

Guidelines
For
Competency Based Training Programme
In
**DNB- Genito-Urinary Surgery
(Urology)**



NATIONAL BOARD OF EXAMINATIONS

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PROGRAMME GOAL

- The goal of postgraduate medical education in DNB urology shall be to produce a competent expert in the field of urology and medical teachers in urology.
- The goal is to produce highly competent medical manpower in Urology.
- The training ingredients should provide in-depth knowledge of the entire urology and relevant basic allied subjects.
- The course is expected to bring about a change in attitude towards better scientific approach with logic and analysis.
- More stress should be given to development of psychomotor skills.
- This should culminate in shaping of a shrewd clinician, confident surgeon and a knowledgeable teacher insured to basic research methodology.
- Basis of an ideal training Program will be a powerful urology service complete in every sense.

PROGRAMME OBJECTIVES

Objectives At the end of the DNB course in Urology, the student should be able to:

- Recognize the key importance of medical problems in the context of the health priority of the country;
- Practice the specialty of Urology in keeping with the principles of professional ethics;
- Identify social, economic, environmental, biological and emotional determinants of adult Urology and know the therapeutic, rehabilitative, preventive and promotion measures to provide holistic care to all patients;
- Take detailed history, perform full physical examination and make a clinical diagnosis
- Perform and interpret relevant investigations (Imaging and Laboratory).
- Perform and interpret important diagnostic procedures;
- Plan and deliver comprehensive treatment for illness in adults & children using principles of rational drug therapy.
- Plan and advise measures for the prevention of Urological diseases;

- Plan rehabilitation of adults suffering from chronic illness, and those with special needs;
- Manage Urological emergencies efficiently;
- Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation;
- Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities;
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities.
- Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based medicine;
- Demonstrate competence in basic concepts of research methodology and epidemiology;
- Facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher-trainer;
- Play the assigned role in the implementation of national health programs, effectively and responsibly;
- Organize and supervise the desired managerial and leadership skills;
- Function as a productive member of a team engaged in health care, research and education.
- Practice the specialty of urology surgery in keeping with the principles of professional ethics
- Recognize and identify the various surgical problems
- Independently perform basic surgical procedures
- Organize and supervise the desired managerial and leadership skills
- Recognize the importance of Urology in the context of the health needs of the community and the national priorities in the health sector.
- Demonstrate sufficient understanding of the basic sciences relevant to Urology.
- Diagnose and manage majority of the conditions in Urology on the basis of clinical assessment, and appropriately selected and conducted investigations.

- Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to Urology.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research or training.

NATIONAL OBJECTIVES:

- Be able to work in any hospital in India with minimum of facilities and be able diagnose urological diseases, treat swiftly and efficiently and if appropriate refer both on an elective and emergency basis.
- Be able to start a urological service of maximum effectiveness with available resources.
- Be able to work effectively and contribute to National Programs like National Family Welfare Program, National Cancer Control Program, programs for prevention and control of non communicable urological diseases, etc.

INTERNATIONAL OBJECTIVES:

Be able to participate in international conferences, workshops etc., and bring honour and fame to the country.

ELIGIBILITY CRITERIA FOR ADMISSIONS TO THE PROGRAMME

(A) DNB Urology Course:

1. Any medical graduate with **MS/DNB in General Surgery** qualification , who has qualified the **Entrance Examination** conducted by NBE and fulfill the eligibility criteria for admission to DNB **Super Specialty** courses at various NBE accredited Medical Colleges/ institutions/Hospitals in India is eligible to participate in the Centralized counseling for allocation of DNB **Urology** seats purely on merit cum choice basis.
2. Admission to 3 years post MBBS DNB **Urology** course is only through **Entrance Examination** conducted by NBE and Centralized Merit Based Counseling conducted by National Board of Examination as per prescribed guidelines.

Duration of Course: 3 Years

Every candidate admitted to the training programme shall pursue a regular course of study (on whole time basis) in the concerned recognized institution under the guidance of recognized post graduate teacher for assigned period of the course.

TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Case presentations & discussion- once a week
2. Seminar – Once a week
3. Journal club- Once a week
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- once a month
6. Clinical Audit-Once a Month
7. A poster and have one oral presentation at least once during their training period in a recognized conference.

The rounds should include bedside sessions, file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan) interesting and difficult case unit discussions.

The training program would focus on knowledge, skills and attitudes (behavior), all essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of the rehabilitative care, including methodology of research and teaching.

Theoretical: The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are considered necessary in view of an inadequate exposure to the subject in the undergraduate curriculum.

Symposia: Trainees would be required to present a minimum of 20 topics based on the curriculum in a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the trainees with the dates for presentation.

Clinical: The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.

Bedside: The trainee would work up cases, learn management of cases by discussion with faculty of the department.

Journal Clubs: This would be a weekly academic exercise. A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.

Research: The student would carry out the research project and write a thesis/ dissertation in accordance with NBE guidelines. He/ she would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.

SYLLABUS

The major components of the Postgraduate curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Thesis skills.
- Attitudes including communication skills.

- Training in research methodology.

Theory

Anatomy

Surgical Anatomy of the Retroperitoneum, Kidneys and Ureters

- Anatomy and Embryology of GU tracts, adrenal & retroperitoneum.
- Applied physiology and biochemistry pertaining to Urology, Nephrology, renal transplantation and renovascular hypertension.
- Investigative urology & Genito-urinary radiology and imaging including nuclear medicine.
- Male Infertility, Andrology and Urological endocrinology
- Sexual dysfunction- investigations and management.

Infections and Inflammation

1. Infections of the Urinary Tract.
 2. Schaeffer Inflammatory Conditions of the Male Genitourinary Tract
 3. Interstitial Cystitis and Related Disorders
 4. Sexually Transmitted and Associated Diseases Urological Implications of AIDS and Related Conditions
 5. Cutaneous Diseases of the External Genitalia
 6. Tuberculosis and Other Opportunistic Infections of the Genitourinary System
- Perioperative care, management of urological complications and care of the critically ill patients.
 - Urodynamics and Neurology.
 - Genito-urinary trauma.

Urolithiasis-Medical, Biochemical & Surgical aspects

- Upper & Lower Urinary Tract Calculi
- Evaluation, Diagnosis & Treatment
- Surgery- PCNC, Intracavity, Cystoscopy, ESWL

Pediatric Urology

1. Normal and Anomalous Development of the Urinary Tract Renal Function in the Fetus Congenital Obstructive Uropathy
2. Perinatal Urology Evaluation of Pediatric Urologic Patient)
3. Renal Disease in Childhood
4. Urinary Tract Infections in Infants and Children
5. Anomalies of the Kidney Renal Dysplasia and Cystic Disease of Kidney
6. Anomalies and Surgery of the Ureteropelvic Junction
7. Ectopic Ureter Vesicoureteral Reflux
8. Prune-Belly Syndrome
9. Exstrophy and Epispadias
10. Complex Surgical Technique for One-Stage Exstrophy
11. Reconstruction Bladder Anomalies in Children
12. Posterior Urethral Valves and Other Urethral Anomalies
13. Voiding Dysfunction in Children : Neurogenic and Non-neurogenic Urinary Tract Reconstruction
14. Hypospadias Abnormalities of External Genitalia in Boys Abnormalities of Testis and Scrotum : Surgical Management Sexual Differentiation : Normal and Abnormal Surgical Management of Intersex
15. Pediatric Oncology Pediatric Endourology and Laparoscopy Pediatric Genitourinary Trauma
 - Urinary tract infections and sexually transmitted diseases.
 - Obstructive Uropathy.
 - Renal transplantation (including transplant immunology medical & surgical aspects).

Prostate Molecular Biology, Endocrinology, and Physiology of the Prostate and Seminal Vesicles

- Etiology, Pathophysiology, and Epidemiology of Benign Prostatic Hyperplasia
- Natural History, Evaluation, and Nonsurgical Management of Benign Prostatic Hyperplasia Minimally Invasive and Endoscopic Management of Benign Prostatic Hyperplasia
- Retropubic and Suprapubic Open Radical Prostatectomy
- Epidemiology, Etiology, and Prevention of Prostate Cancer
- Pathology of Prostatic Neoplasms Ultrasonography and Biopsy of the Prostate Tumor Markers in Prostate Cancer
- Early Detection, Diagnosis, and Staging of Prostate Cancer
- Definitive Therapy of Localized Prostate Cancer : Outcomes Expectant Management of Prostate Cancer
- Anatomic Retrograde Retropubic Prostatectomy
- Radical Perineal Prostatectomy Laparoscopic and Robotic Radical Prostatectomy and Pelvic Lymphadenectomy
- Radiation Therapy for Prostate
- Cancer Cryotherapy of Prostate Cancer Treatment of Locally Advanced Prostate Cancer Management of Rising Prostate-Specific Antigen after Definitive Therapy
- Hormonal Therapy for Prostate
- Cancer Management of Hormone-Resistant Prostate Cancer

Kidney, Bladder, Genitalia

- Anatomy
- Evaluation & Diagnosis
- Diseases
 - Congenital
 - Infection
 - Oncology

Neuro – Urology

- Pathophysiology, Categorization, and Management of Voiding Dysfunction
Urodynamic and Video dynamic Evaluation of Voiding
- Dysfunction Neuromuscular
- Dysfunction of the Lower Urinary Tract Urinary
- Incontinence : Epidemiology, Pathophysiology, Evaluation, and Overview of Management The Overactive Bladder
- Pharmacologic Management of Storage and Emptying
- Failure Conservative Management of Urinary Incontinence : Behavioral and Pelvic Floor Therapy,
- Urethral and Pelvic Devices
- Electrical Stimulation and Neuromodulation in Storage and Emptying Failure
- Retropudic Suspension Surgery for Incontinence in Women
- Vaginal Reconstructive Surgery for Sphincteric Incontinence
- Pubovaginal Slings Tension-Free Vaginal Tape Procedures
- Injection Therapy for Urinary Incontinence
- Additional Treatment for Storage and Emptying Failure
- Geriatric Voiding Dysfunction and Urinary Incontinence
- Urinary Tract Fistulae Bladder and Urethral Diverticula
- Surgical Procedures for Sphincteric Incontinence in the Male :
- The Artificial Genitourinary Sphincter; Perineal Sling Procedures

The Adrenals

- Pathophysiology, Evaluation, and Medical Management of Adrenal Disorders
Surgery of the Adrenals

Newer developments in Genito-Urinary Surgery

- Electro coagulation, lasers, fiber optics, instruments, catheters, endoscopes etc.
- Energy Sources In Urology
- Robotics surgery
- Nutrition in Urology
- Molecular and Cellular Biology Basic

- Principles of Immunology
- Molecular Genetics and Cancer Biopsy
- Tissue Engineering Perspectives for Reconstructive Surgery

Clinical Decision Making

- Evaluation of the Urologic Patient
- History, Physical Examination, and Urinalysis Urinary Tract Imaging

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

1. Biostatistics & Epidemiology.
2. Computer Sciences.
3. Experimental & Research methodology and Evidence Based Medicine.
4. Scientific presentation.
5. Cardio-pulmonary resuscitation.
6. Ethics in medicine.
 - Biostatistics, Research Methodology and Clinical Epidemiology
 - Ethics
 - Medico legal aspects relevant to the discipline
 - Health Policy issues as may be applicable to the discipline

First Two Years Each Candidate should spent time for basic research specially related to animal laboratory or in collaboration with basic department i.e. biochemistry, biotechnology and radiology.

. Minor Urological Procedures:

- Needle biopsy of the prostate,
- Dilatation of Urethra
- Trocar cystostomy
- Open cystostomy

- Orchiectomy
- Circumcision
- Meatotomy/Meatoplasty
- Arterio-venous shunts
- Cystoscopy

Uro-Radiological & Imaging Techniques: During this period a candidate should perform various uroradiological & Imaging procedures like

- Retrograde Urethrogram & Micturating
- Cystourethrogram
- Nephrostogram
- Whitaker test
- Sinogram
- Vasoseminography
- Antegrade pyelography
- Interpretation of Ultrasound & computerized tomography's scans and Renography
- Renal angiography including Digital Substraction Angiography & venography

06-09 Months A candidate should learn, perform and interpret urodynamic studies like Cystometrogram, electro myography & Urethral pressure profile & Video urodynamics. He will also perform and interpret various tests of sexual dysfunction such as dynamic cavernosography, papavarin test, Penil-Brachial Index, Nocturnal penile tumescence, regiscan, sacral latency period and other evoked potential studies.

9-23 Months He will assist and perform following procedures.

(a) 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.

(b) Surgical Procedures:

- Simple nephrectomy,
- radical nephrectomy
- cystolithotomy ureterolithotomy,
- pyelolithotomy,
- nephrostomy,
- pyeloplasty,
- various urethroplasties.
- Retropubic & a 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 procedures 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 Vasoepididmostomy and vasovasostomy,.
- Undiversion,
- Renal transplant surgery and AV fistulae,
- retroperitoneal lymphadenectomy.
- Endoscopic Procedure Trusurethral resection of prostate
- percutaneous nephrolithotomy,
- Uretero-renoscopy,
- Laser Surgery,
- other endourological procedures etc.

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

▪ Endoscopies	100
▪ Urethroplasties	5
▪ Internal urethrotomy	20
▪ Internal tract reconstructions	10
▪ Repair of vesicovaginal fistulae	5
▪ Pyeloplasties	5
▪ Hypospadias repair	5
▪ Transurethral Resection of Prostate	25
▪ Uretero-Renoscopy	25
▪ Percutaneous Nephrolithotomy & endopyelotomy	15
▪ Donor Nephrectomies	5

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

- Nephrectomy for pyonephrosis-Surgical treatment of stress urinary incontinence
- Radical Cystoprostatectomy
- Radical Nephrectomy
- Ureteroneocystostomy
- Retroperitoneal lymph node dissection-Ileal replacement
- Different type of Urinary diversion of orthotopic Neobaldder- Surgical management of Renal and Urethral trauma
- Transpubic urethroplasty
- Augmentation cystoplasty
- Nephroureterectomy – Undiversion
- Anatrohic Nephrolithotomy
- Laparoscopic Urologic Surgery
- Paediatric surgical procedures.

- In course Training Since it will be a full time residency cum DNB course, a candidate will be responsible for the total care of the patients.
- He will be encouraged to take independent decisions.
- Every day there will be atleast 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 3rd year resident as a moderator
- In OPD a candidate will see the cases independently and will make all the pertinent notes
- .In problematic cases and a special referral, it is mandatory to show the case to the respective consultant.
- A candidate will not be allowed to provide independent consultations for first six months.

- Interdepartmental meetings like uroradiology, uronephrology, uroradiotherapy & medical oncology, uro pathology, uroimaging will provide an opportunity for open discussion on a common subject and it will also provide an opportunity to learn views of the specialists on these subjects.
- **Posting:** A candidate will be sent to Nephrology department for one month to learn medical aspect of Kidney diseases (except the renal transplantation). This posting should be after one to 1.1/2 year after joining the course. It is highly desirable to formulate a reasonable teaching curriculum for this posting and a candidate is to be evaluated by the Nephrologist at the end of the posting.

Schedule of Postings

Inter Disciplinary Posting – It is suggested that there should be posting in the following departments.

- Radiology – 2 weeks
- Interventional Radiology – 2 weeks
- Pathology – 2 weeks
- Nephrology – 2 weeks
- 2 weeks exchange with another teaching Urology department.

Exchange Programme: In view of expanding field of urology, it is difficult to see, observe and have training in all newer subspecialties. Therefore, it is imperative to inculcate exchange programme and resident should be rotated to two or three centers as per advice by the department committee. It is also suggested that department weak in some subspeciality should invite visiting professor from other centers to strengthen the course.

Practical:

- History, examination and writing of records:

- History taking should include the background information, presenting complaints and the history of present illness, history of previous illness, family history, social and occupational history and treatment history
- Detailed physical examination should include general physical and CVS examination
- Skills in writing up notes, maintaining problem-oriented medical records (POMR), progress notes, and presentation of cases during ward rounds, planning investigation and making a treatment plan should be taught
- . Other Urology procedures- investigative Urological Procedures like uroflowmetry, CNG, Doppler, Ultrasound & Ultrasound guided procedures.
- Clinical Teaching General, Physical and specific examinations of Genitourinary should be mastered.
- The resident should be able to analyse history and correlate it with Clinical findings.
- He should be well versed with all radiological procedures like IVU, Nephrostogram and RGP, Ascending Micturating Urethrogram.
- He should present his daily admissions in morning report and try to improve management skills, fluid balance, choice of drugs.
- He should clinically analyse the patient & decide for pertinent Investigations required for specific patient.

Job Responsibilities

Outdoor Patient (OPD) Responsibilities:

- The working of the residents in the OPD should be fully supervised.
- They should evaluate each patient and write the observations on the OPD card with date and signature.
- Investigations should be ordered as and when necessary using prescribed forms.
- Residents should discuss all the cases with the consultant and formulate a management plan.
- Patient requiring admission according to resident's assessment should be shown to the consultant on duty
- Patient requiring immediate medical attention should be sent to the casualty services with details of the clinical problem clearly written on the card.

- Patient should be clearly explained as to the nature of the illness, the treatment advice and the investigations to be done.
 - Resident should specify the date and time when the patient has to return for follow up.
- In-Patient Responsibilities Each resident should be responsible and accountable for all the patients admitted under his care.

The following are the general guidelines for the functioning of the residents in the ward:

- I. Detailed work up of the case and case sheet maintenance:
- II. He/She should record a proper history and document the various symptoms. Perform a proper patient examination using standard methodology. He should develop skills to ensure patient comfort/consent for examination. Based on the above evaluation he/she should be able to formulate a differential diagnosis and prepare a management plan. Should develop skills for recording of medical notes, investigations and be able to properly document the consultant round notes
- III. .To organize his/her investigations and ensure collection of reports.
- IV. Bedside procedures for therapeutic or diagnostic purpose.
- V. Presentation of a precise and comprehensive overview of the patient in clinical rounds to facilitate discussion with senior residents and consultants.
- VI. To evaluate the patient twice daily (and more frequently if necessary) and maintain a progress report in the case file.
- VII. To establish rapport with the patient for communication regarding the nature of illness and further plan management.
- VIII. To write instructions about patient's treatment clearly in the instruction book along with time, date and the bed number with legible signature of the resident.
- IX. All treatment alterations should be done by the residents with the advice of the concerned consultants and senior residents of the unit.

Admission day following guidelines should be observed by the resident during admission day.

- I. Resident should work up the patient in detail and be ready with the preliminary necessary investigations reports for the evening discussion with the consultant on duty.

- II. After the evening round the resident should make changes in the treatment and plan out the investigations for the next day in advance.

Doctor on Duty

- I. Duty days for each Resident should be allotted according to the duty roster.
- II. The resident on duty for the day should know about all sick patients in the wards and relevant problems of all other patients, so that he could face an emergency situation effectively.
- III. In the morning, detailed over (written and verbal) should be given to the next resident on duty. This practice should be rigidly observed.
- IV. If a patient is critically ill, discussion about management should be done with the consultant at any time.
- V. The doctor on duty should be available in the ward through out the duty hours.

Care of Sick Patients

- I. Care of sick patients in the ward should have precedence over all other routine work for the doctor on duty.
- II. Patients in critical condition should be meticulously monitored and records maintained.
- III. If patient merits ICU care then it must be discussed with the senior residents and consultants for transfer to ICU.

Resuscitation skills

- I. At the time of joining the residency programme, the resuscitation skills should be demonstrated to the residents and practical training provided at various work stations.
- II. Residents should be fully competent in providing basic and advanced cardiac life support.
- III. They should be fully aware of all advanced cardiac support algorithms and be aware of the use of common resuscitative drugs and equipment like defibrillators and external cardiac pacemakers.
- IV. The resident should be able to lead a cardiac arrest management team.

Discharge of the Patient

- I. Patient should be informed about his/her discharge one day in advance and discharge cards should be prepared 1 day prior to the planned discharge.
- II. The discharge card should include the salient points in history and examination, complete diagnosis, important management decisions, hospital course and procedures done during hospital stay and the final advice to the patient.
- III. Consultants and PG Residents should check the particulars of the discharge card and counter sign it.
- IV. Patient should be briefed regarding the date, time and location of OPD for the follow up visit

In Case of Death

- In case it is anticipated that a particular patient is in a serious condition, relatives should be informed about the critical condition of the patient beforehand.
- Residents should be expected to develop appropriate skills for breaking bad news and bereavements.
- Follow up death summary should be written in the file and face sheet notes must be filled up and the nurse in charge should be requested to send the body to the mortuary with respect and dignity from where the patient's relatives can be handed over the body.
- In case of a medico legal case, death certificate has to be prepared in triplicate and the body handed over to the mortuary and the local police authorities should be informed.
- Autopsy should be attempted for all patients who have died in the hospital especially if the patient died of an undiagnosed illness.

Bedside Procedures The following guidelines should be observed strictly:

- Be aware of the indications and contraindications for the procedure and record it in the case sheet. Rule out contraindications like low platelet count, prolonged prothrombin time, etc.
- Plan the procedure during routine working hours, unless it is an emergency. Explain the procedure with its complications to the patient and his/her relative and obtain written informed consent on a proper form. Perform the procedure under strict aseptic precautions using standard techniques. Emergency tray should be ready during the procedure.
- Make a brief note on the case sheet with the date, time, nature of the procedure and immediate complications, if any
- Monitor the patient and watch for complications(s).

OT responsibilities

- The 1st year resident observes the general layout and working of the OT, understands the importance of maintaining sanctity of the OT, scrubbing, working and sterilization of all the OT Instrument, know how of endoscopes.
- He/ She is responsible shifting of OT patients, for participating in surgery as 2 nd assistant and for post operative management of patient in recovery and in ward.
- The 2nd year resident is responsible for pre op work up of the patient, surgical planning and understanding the rationale of surgery.
- He/she is the first assistant in surgery and is responsible for anticipating intra op and post op complications and managing them.
- The final year resident should be able to perform minor/medium/major surgeries independently and assist in medium/major/extra major surgeries.
- He/she should be able to handle all emergencies and post op complications independently and is responsible for supervision and guidance of his/her juniors.

Medico-Legal Responsibilities of the Residents

All the residents are given education regarding medico-legal responsibilities at the time of admission in a short workshop.

- They must be aware of the formalities and steps involved in making the correct death certificates, mortuary slips, medico-legal entries, requisition for autopsy etc.
- They should be fully aware of the ethical angle of their responsibilities and should learn how to take legally valid consent for different hospital procedures & therapies.
- They should ensure confidentiality at every stage

Internal Assessment

The performance of the resident during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student. Marks should be allotted out of 100 as followed.

1. Personal Attributes 20
2. Clinical Work 20
3. Academic activities 20
4. End of term theory examination 20
5. End of term practical examination 20

1. Personal attributes:

- Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- Interpersonal Skills and Leadership Quality: Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.

- Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, and does not sit idle, competent in clinical case work up and management.
- Academic ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

3. Academic Activity: Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

4. End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months

5. End of term practical/oral examinations after 2 years 9 months.

Marks for personal attributes and clinical work should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.

Marks for academic activity should be given by the all consultants who have attended the session presented by the resident.

The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.

Competencies

- Possess complete clinical diagnostic skills for recognition of urological diseases.
- Possess complete knowledge of application of biochemical, microbiological and pathological tests in the diagnosis and management of urological diseases.
- Possess complete knowledge of the application and interpretation of imaging studies in the diagnosis and management of urological diseases.

- Perform simple imaging studies like basic ultrasound evaluation of the kidney, ureter, bladder and prostate, transrectal ultrasonography of prostate and seminal vesicles, retrograde and antegrade urethrogram, cystogram and voiding cystourethrogram, nephrostogram, retrograde ureteropyelogram, etc.
- Perform all commonly used urodynamic studies and apply and interpret the results appropriately.
- Be able to apply sound clinical judgment to plan cost effective investigation and management of most urologic diseases.
- Be able to medically treat most urologic diseases.
- Be able to use ESWL and manage complications arising out of its application.
- Have the skill to perform common outpatient urological procedures like urethral catheterization, suprapubic cystostomy, urethral dilatation, prostate biopsy, ultrasound and fluoroscopy guided percutaneous nephrostomy and cyst aspiration, drainage of periurethral abscess, dorsal slit etc.,
- Be able to perform common urological endoscopic procedures like
 1. Diagnostic cystoscopy and bladder biopsy,
 2. Ureteral catheterization,
 3. Endoscopic urethrotomy,
 4. Ureteral stenting and stent removal,
 5. Foreign body removal from bladder,
 6. Cystolithotripsy,
 7. Bladder neck incision,
 8. Transurethral incision of prostate,
 9. Resection of small prostates and bladder tumors,
 10. Ureteroscopy and retrieval of ureteral calculi, etc.

Be able to perform common open ablative and reconstructive surgical procedures like

- I. nephrectomy
- II. pyelolithotomy
- III. ureterolithotomy
- IV. open prostatectomy
- V. cystolithotomy

- VI. urethroplasties for simple urethral strictures
- VII. penectomy
- VIII. orchiectomy
- IX. orchidopexy

- Manage effectively and efficiently common urological emergencies in the casualty outpatient department and wards including patients in other disciplines.
- Manage effectively urological emergencies detected or occurring during surgery in other disciplines like bladder or ureteral injuries etc. during surgical, gynaecological procedures.
- Possess understanding of recent advances in the subject of Urology and its allied specialities.
- Possess working knowledge of consumables used in Urology and the upkeep and maintenance of the special equipment used in Urology especially the endoscopes.
- Be able to conduct research work in the field of Urology both clinical and experimental and be able to critically analyse data as well as research papers.
- Be able to teach Undergraduate students of MBBS, Postgraduate students of surgery as well as students of nursing and other paramedical courses the elements of Urology appropriate to them.
- Be able to and have demonstrated ability to conduct research studies and presented the papers in conferences or published in journals.
- Be able to recognise and refer appropriately cases that are beyond his competence.
- Be able to work as a member of a team of medical and paramedical staff as well as be able to work as a team leader for effectively and efficiently carrying out urological services.

THESIS PROTOCOL & THESIS

The candidates are required to submit a thesis at the end of three years of training as per the rules and regulations of NBE.

Guidelines for Submission of Thesis Protocol & Thesis by candidates

Research shall form an integral part of the education programme of all candidates registered for DNB degrees of NBE. The Basic aim of requiring the candidates to write a thesis protocol & thesis/dissertation is to familiarize him/her with research methodology. The members of the faculty guiding the thesis/dissertation work for the candidate shall ensure that the subject matter selected for the thesis/dissertation is **feasible, economical** and **original**.

Guidelines for Thesis Protocol

The protocol for a research proposal (including thesis) is a study plan, designed to describe the background, research question, aim and objectives, and detailed methodology of the study. In other words, the protocol is the 'operating manual' to refer to while conducting a particular study.

The candidate should refer to the NBE Guidelines for preparation and submission of Thesis Protocol before the writing phase commences. The minimum writing requirements are that the language should be clear, concise, precise and consistent without excessive adjectives or adverbs and long sentences. There should not be any redundancy in the presentation.

The development or preparation of the Thesis Protocol by the candidate will help her/him in understanding the ongoing activities in the proposed area of research. Further it helps in creating practical exposure to research and hence it bridges the connectivity between clinical practice and biomedical research. Such research exposure will be helpful in improving problem solving capacity, getting updated with ongoing research and implementing these findings in clinical practice.

Research Ethics: Ethical conduct during the conduct and publication of research is an essential requirement for all candidates and guides, with the primary responsibility of ensuring such conduct being on the thesis guide. Issues like Plagiarism, not maintaining the confidentiality of data, or any other distortion of the research process will be viewed seriously. The readers may refer to standard documents for the purpose.

The NBE reserves the right to check the submitted protocol for plagiarism, and will reject those having substantial duplication with published literature.

PROTOCOL REQUIREMENTS

1. All of the following will have to be entered in the online template. The thesis protocol should be restricted to the following word limits.
 - Title : 120 characters (with spacing) page
 - Synopsis [structured] : 250-300
 - Introduction : 300-500
 - Review of literature : 800-1000
 - Aim and Objectives : Up to 200

- Material and Methods : 1200-1600
 - 10-25 References [ICMJE style]
2. It is mandatory to have ethics committee approval before initiation of the research work. The researcher should submit an appropriate application to the ethics committee in the prescribed format of the ethics committee concerned.

Guidelines for Thesis

1. The proposed study must be approved by the institutional ethics committee and the protocol of thesis should have been approved by NBE.
2. The thesis should be restricted to the size of 80 pages (maximum). This includes the text, figures, references, annexures, and certificates etc. It should be printed on both sides of the paper; and every page has to be numbered. Do not leave any page blank. To achieve this, following points may be kept in view:
 - a. The thesis should be typed in 1.5 space using Times New Roman/Arial/Garamond size 12 font, 1" margins should be left on all four sides. Major sections viz., Introduction, Review of Literature, Aim & Objectives, Material and Methods, Results, Discussion, References, and Appendices should start from a new page. Study proforma (Case record form), informed consent form, and patient information sheet may be printed in single space.
 - b. Only contemporary and relevant literature may be reviewed. Restrict the introduction to 2 pages, Review of literature to 10-12 pages, and Discussion to 8-10 pages.
 - c. The techniques may not be described in detail unless any modification/innovations of the standard techniques are used and reference(s) may be given.
 - d. Illustrative material may be restricted. It should be printed on paper only. There is no need to paste photographs separately.
3. Since most of the difficulties faced by the residents relate to the work in clinical subject or clinically-oriented laboratory subjects, the following steps are suggested:
 - a. The number of cases should be such that adequate material, judged from the hospital attendance/records, will be available and the candidate will be able to collect case material within the period of data collection, i.e., around 6-12 months so that he/she is in a position to complete the work within the stipulated time.
 - b. The aim and objectives of the study should be well defined.
 - c. As far as possible, only clinical/laboratory data of investigations of patients or such other material easily accessible in the existing facilities should be used for the study.
 - d. Technical assistance, wherever necessary, may be provided by the department concerned. The resident of one specialty taking up some problem related to some other specialty should have some basic

knowledge about the subject and he/she should be able to perform the investigations independently, wherever some specialized laboratory investigations are required a co-guide may be co-opted from the concerned investigative department, the quantum of laboratory work to be carried out by the candidate should be decided by the guide & co-guide by mutual consultation.

4. The clinical residents are not ordinarily expected to undertake experimental work or clinical work involving new techniques, not hitherto perfected OR the use of chemicals or radioisotopes not readily available. They should; however, be free to enlarge the scope of their studies or undertake experimental work on their own initiative but all such studies should be feasible within the existing facilities.
5. The DNB residents should be able to freely use the surgical pathology/autopsy data if it is restricted to diagnosis only, if however, detailed historic data are required the resident will have to study the cases himself with the help of the guide/co-guide. The same will apply in case of clinical data.
6. Statistical methods used for analysis should be described specifically for each objective, and name of the statistical program used mentioned.

General Layout of a DNB Thesis:

- **Title-** A good title should be brief, clear, and focus on the central theme of the topic; it should avoid abbreviations. The Title should effectively summarize the proposed research and should contain the PICO elements.
- **Introduction-** It should be focused on the research question and should be directly relevant to the objectives of your study.
- **Review of Literature** - The Review should include a description of the most relevant and recent studies published on the subject.
- **Aim and Objectives** - The 'Aim' refers to what would be broadly achieved by this study or how this study would address a bigger question / issue. The 'Objectives' of the research stem from the research question formulated and should at least include participants, intervention, evaluation, design.
- **Material and Methods-** This section should include the following 10 elements: Study setting (area), Study duration; Study design (descriptive, case-control, cohort, diagnostic accuracy, experimental (randomized/non-randomized)); Study sample (inclusion/exclusion criteria, method of selection), Intervention, if any, Data collection, Outcome measures (primary and secondary), Sample size, Data management and Statistical analysis, and Ethical issues (Ethical clearance, Informed consent, trial registration).

- **Results-** Results should be organized in readily identifiable sections having correct analysis of data and presented in appropriate charts, tables, graphs and diagram etc.
- **Discussion**—It should start by summarizing the results for primary and secondary objectives in text form (without giving data). This should be followed by a comparison of your results on the outcome variables (both primary and secondary) with those of earlier research studies.
- **Summary and Conclusion-** This should be a précis of the findings of the thesis, arranged in four paragraphs: (a) background and objectives; (b) methods; (c) results; and (d) conclusions. The conclusions should strictly pertain to the findings of the thesis and not outside its domain.
- **References-** Relevant References should be cited in the text of the protocol (in superscripts).
- **Appendices** -The tools used for data collection such as questionnaire, interview schedules, observation checklists, informed consent form (ICF), and participant information sheet (PIS) should be attached as appendices. Do not attach the master chart.

Thesis Protocol Submission to NBE

1. DNB candidates are required to submit their thesis protocol within 90 days of their joining DNB training.
2. Enclosures to be submitted along with protocol submission form:
 - a) Form for Thesis Protocol Submission properly filled.
 - b) Thesis Protocol duly signed.
 - c) Approval letter of institutional Ethical committee. (*Mandatory, non receivable of any one is liable for rejection*)

Thesis Submission to NBE

1. As per NBE norms, writing a thesis is essential for all DNB candidates towards partial fulfillment of eligibility for award of DNB degree.
2. DNB candidates are required to submit the thesis before the cut-off date which shall be 30th June of the same year for candidates appearing for their scheduled December final theory examination. Similarly, candidates who are appearing in their scheduled June DNB final examination shall be required to submit their thesis by 31st December of preceding year.
3. Candidates who fail to submit their thesis by the prescribed cutoff date shall NOT be allowed to appear in DNB final examination.
4. Fee to be submitted for assessment (In INR): 3500/-

5. Fee can be deposited ONLY through pay-in-slip/challan at any of the Indian bank branch across India. The challan can be downloaded from NBE website www.natboard.edu.in
6. Thesis should be bound and the front cover page should be printed in the standard format. A bound thesis should be accompanied with:
 - a. A Synopsis of thesis.
 - b. Form for submission of thesis, duly completed
 - c. NBE copy of challan (in original) towards payment of fee as may be applicable.
 - d. Soft copy of thesis in a CD duly labeled.
 - e. Copy of letter of registration with NBE.
7. A declaration of thesis work being bonafide in nature and done by the candidate himself/herself at the institute of DNB training need to be submitted bound with thesis. It must be signed by the candidate himself/herself, the thesis guide and head of the institution, failing which thesis shall not be considered.

***The detailed guidelines and forms for submission of Thesis Protocol
& Thesis are available at
www.natboard.edu.in.thesis.php.***

LOG BOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant.

This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The log book should show evidence that the before mentioned subjects were covered (with dates and the name of teacher(s)) The candidate will maintain the record of all academic activities undertaken by him/her in log book .

1. Personal profile of the candidate
2. Educational qualification/Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations
6. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
7. In the absence of production of log book, the result will not be declared.

Leave Rules

1. DNB Trainees are entitled to leave during the course of DNB training as per the Leave Rules prescribed by NBE.
2. A DNB candidate can avail a maximum of 20 days of leave in a year excluding regular duty off/ Gazetted holidays as per hospital/institute calendar/policy.
3. MATERNITYLEAVE:
 - a. A female candidate is permitted a maternity leave of 90 days once during the entire duration of DNB course.
 - b. The expected date of delivery (EDD) should fall within the duration of maternity leave.
 - c. Extension of maternity leave is permissible only for genuine medical reasons and after prior approval of NBE. The supporting medical documents have to be certified by the Head of the Institute/hospital where the candidate is undergoing DNB training. NBE reserves its rights to take a final decision in such matters.

- d. The training of the candidate shall be extended accordingly in case of any extension of maternity leave being granted to the candidate.
 - e. Candidate shall be paid stipend during the period of maternity leave. No stipend shall be paid for the period of extension of leave.
4. Male DNB candidates are entitled for paternity leave of maximum of one week during the entire period of DNB training.
 5. No kind of study leave is permissible to DNB candidates. However, candidates may be allowed an academic leave as under across the entire duration of training program to attend the conferences/CMEs/Academic programs/Examination purposes.

DNB COURSE	NO. OF ACADEMIC LEAVE
DNB 3 years Course (Broad & Super Specialty)	14 Days
DNB 2 years Course (Post Diploma)	10 Days
DNB Direct 6 years Course	28 days

6. Under normal circumstances leave of one year should not be carried forward to the next year. However, in exceptional cases such as prolonged illness the leave across the DNB training program may be clubbed together with prior approval of NBE.
7. Any other leave which is beyond the above stated leave is not permissible and shall lead to extension/cancellation of DNB course.
8. Any extension of DNB training for more than 2 months beyond the scheduled completion date of training is permissible only under extra-ordinary circumstances with prior approval of NBE. Such extension is neither automatic nor shall be granted as a matter of routine. NBE shall consider such requests on merit provided the seat is not carried over and compromise with training of existing trainees in the Department.
9. Unauthorized absence from DNB training for more than 7 days may lead to cancellation of registration and discontinuation of the DNB training and rejoining shall not be permitted.
10. Medical Leave
 - a. Leave on medical grounds is permissible only for genuine medical reasons and NBE should be informed by the concerned institute/hospital

about the same immediately after the candidate proceeds on leave on medical grounds.

- b. The supporting medical documents have to be certified by the Head of the Institute/hospital where the candidate is undergoing DNB training and have to be sent to NBE.
- c. The medical treatment should be taken from the institute/ hospital where the candidate is undergoing DNB training. Any deviation from this shall be supported with valid grounds and documentation.
- d. In case of medical treatment being sought from some other institute/hospital, the medical documents have to be certified by the Head of the institute/hospital where the candidate is undergoing DNB training.
- e. NBE reserves its rights to verify the authenticity of the documents furnished by the candidate and the institute/hospital regarding Medical illness of the candidate and to take a final decision in such matters.

11.

- a. Total leave period which can be availed by DNB candidates is $120+28 = 148$ days for 6 years course, $60+14=74$ days for 3 years course and $40+10 = 50$ days for 2 years course. This includes all kinds of eligible leave including academic leave. Maternity / Paternity leave can be availed separately by eligible candidates. Any kind of leave including medical leave exceeding the aforementioned limit shall lead to extension of DNB training. It is clarified that prior approval of NBE is necessary for availing any such leave.
- b. The eligibility for DNB Final Examination shall be determined strictly in accordance with the criteria prescribed in the respective information bulletin.

EXAMINATION

FORMATIVE ASSESSMENT

Formative assessment includes various formal and informal assessment procedures by which evaluation of student's learning, comprehension, and academic progress is done by the teachers/ faculty to improve student attainment. Formative assessment test (FAT) is called as "Formative" as it informs the in process teaching and learning modifications. FAT is an integral part of the effective teaching. The goal of the FAT is to collect information which can be used to improve the student learning process.

Formative assessment is essentially positive in intent, directed towards promoting learning; it is therefore part of teaching. Validity and usefulness are paramount in formative assessment and should take precedence over concerns for reliability. The assessment scheme consists of Three Parts which has to be essentially completed by the candidates.

The scheme includes:-

Part I:- Conduction of theory examination

Part-II :- Feedback session on the theory performance

Part-III :- Work place based clinical assessment

Scheme of Formative assessment

PART – I	CONDUCT OF THEORY EXAMINATION	Candidate has to appear for Theory Exam and it will be held for One day.
PART – II	FEEDBACK SESSION ON THE THEORY PERFORMANCE	Candidate has to appear for his/her Theory Exam Assessment Workshop.
PART – III	WORK PLACE BASED CLINICAL ASSESSMENT	After Theory Examination, Candidate has to appear for Clinical Assessment.

The performance of the resident during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student

1. Personal attributes:

- **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- **Motivation and Initiative:** Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- **Honesty and Integrity:** Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- **Interpersonal Skills and Leadership Quality:** Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- **Availability:** Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
- **Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
- **Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- **Clinical Performance:** Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

3. Academic Activity:

Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

FINAL EXAMINATION

The summative assessment of competence will be done in the form of DNB Final Examination leading to the award of the degree of Diplomate of National Board in Urology. The DNB final is a two-stage examination comprising the theory and practical part. An eligible candidate who has qualified the theory exam is permitted to appear in the practical examination.

Theory Examination

1. The theory examination comprises of **Three/ Four** papers, maximum marks 100 each.
2. There are 10 short notes of 10 marks each, in each of the papers. The number of short notes and their respective marks weightage may vary in some subjects/some papers.
3. Maximum time permitted is 3 hours.
4. Candidate must score at least 50% in the aggregate of **Three/ Four** papers to qualify the theory examination.
5. Candidates who have qualified the theory examination are permitted to take up the practical examination.
6. The paper wise distribution of the Theory Examination shall be as follows:

Paper I:

- Basic sciences applied to the specialty

- Congenital disorders
- Urodynamic disorders
- Infections and Inflammatory diseases
- Calculous diseases

Paper II:

- Vascular disorders
- Neuropathic disorders
- Injury to the Genito-Urinary tract
- Neoplastic diseases

Paper III:

- Endocrine disorders
- Reproductive diseases
- Nephrological aspects Of Urology
- Surgery
- Investigations

a) Practical Examination:

1. Maximum Marks: 300.
2. Comprises of Clinical Examination and Viva.
3. Candidate must obtain a minimum of 50% marks in the Clinical Examination (including Viva) to qualify for the Practical Examination.
4. There are a maximum of three attempts that can be availed by a candidate for Practical Examination.
5. First attempt is the practical examination following immediately after the declaration of theory results.
6. Second and Third attempt in practical examination shall be permitted out of the next three sessions of practical examinations placed alongwith the next three successive theory examination sessions; after payment of full examination fees as may be prescribed by NBE.
7. Absentation from Practical Examination is counted as an attempt.
8. Appearance in first practical examination is compulsory;

9. Requests for Change in center of examination are not entertained, as the same is not permissible.
10. Candidates are required not to canvass with NBE for above.

Declaration of DNB Final Results

2. DNB final is a qualifying examination.
3. Results of DNB final examinations (theory & practical) are declared as PASS/FAIL.
4. DNB degree is awarded to a DNB trainee in the convocation of NBE.

RECOMMENDED TEXT BOOKS AND JOURNALS

BOOKS AND JOURNALS. It is also important that department should have an Internet facility which would enable residents to browse and use medline search.

BOOKS

1. Campbell urology-3 Volumes Edited by Walgh, et al
2. Scientific Basis of Urology Mundy
3. Current Urological Therapy Kaufman
4. Obstructive Uropathy O'Reilly
5. Urogenital trauma Macaminch
6. Text book of Urology Whitefield & Hendry
7. Adult & Paediatric Urology Gillenwater et al

- **Paediatric Urology**

1. Pediatric Urology Kelalis & King – 2 vol.
2. Paediatric Urology Whitakar

- **Uro-oncology**

1. Genito-urinary cancer management Backeman & Paulson
2. Genitourinary cancer Dekerrion et al
3. Testicular cancer Javadopor

- **Urodynamics**

1. Urodynamics principle & practise Mundy

2. Controversy in Neurourology Barret & wein
3. Neurourology & urodynamics Bradly & Hald

- **Stone Diseases**

1. Stone disease Diagnosis & management by Rous
2. Endourology Clayman et.al
3. Endourology Carson
4. Extracorporeal shock wave Lithotripsy Gravernstein
5. Endourology Arthur Smith

- **Infertility**

1. Male Infertility Amelar
2. Reproductive infertility Silber
3. Microsurgery in male and female

- **Reconstructive and Female Urology**

1. Operative Gynaecology Te Linde
2. Female urology Blandy
3. Urinary Incontinence Dat. D.O.'Donnel
4. Urogynaecology & urodynamics Obstargard & Bent
5. Reconstructive urologic surgery Libertino

- **Renal Transplantation**

1. Kidney transplantation Peter morris
2. Renal transplantation Garovoy & Guttman
3. Introduction to Dialysis Logan
4. Vascular access in Haemodialysis Bell et Al

- **Operative Urology**

1. Glen's operative urology
2. Urologic Endoscopy Bagley et al

3. Transurethral surgery Maurmayer

- **Laparoscopy**

1. Laparoscopic urology Ralph V. Clayman, E.M. McDougall
2. Urologic Laparoscopy Sakti Das
3. Laparoscopic Urologic Surgery A.K.

Hemal Uroradiology- Emmett's –Witten

-Clinical Uroradiology 3 volumes

Journals

- Indian J. Urology
- Journal of Urology
- British J. Urology
- Neurourology & Urodynamics
- Urology (Gold Journal)
- European Urology
- Urologia internationalis
- Scandinavian J. Urology & Nephrology
- Transplantation
- Transplant Proceedings
- Urological Research
- Urologic Radiology
- World Journal of Urology Periodicals
- Urological clinics of North America
- Seminars in Urology
- Controversy in Urology
- Recent Advances in Urology
- Year Book of Urology
- Modern Trend in Urology
