Guidelines

for

Competency Based Training Programme

in

DNB- Nephrology

NATIONAL BOARD OF EXAMINATIONS

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CONTENTS

AIM

The programme aims at training a Physician in the specialty of Nephrology encompassing the related knowledge, skills, research methodology and attitudes which will enable him/her to function as an independent clinician/consultant, a teacher or a research scientist

PROGRAMME GOAL

The goal of the programme is to produce a competent nephrologist who:

- Has acquired the competence pertaining to Nephrology that is required to be practiced in the community and at all levels of health care system
- Has acquired the skills to manage the patient effectively pertaining to nephrology
- Has acquired skill in effectively communicating with patient and his attendants.
- Has the desired skills to independently manage emergency cases
- Is aware of the latest developments in the field of nephrology oriented to principles of research methodology
- Has acquired skills in educating medical and paramedical professionals.

PROGRAMME OBJECTIVES

The main objective of postgraduate medical education shall be to produce specialists of Nephrology who shall have the following competencies

- Practice the specialty of nephrology in keeping with the principles of professional ethics
- Recognize and identify the various renal problems
- Institute diagnostic, therapeutic, rehabilitative and preventive measures to provide holistic care to the patient
- Take detailed history, perform full physical examination and make clinical diagnosis, perform relevant investigative and therapeutic procedures
- Interpret important imaging and laboratory results
- Independently perform basic surgical procedures
- Manage emergency efficiently
- Demonstrate empathy and human approach towards patients and their families.
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education 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, facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher/trainer organize and supervise the desired managerial and leadership

ELIGIBILITY CRITERIA FOR ADMISSIONS TO THE PROGRAMME

(A) DNB Nephrology Course:

1. Any medical graduate with ***MD/DNB in General Medicine or Paediatrics*** 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 Nephrology seats purely on merit cum choice basis.

2. Admission to 3 years post DNB Nephrology 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

- Applied basic sciences knowledge relevant to the field of nephrology including electrolyte and acid base disorders.
- Investigative techniques, selection and interpretation of results
- Pathogenesis of renal diseases and renal histopathology
- Diseases of the urinary react (glomerular diseases urinary tract infection, tubulointerstitial diseases, inherited diseases, toxic nephropathies, systemic diseases with renal involvement, renal stone disease, urinary tract obstruction, vascular diseases of kidney, hypertension, neolasia etc)
- Renal failure (diagnosis and medical management)
- Principles and practice of dialysis
- Renal transplantation and Transplant immunology
- Recent advances in nephrology
- Biostatistics and clinical epidemiology
- Ethics, psychosocial, economics of management of renal diseases, human organ transplant act and medicolegal aspects of transplantation.

ASSESSMENT OF RENAL DISEASE

- History and clinical examination of patients with renal disease
- Urinalysis and microscopy
- Clinical assessment of renal function
- Renal function in the newborn infant
- The aging kidney
- Imaging in renal disease
- Renal biopsy Immunological investigation of renal disease

BASICS- Embryology of the kidney

- Anatomy of the kidney
- Renal circulation
- Solute transport / Both organic and in organic
- Renal Acidification Urine Concentration & Dilution
- Role of kidney in blood pressure regulation
- Endocrine and Autocrine function of the kidney

PHARMACOLOGY AND DRUG

- Handling of drugs in kidney disease Drug- induced nephropathies
- Clinical use of diuretics
- Systemic cancer therapies and the kidney

FLUID AND ELECTROLYTE DISORDERS

- Hypo/hypernatremia:
- Disorders of water balance
- Hypo/hyperkalemia
- Hypo/hypercalcemia
- Hypo/hyperphosphatemia
- Hypo/hypermagnesemia
- Clinical acid- base disorders

EPIDEMIOLOGY AND RISK FACTORS

- Epidemiology of kidney disease Kidney disease in Indian subcontinents
- Risk factors of CKD Nephron endowment
- Aging and kidney disease
- CKDu (chronic kidney disease of unknown etiology)

PEDIATRIC NEPHROLOGY

- Malformation of the kidney
- Fluid, Electrolyte,
- Acid base disturbance
- Disease of kidney and Urinary track
- Dialysis in Children

Urologic Aspects of Pediatric Nephrology

- Anomalies of the urinary tract: the trainee will understand a. Diagnosis, evaluation, treatment, and long term outcome of anomalies of the upper and lower urinary tract such
    - Hydronephrosis,
    - Hydroureter
    - Ureterocoele
    - Posterior urethral valves, prune belly triad syndrome, ectopic or fused kidney

- The pathophysiologic consequences of urinary tract obstruction

- Special fetal and neonatal issues genitourinary (GU) issues such as

i. Evaluation and management GU abnormalities detected in utero

ii. Indications for prenatal intervention for fetal urinary tract obstruction

iii. Diagnosis and management of hematuria in neonates

- Urinary tract infection (UTI) in infancy, childhood, adolescence:the trainee will know
  a. The definition, epidemiology, pathogenesis and spectrum of causative organisms
  b. Appropriate diagnostic methods and pitfalls
  c. Modes of therapy
  d. Appropriate follow up and imaging evaluation
  e. The causes of sterile pyuria

- Vesicoureteral reflux (VUR): the trainee will understand
  a. The epidemiology, natural history, appropriate imaging and VUR grading
  b. The clinical management and long term follow up of each grade of VUR reflux

- Neurogenic bladder: the trainee will understand
  a. Normal physiologic phases of micturition
  b. Different types of neurogenic bladder, including “non neurogenic”
  c. Etiologies, pathophysiology, and treatment options

- Enuresis in Children: the trainee will understand
  a. The maturation of bladder function
  b. The definition, incidence and pathogenesis of enuresis
  c. , When and how to evaluate enuresis, and therapeutic modalities for the treatment

- Urinary tract trauma: the trainee will recognize
  a. Predisposing factors, physical, laboratory and imaging findings, and possible sequelae

- Renal tumours in children: the trainee will know and understand
  a. , The clinical features, natural history, evaluation and diagnosis of nephroblastoma (Wilms’ tumour), mesoblastic nephroma,
  b. The genetic implications and associated phenotypic abnormalities

GLOMERULAR DISEASE

- Proteinuria and/or hematuria
- Nephrotic syndrome
- Minimal change disease Focal segmental glomerulosclerosis
- Immunoglobulin A nephropathy and Henoch- Schönlein purpura
- Membranous nephropathy
- Mesangiocapillary glomerulonephritis

- Acute endocapillary glomerulonephritis
- Crescentic glomerulonephritis
- Antiglomerular basement membrane (Goodpasture's) disease
- Infection- related glomerulonephritis
- Malignancy- associated glomerular disease
- Glomerular disease in the tropics

THE KIDNEY IN SYSTEMIC DISEASE

- Diabetes mellitus
- Amyloid and immunotactoid glomerulopathy
- Plasma cell dyscrasias Sarcoidosis
- Systemic vasculitis
- Mixed cryoglobulinemis and hepatitis C infection
- Systemic lupus erythematosus
- Scleroderma- systemic
- sclerosis Rhematoid arthritis,
- connective tissue disease, and
- sjögren's syndrome
- Sickle cell nephropathy
- Cancer and the kidney

TUBULAR DISEASE

- Isolated defects of tubular function
- Fanconi syndrome
- Renal tubular acidosis
- Hypokalemia
- tubular disorders
  Nephrogenic diabetes insipidus

CHRONIC INTERSTITIAL DISEASE

- Analgesic nephropathy
- Nonsteroidal anti- inflammatory drugs and the kidney
- Nephrotoxic metals Balkan nephropathy
- Aristochic acid nephropathy ('Chinese herb nephropathy') and other rare causes of chronic interstitial nephritis

URINARY TRACT INFECTION

- Lower and upper urinary tract infection in adults
- Urinary tract infection in children
- Renal tuberculosis or other mycobacterial infections
  Fungal infections and the kidney
- UTI in Pregnancy and Graft pyelonephritis

RENAL STONE DISEASE

- Medical management of stone disease
- Surgical management of stone disease
- Nephrocalcinosis
- Renal stone disease in children

ACUTE KIDNEY INJURY (AKI)

- Clinical approach to AKI
- Renal replacement therapies in AKI
- Dialysis and hemoperfusion treatment of acute poisoning
- Glomerulonephritis,
- vasculitis, and nephritic syndrome
- Acute tubulointerstitial nephritis
- Hemolytic uremic syndrome and thrombotic thrombocytopenic purpura
- Hepatorenal syndrome
- Ischemic AKI
- Pigment- induced AKI
- AKI in tropical countries
- AKI in infants and children
- AKI in pregnancy AKI in the elderly

CHRONIC KIDNEY DISEASE (CKD)

- Assessment of CKD
- Endocrine disorders in CKD
- Sexual disorders in CKD
- Hypertension in CKD
- Cardiovascular risk factors in CKD

- Gastrointestinal disorders in CKD
- Liver disorder in CKD
- Hematological disorders in CKD
- Skeletal disorders in CKD
- β2- Microglobulin amyloidosis in CKD
- Immune function in CKD
- Coagulation disorders in CKD
- Dermatologic disorders in CKD
- Neuropsychiatric disorders in CKD

SPECIAL PROBLEMS IN CKD

- CKD in the elderly
- CKD in diabetic patients
- CKD in pregnancy
- CKD in children
- Growth and endocrine disturbances in children with CKD

DIALYSIS

- Dialysis strategies
- Vascular access Hemodialysis,
- hemofiltration and hemodiafiltration
- Peritoneal dialysis
- Adequacy of dialysis
- Medical management of the dialysis patient
- Psychological aspects of treatment for renal failure

RENAL TRANSPLATATION

- Donor & Recipient issues
- Transplantation immunobiology
- Medical & surgical complications following transplantation
- Early management of transplant recipients
- Immunosuppression for renal transplantation
- Chronic complications in transplant recipients
- CMV, BKV and other virus related renal damage.

INHERITED RENAL DISEASE

- Investigation of inherited renal disease
- Autosomal dominant polycystic kidney disease
- Nephronophthisis
- Alport's syndrome
- Primary hyperoxalurias

STRUCTURAL AND CONGENITAL ABNORMALITIES

- Renal dysplasia
- Vesicoureteric reflux and reflux nephropathy
- Urinary tract obstruction
- Congenital abnormalities of the urinary tract
- Medullary sponge kidney

METHOD OF TRAINING

The training of the post graduate courses shall be on a residency pattern with assigned responsibilities of patient care. The participation of the students in all facts of the training process shall be insisted upon.

1. Nephrology wards	-12 months (split it into 1st yr & 2nd yr)
2. Dialysis	-12months (split it into 1st yr & 2nd yr)
3. Transplantation	-10 months (in the 3rd year)
4. Radiology, Urology,	- 1 month
Outstation posting	- maximum period of 2 months

Nephrology ward posting

Candidate is expected to acquire the ability of case taking and healthy personal relationship with the patient, Investigate and manage the patient under the guidance of a Postgraduate Teacher.

Dialysis posting

Trainee is expected to do the canulations, making access for different extracorporeal treatments, peritoneal catheter insertions and renal biopsy procedures under the guidance of a postgraduate teacher

Renal Transplantation posting

Trainee is expected to do the donor, recipient evaluation, perfusion procedures of transplantation, Brain death criteria and diagnosis, Counselling for organ transplantation, ICU care of recipients and follow up of the transplant recipients under the cover of a post graduate teacher.

During the training period he/she is expected to participate in a public meeting where renal diseases are discussed for the common people.

During the training period he/she is expected to take classes for undergraduates, postgraduates, nursing students, and trainees of dialysis technology.

- Bedside rounds - daily
- Mortality meeting - once a week
- Seminar - once in two weeks

- Grand rounds - once a week
- Journal club - once in two weeks
- Renal histology conference - once in two weeks
- Clinical case discussion - once a week
- Transplant meeting - once a week
- Nephro-urology conference - once a month
- Nephro-radiology conference - once a month
- Out patient nephrology care including renal transplant clinic

Didactic Lectures

A minimum of 15-20 lectures/year covering the recent advances in all aspects of renal diseases would be delivered by consultant faculty. In addition, candidates will be required to attend the complete, short term basic and clinical courses on

1. Bio-statistics
2. Research methodology and experimental lab medicine relevant to Nephrology
3. Use of Computers in Medicine
4. Bio ethics, ethical issues in transplantation including “Human Organ Transplant Act”

Interventional Procedures

A candidate will be required to have achieved proficiency in performing and supervising hemodialysis, peritoneal dialysis and renal biopsies.

He would be expected to have performed a minimum of 50 renal biopsies (native),minimum 25 graft biopsies, 300 hemodialysis including CVVHD, CRRT and 50 peritoneal dialysis- rather 5-10 intermittent peritoneal dialysis.(PD is not being practiced by most of the hospitals. However, resident need to be familiar with this life saving procedure)

The candidate would be expected to involve and be trained in all aspects of CAPD programme.

The candidate would also be expected to have inserted at least 50 internal jugular, 50 femoral catheters and atleast 5-10 AVF and 10 CAPD catheters.

The candidate would maintain record of all the procedures/ interventions in a log book, which would be certified by the Head of the department.

Investigative work-up

The candidate is expected to perform routine urine examination and ultrasonography. In addition he/she must familiarize himself/herself with the following investigations:

Laboratory:

- Electrolyte and acid base analysis
- Renal function tests
- Auto analyzer functioning
- Renal pathology interpretation including immuno-fluoresence and electron microscopy.

Radiological:

• Intravenous urography
• Micturating cystourethrography
• Digital subtraction angiography
• Selective renal angiography and interventional angioplasty and stenting
• Selective renal venography
• Doppler studies
• Antegrade and retrograde pyelography
• CT imaging
• Magnetic resonance imaging

Nuclear Medicine:

• Various renal isotope imaging and functional techniques
• Urodynamic studies

Microbiology:

• Viral, Bacterial and funal cultures, Serological and PCR techniques

Immunological test:

• ANCA, ANA, anti DsDNA, complement, anit GBM ab, cryogloblin, immunoelectrophoresis

Tissue typing:

• Cross match, serological typing, molecular HLA typing, PRA

Renal function testing

• Renal plasma flow, GRF
• Renal concentrating, diluting capacity
• Micro albuminuria
• Proteinuria measurement
• Urinary acidification
• Renal sodium and potassium handling

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. Afemale 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 Nephrology. 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 1: Basic sciences as related to the specialty, Research methodology

PAPER 2: Clinical Nephrology

PAPER 3: Investigative Experimental and Therapeutic aspects of Nephrology, Recent advances and 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

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

RECOMMENDED TEXT BOOKS AND JOURNALS

BOOKS

- Diagnostic Atlas of Renal Pathology,Fogo,Agnes B 7th ED. Elsevier , 2005
- Clinical Dialysis,Nissenson,Allen R,4th ED. Mc Graw Hill, 2005
- Hypertension companion to to Brenner & Rectors the Kidney,Oparil,Suzanne, 2nd Ed. Elsevier, 2005
- Nephrology Secrets,Brown, David E,2nd ED. Elsevier, 2003
- Disease of the Kidney & Urinary tract ,Schrier,Robert W,8th ED.Vol I, Lippincott, 2007
- Disease of the Kidney & Urinary tract ,Schrier,Robert W,8th ED.Vol II, Lippincott, 2007
- Disease of the Kidney & Urinary tract ,Schrier,Robert W,8th ED.Vol III, Lippincott, 2007
- Comprehensive Clinical Nephrology, Feehally, John, 3rd ED. Mosby 2007.
- Renal Diseases Prevevtion and Management:A physicians perspective,Feehally, John , Jaypee Brothers, 2008.
- Seldin and Giebischs the Kidney: Physiology and Pathophysiology,Alpern,Robert. J,Vol I 4th ED. Academic Publisher, 2008 11. Seldin and Giebischs the Kidney: Physiology and Pathophysiology,Alpern,Robert. J,Vol II 4th ED. Academic Publisher, 2008
- Comprehensive Pediatrics Nephrology, Geary, Denis. F (ED), 1st ED. Elsevier 2008. 13. Evidence- Based Nephrology, Molony, Donald. A, John wiley, 2009
- Handbook of Dialysis, Daugirdas, John. T, 4th ED. Lippincott, 2009
- Manual of Nephrology, Schrier, Robert.W,7th ED. Lippincott, 2009
- Oxford Handbook of Dialysis,Levy, Jeremy,2nd ED. Oxford, 2007
- Ganongs Review of Medical Physiology, Barrett, Kim. E (Etal), 24rd ED. Mc Graw Hill, 2012
- Renal Disease Techniques and Protocols, Goligorsky, Michael. S, Humana Press, 2003 19. Renal and Electrolyte Disorders,Schrier, Robert. W, 7th ED. Lippincott, 2010
- Acid- Base Disorder and their Treatment, Gennari, John F (Et al), Taylot & Francis, 2005
- Primer on Kidney Diseases, Greenberg, Arthur, 5th ED. Saunders, 2009
- The Kidney, Brenner & Rector - 8th ED. Saunders, 2008 25
- Critical Care Nephrology, C. Roncu – 2nd ED. Saunders, 2009.
- Oxford desk Reference Nephrology,Jonathan Barratt, Kevin harris, Peter Topham, 1st Indian ED, 2009.

JOURNALS

International

- Transplantation
- Kidney International
- Hemodialysis International
- Clinical Journal of the American Society of Nephrology

Indian

- Indian Journal of Nephrology

Online Journals

- BMC Nephrology
- Clinical and Experimental Nephrology
- International Urology and Nephrology
- Journal of Artificial Organs
- Hong Kong Journal of Nephrology
- Clinical Queries: Nephrology
- Journal of American society of Hypertension
- Journal of Cardiothoracic- Renal research
- Indian Journal of Transplantation
- Pediatric Nephrology in various

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