductive Health and Dysfunction by Eberhard Nieschlag, Hermann M Behre, 3<sup>rd</sup> Edition, Springer 2010.



## OPTIONAL

### **Adult Urology**

- 6) Adult & Paediatric Urology (4<sup>th</sup> Edition) by Jay Y. Gillenwater, John T. Grayhack, Stuart S. Howards and Michael E. Mitchell (Jan 15, 2002).
- 7) The Scientific Basis of Urology (3<sup>rd</sup> Edition) by Anthony R. Mundy, John Fitzpatrick, David E. Neal and Nicholas J.R.George (Jan 1986).
- 8) Current Urological Therapy by Joseph J. Kaufman (Jan 1986).
- 9) Traumatic & Reconstructive Urology by Jack W.McAninch (1996).

### **Paediatric Urology**

- 1) Essentials of Pediatric Urology, by F.M. Thomas and Patrick G.Duffy (2<sup>nd</sup> Ed., Informa healthcare, 2008).
- 2) Guide to Paediatric Urology and Surgery in Clinical Practice by Prasad P. Godbole, Martin A., Koyle and Duncan T. Wilcon (Springer - 2011).
- 3) Paediatric Urology: Surgical Complication and Management by Prasad P. Godbole, Martin A., Koyle and Duncan T. Wilcon (1<sup>st</sup> Ed., Blackwell - 2008).
- 4) Imaging in paediatric Urology by W.Becker, J.Meller, H.Zappal(1<sup>st</sup> Ed., Springer - 2002)
- 5) Paediatric Robotic and Reconstructive Urology; A Comprehensive Guid by Mohan S. Gundeti(1<sup>st</sup> Ed., Wiley Backwell - 2012).

### **Uro – oncology**

1. Evidence Based Management of Cancer in India: Guidelines for Urological Cancer(Vol – IX – A, 2010) [Tata Memorial Hospital, Mumbai]
2. Urologic Oncology by Jerome P. Richie and Anthony V. D’Amico(Saunders, 2004)
3. Radiotherapeutic management of Prostate Adenocarcinoma by Anthony V. D’ Amico and Gerald E. Hanks(Jul 15.1999)

4. An Atlas of Uro-oncology(Encyclopedia of Visual Medicine)by R.S.Kirby(March21, 2002)
5. Onco – Speciality Imaging: Genitourinary: by Shaban, David Bauer(Amirsys, 2010)
6. Laparoscopic Technique in Uro-oncology by Bertrand Guillonneau, Indebir S.Gill, Guenter Janetschek (August 2016)
7. Nephron Sparing surgery – Krishna Pillai Sasidharan, Mark S. Soloway (Informa HealthCare, 2007).

### **Urodynamics**

1. Urodynamics: Principles, Practice, and Application by A.R. Mundy, T.P. Stephenson and Wein. A.J. (2<sup>nd</sup> edition 1994)
2. Voiding Dysfunction: Diagnosis and Treatment(Current Clinical Urology) by Rodney A.Appell(Apr 25,2000)
3. Urodynamic and Reconstructive Surgery of the Lower Urinary Tract by A.R.Mundy(Jan 15,1993)
4. Urodynamics (3<sup>rd</sup> edition)by Paul Abrams(2006)
5. Neurorology &Urodynamics by Bradly & Hald
6. Practical Urodynamics by Victor W.Nitti(1998)
7. Atlas of Urodynamics by Jerry G. Blaiwas,Jeffery Weiss – 2007

### **Endourology**

1. Stone Disease Diagnosis & Management by Rous.
2. Color Atlas of Endourology by Davi M Albala, Michael Grasson; 1999
3. Urinary Tract Stone Disease by Nagaraja P. Rao, John P.Kavanagh, Glenn M. Preminger
4. Therapeutic Energy Application in Urology: Standards and Recent Advances by Christian Chaussy – 2005
5. Advanced Endourology: The Complete Clinical Guide by Stephen Y Nakada, Margaret Sue Pearle, 2006

### **Infertility**

1. Male infertility by Anne. J. Jequier 2011
2. Reproductive Infertility Microsurgery in the Male and Female by Sherman J Silber 1984.
3. Male Infertility by Timothy B. Hargreave;(Springer 1997)
4. Infertility in the Male by Larry I Lipschultz, Stuart S Howards,(4e; Cambridge 2009).
5. Male Reproductive Dysfunction by SC Basu; Jaypee Brothers (2<sup>nd</sup> edition 2011).
6. Practical Guide to Basic Laboratory Andrology by Sherman J. Silber 2010.
7. Office Andrology by Phillip E Patton, David Rdward, Battaglia, 2005.

### **Reconstructive and Female Urology**

1. Reconstructive Urethral Surgery by F. Schreiter and G.H. Jordan (1e, Springer - 2005).
2. Textbook of Female Urology and Urogynecology by Linda Cardozo and David R. Staskin(4<sup>rd</sup> Ed., 2016).
3. Female Urology by Shlomo Raz, MD, and Larissa V.Rodriguez: (3<sup>rd</sup> Ed., 2008) Elsevier.
4. Managing and Treating Urinary Incontinence,(2<sup>nd</sup> Ed. revised,) by Diane kaschal Newma.2009
5. Ostergard's Urogynecology and pelvic floor dysfunction by Donald R. Ostergard, Alfred E.Bent, Geoffrey W. Cundiff – 3<sup>rd</sup> edition revised 2015

### **Renal Transplantation**

1. Kidney transplantation: Principle and Practice(6<sup>th</sup> ed.,) by Peter Morris and Stuart J. Knechtle MD 7<sup>th</sup> edition revised 2013)
2. Renal Transplantation by Marvin R. Garovoy and Guttman (Aug 1986)
3. Hemodialysis Vascular Access: Practice and Problems by Peter J.Conlon, Michalel. L. Nicholson and Steven Schwab(may 5,2010)

4. Handbook of Renal Transplant (Lippincott Williams & Wilkins Handbook Series) by Gabriel M. Danovitch (5<sup>th</sup> Ed.,)
5. Handbook of Dialysis (5<sup>th</sup> Ed., - 2014) by John T. Daugirdas, Peter G. Blake (Lippincott Williams & Wilkins Handbook Series)

### **Operative Urology**

1. Glenn's Urology Surgery by Sam D. Graham, Thomas E. Keane and James F. Glenn 8<sup>th</sup> edition Nov 10 2015
2. Transurethral surgery by W. Mauermayer (1983).
3. Atlas of Urologic Surgery by Frank Hinman; (2<sup>nd</sup> Ed., 1998).
4. Hinman's Atlas of Paediatric Urologic Surgery by Frank Hinman: (2<sup>nd</sup> Ed., 2008).
5. Operative Urology by Andrew C. Novick, Inderbir S. Gill, Eric A. Klein and Raymond Rackley (Nov 5, 2010).
6. Peter Morris

### **Laparoscopy**

1. Laparoscopic Urology by Ralph V. Clayman, E.M. McDougall (2008).
2. Urologic Laparoscopy by Sakti Das and E. David Crawford (1<sup>st</sup> Ed., 1994).
3. Robotics in Genitourinary Surgery by Ashok Kumar Hemal and Mani Menon (Springer - 2018).
4. Operative Atlas of Laparoscopic reconstructive Surgery by Manickam Ramalingam and Vipul R. Patel (1<sup>st</sup> Ed., Springer - 2008).
5. Textbook of laparoscopic Urology by Inderbir S. Gill (1<sup>st</sup> Ed., Informa Healthcare - 2006).

### **Uroradiology**

1. Emmett's Clinical Urology (Saunders; 1977).
2. Ultrasound of Urogenital System by Grant M Baxter, Paul S Sidhu, 2006.
3. Urogenital Imaging: A problem oriented approach by Samesh K Morcos, S. Morcos, Henrik S, Thomsen; 2009.

4. Uroradiology: an Integrated Approach by Gerald W.Friedland (Churchill Livingstone - 2008).

#### **6.1.2 Journals**

##### **Recommended**

1. Indian J. Urology.
2. Urological Clinics of North America.
3. Journal of Urology.
4. British J. Urology.
5. Urology (Gold Journal).
6. European Urology.
7. Journal of Endourology.
8. AUA Update Series.

##### **Optional**

9. Neurourology & Urodynamics.
10. Urologia Internationalis.
11. Scandinavian J. Urology & Nephrology.
12. Transplantation.
13. Transplant Proceedings.
14. Urological Research
15. Urologic Radiology
16. World Journal of Urology Periodicals
17. Seminars in Urology.
18. Controversy in Urology.
19. Recent Advances in Urology.
20. Year Book of Urology
21. Modern Trends in Urology.

The student should also be familiarized with Internet browsing for Journals, Special Articles, Review Articles and other recent

recommendations of International Societies like the American Urological, EAU, and International Continence Society etc.

## **7. TEACHING LEARNING EXPERIENCE**

### **7.1 TRAINING PERIOD (As per MCI Guidelines)**

The period of training for obtaining the degree of MCh in Urology shall be three completed years (including the examination period) after obtaining M.S Degree or equivalent recognized qualification in the required subject.

1. The training given with due care to the posting graduate students in the recognized for the award of M.Ch in Urology, shall determine the expertise of the specialist and / or medical teachers produced as result of the educational program during the period of stay in the institution.

2. All the candidate joining the M.Ch in Urology training program shall work as full time residents during the period of training attending not less than 80% (Eighty Percent) of the training during the calendar year, and will be given full time responsibility, assignment and participation in all facets of the educational process.

3. M.Ch Urology student shall maintain a record (Log book) of the work carried out by them and training program undergone including details of the Non – Invasive, Invasive, Diagnostic and Interventional Work assisted or done independently under supervision by the M.Ch candidate.

4. During training for the M.Ch in Urology there shall be proper training in basic medical science related to Urology. Emphasis to be laid on preventive and social aspects and emergency care services.

5. The M.Ch Urology student shall be required to participate in the teaching and training programme of undergraduate and postgraduate students in the departments of medicine, paediatrics etc.

6. Training in Medical Audit, Management, Health economics, Health information system, Basics of statistics, Exposure to human behavior studies, Research methodology shall be imparted.

7. In Service training in the management and treatment of patients contrasted to their care participation in Seminars, Journal Clubs, Group Discussions, Clinical Meetings, Grand Rounds and Clinico–Pathological Conferences, Advanced Diagnostic, Therapeutics and Laboratory techniques in Urology.

8. He / She should present Scientific Papers in USICON, SZUSICON and TAPASUCON

9. Final Year M.Ch Urology PG should send papers for CKP MENOM Prize Paper.

10. Must publish a scientific paper I urology in an indexed journal before the final examinations.

## 7.2 Teaching / Learning Schedule.

### 7.2.1 CLINICAL POSTINGS

YEAR	SPECIALIZATION	DURATION
I - Year	Ward ./ OPD	6 Months
	Uroradiology	1 Month
	Urodynamics lab / ESWL	2 Months
	OT	3 Months
II – Year	Ward / OPD	4 Months
	Peripheral Posting (Uro – oncology , Robotic surgery)	2 Months
	OT	6 Months
III – Year	Pediatric Urology	1 Months

	Ward / OPD	2 Months
	OT	8 Months
	Exam	1 Months

### **7.2.2 WARD / OPD**

The Candidate would first familiarize himself / herself with the general working of the hospital, the wards admission norms, sending of investigations, geography of the hospital, location of the various services, posting of cases for surgery / intervention, consent forms, blood availability, discharge protocol, medical records section etc. In addition the candidate would examine all the urology cases in the words and give consultation to all other departments of the hospital regarding Urology reference with the help of the consultant.

If there are undergraduate MBBS or Post Graduate M.S students from General Surgery or other specialties posted, then he would impart relevant clinical examination and diagnostic skills to them. The candidate would also be working in the OPD and assessing the suitability of the patients for admission, making an OPD diagnosis, planning the relevant investigations etc. The M.Ch candidate would be put on regular hrs emergency duty and would take the call from the Casualty and other department of the hospital.

### **7.2.3 URODYNAMICS LAB**

This posting is essential for the candidate to learn all the aspects of Neurorology and performing the Urodynamics study and interpretation of the graph. The candidate should familiarize himself / herself with all the gadgets in the Urodynamics laboratory including VideoUrodynamics.



The candidate would be on duty in the Urodynamics lab from 9 AM to 4 PM. He / She would also attend the teaching programs of the department when free from patient care. The candidate would also be taking calls from the casualty and giving consultations to all departments of the hospital.

#### **7.2.4.URORADIOLOGY**

The candidate would be posted in the Radiology Department wherein he / she would receive training and independently perform Intravenous Urogram, Retrograde Urethrograph, Nephrostogram, Ultrasound of the Kidney, Ureter and Bladder region, Colour Doppler for varicocele, and testicular torsion. The candidate would also be attending the OPD. During this period, the candidate would also be attending all teaching programs of the department and would be doing emergency duties also in the ICU / Taking Casualty calls and giving consultation to all departments of the hospital.

#### **7.2.5 OPERATION THEATRE**

The candidate would be posted in the Operation Theatre only after he / she is familiar with all aspects of Urology care like wards, OPD, USD and all non Invasive Urological diagnosis.

1. In the First Year of Operation Theatre posting the candidate would assist and perform all the diagnostic procedure like Cystourethroscopy, filiform dilatation, retrograde pyelography, and minor urological procedures like Needle biopsy of the prostate, dilatation, trocar cystostomy, open cystostomy, orchiectomy, circumcision, meatotomy / meatoplasty, Arterio – Venous shunts and excision of urethral caruncle. He / She would familiarize himself / herself with all the urological instruments – working and maintenance in the operation theatre like C–ARM System, electrocautery, LASER etc.

The candidate is responsible for all the preoperative instructions, explaining and counseling to the patients and relatives, preparing the OT list, consent, checking all the investigation, getting the pre – anaesthetic check up done in case of necessity and posting the patients.

He / She would give the necessary post – op care, prepare the complete OT report and ensure that all records are maintained correctly and given to the patient etc. He / She should be available for Emergency Procedures like Management of Acute urinary retention, Urological trauma etc. even when not on duty. The candidate would attend all the teaching programmes of the department and would present the data in the pre and post operative conference.

2. In the Second Year of posting the candidate would be permitted to perform independently but under supervision all the diagnostic procedures and selected open and Endourological procedures. However, he / she would continue to assist in all major open and Endourological procedures. The rest of the work remains the same. In the Third year of posting the candidate would be permitted to perform surgeries independently but under strict supervision. The rest of the work remains the same.

The candidate should also learn all the consumable and the hardware used in diagnostic and definitive Urological operations.

The candidate must learn all the ethical, legal considerations of the invasive work and learn to use them with wisdom and discretion.

## **7.3 WEEKLY ACADEMIC PROGRAMMES**

### **7.3.1 Journal Clubs:**

Critical analysis of original research articles in India and International Journals, Journals from the Internet, recommendations of various committees like the American Urological Association, Urologic Clinics

of North America, etc regarding indications of various procedures. –  
Once a week.

#### **7.3.2 Short Reviews:**

Short review of the literature on a simple specified topic based upon the various theory papers in the examination like Basic Science applied to Urology, including Paediatrics, Uroradiology, Andrology, Endourology and recent advances – Once a week.

#### **7.3.4 Bed – side Clinics:**

Both short cases and long cases to be taken up by the candidate the presented to the consultants in the same pattern as examination – Once a week.

#### **7.3.5 Uro Conference:**

Complete work up of each case with USG, X – Ray, IVU, CT presented to the consultants and reviewed. All diagnostic and interventional cases done in one week reviewed

#### **7.3.6 PG / UG Teaching program by PG – once a week**

### **7.4 POSTING & TRAINING IN OUTSIDE CENTERS**

#### **7.4.1 Transplant Surgery / Rena Transplantation**

The candidate should undergo one month peripheral posting in a Center of Excellence on the field of Transplant Surgery / Renal Transplantation. The candidate will be sent to one of the following centers for a period of one month.

- Christian Medical College, Vellore.
- JIPMER- Pondicherry.

#### **7.4.2 Uro Oncology**

The candidate should undergo one month Peripheral posting in a centre of excellence in the field of Uro Oncology.

- Adyar Cancer Institute, Chennai.

M.Ch residents would present interesting cases in Scientific and academic forum of MGMRI which shall be conducted once in a month,

Conferences / Workshops / CMEs and Papers

- A Resident must attend at least Two conference / Workshop / CME per year – USICON, SZUSICON, TAPSUCON.
- One paper must be published before summative examinations at the end of 3years.

## **8. LOG BOOK:**

### **8.1 Components of Log Book:**

Name:

Date of birth:

Qualifying Examination:

University:

Date of Joining M.Ch:

Date of Completion of Course:

### **8.2 Intramural Rotations:**

Area with Dates (Year Wise):

### **8.3 Extramural Rotations:**

Departments with Dates (Year Wise)

1.

2.

3.

## 8.4 Ward Work

<b>Attendance</b>	I – Year	%
	II – Year	%
	III – Year	%

Qualify of ward work (To be assessed 3 monthly – as per attached Performa)

Procedures (Operative Work).

Date wise recording of Procedures

Assisted Outcome signature of Supervisor

Performed with assistance

Performed independently

## 8.5 Teaching Learning Activities

### 8.5.1 Case Presentation (Date wise Recording)

- Case Presented
- Performances (As per attached check list)
- Signature of Consultant

### 8.5.2 Journal Club (Date wise)

- Articles
- Performances (As per attached check list)
- Signature of Consultant

### 8.5.3 Conference attended:

- Date
- Nature of conference (CME/ Workshop/ National/ International)

- Role – Delegate / Presented paper – mention topic

#### **8.5.4 List of papers published / submitted (with details)**

- 1.
- 2.
- 3.

#### **8.5.5 Dissertation**

- Topic
- Quality (Certified by HOD)

#### **8.5.6 Awards and Distinctions, if any**

#### **8.5.7 Other Activities**

(Each activity to be signed by a consultant and overall to be signed by HOD)

## **9. RESEARCH ACTIVITIES:**

### **9.1 Papers Presented:**

- i. A Residents must present at least 2 papers in National or regional conferences.

### **9.2 Papers Published / Submitted:**

A Resident must have at least 1 article published / acceptance in a national or international journal which is indexed

### **9.3 Dissertation:**

All candidates admitted to M.Ch course shall be assigned a topic for dissertation by the Head of the concerned unit and the title of the topic assigned to the candidate be intimated to the controller of examinations of this university within 6 months after joining the course. The concerned guides and co-guides will supervise and see that the dissertations are done properly utilizing the clinical materials of our own department / institution. The student must learn the design and interpretation of research studies, responsible use of informed consent and research methodology and interpretation of data and statistical analysis. They should seek the help of qualified staff members in the conduct of research. They must learn to use library and computer based research. This training will help them to develop skills in planning, designing and conduct of research studies. The dissertation should be approved by the professor and Head and has to be forwarded to controller of examinations 6 months prior to practical examinations and it will be sent for evaluation by two external examiners.

## **10. EVALUATION:**

The purpose of continuous course evaluation is mainly

1. To ensure the habits of regularity, punctuality and disciplined working amongst PG students.
2. To give periodic feedback regarding their performance during the medical course & to enable them to take corrective steps to enhance their learning in various areas mentioned. Eg. Patient Care, Research, Teaching, Administration etc.
3. To monitor attainment of clinical and technical skills to ensure adequacy of training.
4. To make it available to the internal examiner at the time of final examination to discount the possibility of a single adverse performance influencing the pass or fail situation of the candidate. This would give an idea of the continued performance of the candidate during the three years of training to the external examiners, so that candidates who have otherwise been rated as satisfactory in their internal evaluation can be given more chances in the final examinations and overcome the adverse effects of doing badly in any case.
5. Formative evaluation assessment will be carried out over following activities of the P.G. resident.
  - Ward Work.
  - Case Presentation.
  - P.G. Lecture.
  - Journal Club.
  - General assessment of affective function, attitude by Medical & Paramedical staff.



## 10.1 Summative Evaluation:

Candidates are eligible to appear for theory examination only if they have at least 80% attendance.

Summative evaluation consists of three parts:

1. Theory
2. Clinics
3. Viva – Voce

### 10.1.1 Theory

There are 4 theory papers of each 100 mark.

The components of theory are as follows.

Paper – I	Applied basic science – 10 short notes of each 10 marks
Paper – II	Clinical Urology including Paediatric Urology – 2 Essay question of each 20 marks and 6 short notes of each 10 marks.
Paper – III	Diagnostic and Operative Urology – 2 Essay question of each 20 marks and 6 short notes of each 10 marks.
Paper – IV	Recent Advances in Urology – 10 short notes of each 10 marks

Candidate should secure a minimum of 50% marks in each paper with an overall average of 50%

Introduction of OSCE in theory to be considered.

### 10.1.2 Clinics

1. Clinical examination would consists of 1 long case for 100 marks and 2 short cases for 50 marks each and ward rounds (4 cases) for 100 marks.
2. Candidate should get 50% overall for passing clinical examination.

## **Long Case**

The candidate would have one hour to take a detailed history, and do a complete clinical examination. If there is any language problem he / she would be provided with an interpreter for the same. On the basis of the history and examination, the candidate is expected to come to a reasonable provisional diagnosis. He / She would then present the case to the examiners and after the provisional diagnosis is assessed, the candidate would be given the USG, X – Ray, CT or other investigation. He / She would then be questioned on the management strategies and related matters.

## **Partial List of Long Cases**

1. Palpable loin mass – Renal cell carcinoma, Hydronephrotic Kidney.
2. Carcinoma Prostate – Loco – regional spread or metastatic.
3. Bladder outlet obstruction due to benign enlargement of prostate without complications like bladder calculi, diverticula, obstructive uropathy.
4. Stricture urethra – inflammatory or traumatic.
5. Calculus disease with or without complication – hematuria, nephropathy etc.
6. Neurogenic bladder – due to congenital anomaly, traumatic etc.
7. Carcinoma bladder
8. Genitourinary tuberculosis.

## **Short Cases**

The candidate would have to present 2 short cases. In each, he/she has to take a short history, do a complete clinical examination and come to a reasonable provisional diagnosis.

The time allotted is 30 minutes for each short case. The pattern of the examination is the same as that for the long case except for the fact that the discussion is faster.

It is generally the case that the candidate would get different categories of cases for each of the cases he/she is given for the examination.

There is no rigid compartment that a particular case should be given as long or short case and this usually is decided by the External Examiners.

### **Partial List of Short Cases**

1. Carcinoma Prostate – Metastatic, Locally Advanced.
2. Carcinoma Bladder with hematuria etc.
3. Carcinoma testis
4. Carcinoma penis.
5. Vesicoureteral reflux and Megaureter.
6. Posterior urethral valve.
7. Hypospadias.
8. Undescended testis.
9. Ectopia vesicae.
10. Stricture urethra
11. Ileal conduit.
12. Vesicovaginal fistula.
13. Congenital PUJ obstruction.
14. Dysfunctional Voiding.
15. Obstructive uropathy with CRF.

### **10.1.3 VIVA-VOCE**

Oral / Viva –Voce Examination; (100 Marks)

The candidate may be shown USGs, X – Rays and CT/MRI for sport diagnosis. This examination shall be comprehensive to test the candidate's overall knowledge of the subject.

(Candidate should secure a minimum of 50% marks)

### **MINIUM PASS MARKS**

1. Theory: minimum of 50% marks in each paper with overall aggregate of 50%.
2. Clinics: Minimum of 50% overall.
3. Viva – Voce: minimum of 50%

# **11. PROPOSED MODEL QUESTION PAPERS**

## **Paper I- BASIC SCIENCES**

ANSWER ANY 10 QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

MAX MARKS: 100

1. Discuss the surgical anatomy of the Kidney with special reference to Percutaneous renal surgery
2. Describe the development of Ureter and Discuss various ureteral anomalies
3. Pathophysiology of Renovascular Hypertension
4. Discuss evaluation of patients with microhematuria
5. Intracorporeal Lithotrippers
6. Biomaterials in Urology
7. Discuss briefly the physiology of Erection
8. Discuss regarding Pathophysiology of Urinary tract obstruction
9. Oncogenes
10. Multiparametric magnetic resonance imaging
11. Discuss the metabolic and functional consequences of urinary reconstruction with bowel
12. Physiologic considerations in Laparoscopy

**PAPER - II - CLINICAL UROLOGY INCLUDING PAEDIATRIC**  
**UROLOGY**

Answer All Questions.

All questions carry equal marks. (Total- 100 marks).

Duration - 3hrs.

1. Discuss the differential diagnosis and management of posterior urethral valves.
2. What is the T1G3 urothelial cancer of bladder? Discuss in brief its management .
3. Discuss in brief the management of Emphysematous pyelonephritis.
4. Congenital adrenal hyperplasia: briefly write aetiology, diagnosis and management .
5. Define stress urinary incontinence (SUI). Enumerate complications and their management of mid - urethral sling procedures.
6. Diagnosis and management of Detrusor sphincter dyssynergia.
7. Discuss the management of fracture penis.
8. Discuss the evaluation of a child with febrile urinary tract infection.
9. Medical management of vesicoureteric reflux.

## **M.Ch – Urology- Paper III**

Answer any 10 questions.

All questions carry equal marks. (Total- 100 marks).

Duration - 3hrs.

1. Principles of Renal reconstruction following trauma.
2. Hypercalciuria.
3. Management of UTI in patients with spinal cord injury.
4. Etiology and pathogenesis of Epididymitis.
5. Biomaterials for Regenerative medicine in urology.
6. Mechanisms of stone comminution in ESWL.
7. Bioeffects of ESWL.
8. Benign Urinary Bladder tumors.
9. Normal development of Kidneys.
10. Multicystic Dysplastic kidney.
11. Non-Dismembered Pyeloplasty.
12. Extra genitourinary abnormalities in Prune belly syndrome.

## **Paper IV**

### **RECENT ADVANCES IN UROLOGY**

**Answer any 10 questions**

**All questions carry equal marks**

**Maximum marks- 100**

**Duration- 3hrs.**

1. Urolift
2. Enzalutamide
3. Liquid biopsy
4. Hyperthermic intravesical chemotherapy
5. Gene xpert probe
6. Check point inhibitors in genitourinary cancers.
7. Prostate health index
8. Fusion biopsy
9. Image guided surgery
10. Psm pet scan
11. Radium 223
12. Preventing renal ischemia in partial nephrectomy



## **12. CONCLUSION**

- 1.** The Current syllabus, selection, evaluation are based on the current MCI guidelines for post graduate medical education.
- 2.** This would be subjected to revision based on the change in MCI Guidelines, New syllabus and topics in Urology, New Professors and Head of Departments being inducted as External Examiners etc.