Guidelines

For

Competency Based Training Programme

In

DNB- GASTROENTEROLOGY

NATIONAL BOARD OF EXAMINATIONS

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CONTENTS

PROGRAMME GOAL

The aim of the course is to develop human resources and personnel in the field of Gastroenterology who shall

- Provide the health care to the patients needing diseases of the gastrointestinal tract and liver disease.
- Teach and train future undergraduate and postgraduate medical students and junior doctors in Gastroenterology and Hepatology in Medical Colleges, Institutions and other Hospitals.
- Carry out and guide research to improve the practice of the art and science of Gastroenterology and Hepatology.
- Identify social, economic, environmental, biological and emotional determinants of adult gastroenterology diseases and know the therapeutic, rehabilitative, preventive and promotion measures to provide holistic care to all patients.
- 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
- Facilitate learning of medical/nursing students, practicing physicians, para-medical 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.
- Have management capabilities to manage personnel and budgets etc. to make health more cost-effective.
- Organize health teams to provide care during natural or man-made calamities.

- Acquire thorough knowledge of internal medicine and allied general and clinical disciplines and to acquaint himself/herself with relevant education delivery systems and with the preventive aspect of gastrointestinal disease
- The candidate should acquaint himself/herself with the past and current literature on aspects of basic investigative and clinical gastroenterology, acquire skills for diagnostic and therapeutic procedures and interventions, diagnose, plan and interpret investigations and treat various gastrointestinal ailments including emergencies by relevant therapeutic methods

PROGRAMME OBJECTIVES

Departmental objectives: At the end of the DNB Gastroenterology course, students shall be able to:

- Practice the art and science of Gastroenterology and Hepatology in his/her field of practice and seek and provide consultation as required.
- He will have knowledge, skill and attitude to provide comprehensive GI / liver disease care.
- Conduct researches and communicate the findings, results and conclusion to his fraternity.
- Acquire necessary skills of teaching and training his junior colleagues and medical students.
- Keep abreast with the latest developments by self-learning and /or participating in continuing Medical Education programmes
- Organize and manage administrative responsibilities for routine day to day work as well as new situations including natural and on man-made accidents/calamities etc. and be able to manage situations calling for emergency interventions in the sphere of renal care and also routine problems in their areas.
- Exhibit awareness of the importance of audit and the need for considering cost-effectively in patient management.
- Deliver preventive and rehabilitative care.

ELIGIBILITY CRITERIA FOR ADMISSIONS TO THE PROGRAMME

(A) DNB Gastroenterology 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 **Gastroenterology** seats purely on merit cum choice basis.

2. Admission to 3 years post MBBS DNB **Gastroenterology** 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

Basic Sciences

Anatomy and Physiology

1. Immune system of the gastrointestinal tract (GIT) and its importance in various GI disorders
2. Molecular biology in relation to GIT
3. Genetic diseases of the GIT and the liver 4. Gene therapy
5. GI tumors and tumor biology
6. Gastrointestinal hormones in health and diseases
7. Embryology of the gut, liver, pancreas and congenital anomalies

Symptoms, Syndromes, and Scenarios Discomfort above the diaphragm

- Heartburn and noncardiac chest pain
  Dysphagia and odynophagia
  Discomfort below the diaphragm
- Chronic or recurrent abdominal pain,
  Dyspepsia: ulcer and non-ulcer/bloating and early satiety/belching and rumination
  Nausea and vomiting
- Disorders of defecation
- Diarrhea
- Fecal incontinence
- Rectal bleeding
- Anorectal pain and pruritus ani
- Generalized ill health
- Functional gastrointestinal disease,
- Anorexia nervosa and bulimia nervosa, Weight loss,
  Gastrointestinal causes of anemia and occult bleeding,

- Upper and lower gastro-intestinal bleeding
- Gastrointestinal tuberculosis

Esophagus:

1. Basic anatomy, histology and physiology
2. Congenital anomalies
3. Motility of the esophagus and motor disorders
4. Mechanism of deglutition and dysphasia
5. Approach to a patient with dysphasia
6. Gastro-esophageal reflux disease
7. Tumors of the esophagus
8. Esophageal webs, membranes and diverticulum
9. Management of benign and malignant esophageal strictures
10. Esophagus and systemic diseases
11. Infectious diseases of the esophagus
12. Foreign bodies in the esophagus and stomach
13. Esophageal perforation
14. Drug induced esophagitis

Stomach

1. Anatomy, histology, functions
2. Physiology of acid and bicarbonate secretion in health and diseases
3. Defence mechanisms against acid and pepsin
4. Gastroduodenal motor function in health and diseases.
5. Gastritis (nonspecific and specific)
6. Helicobacter pylori infection
7. Peptic ulcer
8. Dyspepsia
9. Stress and stomach
10. Gastric hypersecretory states including Zollinger Ellison syndrome
11. Ulcer complications and their management
12. Surgery for peptic ulcer

13. Post gastrectomy complication
14. Bezoars
15. Tumors of the stomach
16. Diverticuli and hernia of the stomach

Small Intestine

1. Anatomy, blood supply, histology
2. Motility of the small intestine
3. Congenital anomalies
4. Normal absorption of the nutrients
5. Intestinal electrolyte absorption and secretion
6. Malabsorption syndromes Pathophysiology, manifestations and approach
7. Celiac sprue
8. Infection related diseases a. Intestinal microflora in health and diseases b. Tropical sprue c. Whipple's disease d. Infectious diarrhoea and food poisoning e. Parasitic diseases
9. Small intestinal ulcers
10. Short bowel syndrome and intestinal transplantation.
11. Eosinophilic gastroenteritis
12. Food allergies
13. Intestinal obstruction and pseudo-obstruction
14. Short bowel syndrome
15. Acute appendicitis
16. Malrotation of the gut
17. Bezoars
18. Management of diarrhea
19. GI lymphomas
20. Small intestinal tumors
21. Small intestinal transplantation

Colon

1. Basic anatomy blood supply, histology and functions
2. Motility of the colon and disorders of motility
3. Congenital anomalies
4. Megacolon
5. Constipation
6. Colonic pseudo-obstruction
7. Fecal incontinence
8. Antibiotic associated diarrhea
9. Inflammatory bowel disease a. Ulcerative colitis b. Crohn's disease c. Indeterminate colitis d. Ileostomies and its management
10. Diverticular disease of the colon
11. Radiation entero-colitis
12. Colonic polyps and polyposis syndromes
13. Malignant diseases of the colon
14. Other inflammatory diseases of colon including a. Solitary rectal ulcer syndrome b. Diversion colitis c. Collagenous and microscopic colitis d. Non specific ulcerations of the colon e. Malakoplakia f. Pneumatoses cystoids intestinalis
15. Hemorrhoids
16. Diseases of the anorectum

Pancreas

1. Anatomy, physiology, blood supply, developmental anomalies
2. Physiology of the pancreatic secretion
3. Pancreatic function tests
4. Acute pancreatitis
5. Recurrent acute pancreatitis
6. Chronic pancreatitis
7. Malignancies of the pancreas(Exocrine and endocrine)
8. Cystic fibrosis and other childhood disorders of the pancreas
9. Hereditary pancreatitis
10. Pancreatic transplantation

Biliary Tree

1. Anatomy, Physiology
2. Physiology of bile formation and excretion
3. Enterohepatic circulation
4. Bilirubin metabolism.
5. Approach to a patients with jaundice
6. Gallstones, its complications, and management
7. Acute acalculous cholecystitis
8. Miscellaneous disorders of the gallbladder
9. Acute cholangitis
10. Benign biliary structure
11. Benign and malignant neoplasms of the biliary system.
12. Endoscopic management of biliary obstruction.
13. Motility and dysmotility of the biliary system and sphincter of Oddi dysfunction
14. Congenital diseases of the biliary systems

Liver

1. Anatomy, physiology, blood supply
2. Functions of the liver
3. Microcirculation of liver
4. Liver function tests
5. Portal hypertension i. Extrahepatic portosplenic vein obstruction ii. Non cirrhotic portal fibrosis iii. Cirrhosis
6. Acute viral hepatitis
7. Chronic hepatitis
8. Fulminant hepatic failure
9. Subacute hepatic failure
10. Cirrhosis of liver
11. Ascites
12. Hepatorenal syndrome
13. Autoimmune liver disease
14. Metabolic liver disease

15. Sclerosing cholangitis- primary and secondary
16. Primary biliary cirrhosis
17. Hepatic venous outflow tract obstruction
18. Fibrocystic diseases of the liver
19. Wilson's disease
20. Hemochromatosis
21. Liver in porphyria
22. Hepatic tumors
23. Infections of the liver
24. Liver in pregnancy
25. Liver in congestive heart failure ,Liver diseases and pregnancy,
26. Liver biopsy
27. Liver transplantation and artificial liver support Liver transplantation
28. Liver transplantation: indications and selection of candidates and immediate complications

Peritorium and Retroperitoneum

1. Ascites
2. Chronic peritonitis
3. Budd-Chiari syndrome
4. Malignant ascites
5. Diseases of the retroperitoneum

Diseases of Multiple Organ Systems

- Oral Disease and Oral-Cutaneous Manifestations of Gastrointestinal and Liver Disease
- Disorders of Mouth and Tongue,
- Mucocutaneous Candidasis, Mucocutaneous Features of HIV Infection,
- Mucocutaneous Ulcerative Disease,

- Vesiculobullous Diseases, Lichen Planus, Cutaneous Manifestations of Intestinal Disease

- Collagen vascular and vasculitic disorders*h*

- Systemic disease and the gastrointestinal tract112 Pancreatic endocrine tumors, 844
  The carcinoid syndrome,

- Vascular disorders of the liver,

- AIDS and the gut,

- Graft-versus-host disease,

- Radiation and other physicochemical injury

- Systemic amyloidosis,

- Foreign bodies

- Porphyria *Puy*

- The hereditary recurrent fevers5.

- Cutaneous manifestations of GI diseases

Psychosocial factors

- A Biopsychosocial Understanding of Gastrointestinal Illness and Disease Case Study:

- A Typical Patient in a Gastroenterology Practice,

- The Biomedical Model,

- The Biopsychosocial Model

Nutrition

1. Normal nutritional requirements
2. Assessment of nutritional status
3. Protein energy malnutrition
4. Manifestations and management of nutritional deficiency and excess
5. Nutritional support in various GI disorders (malabsorption, acute and chronic pancreatitis, inflammatory bowel disease) Vascular Diseases of the GI Tract

PAEDIATRIC GASTROENTEROLOGY

1) Congenital disorders of gastrointestinal system, liver, biliary tract and pancreas
2) Age related physiological and psychological variables of children
3) Unique aspects of disease in paediatric age group as compared to adult

GERIATRIC GASTROENTEROLOGY

1. General Issues:
    - Impact of age on presentation, diagnosis and treatment of important gastrointestinal conditions.
    - Impact of depression and dementia on presentation and treatment.
    - Pathophysiology of aging
    - Social and ethical issues Geriatric gastroenterology
2. Changes of G.I. function with aging, (e.g.) slowing of colonic motility and rectal dysfunction
3. Changes in drug metabolism
4. Effect of aging on nutrition
5. GI problems in institutionalized and bedridden patients (e.g) fecal impaction as risk factor for urine incontinence.

WOMENS HEALTH ISSUES IN DIGESTIVE DISEASES

1. General women health issues
    - Doctor-patient relationships
    - Cultural and religious issues
    - Psycho-social issues
    - Lab values and diagnostic tests - Gender differences as well as changes during pregnancy in normal lab values

2. Specific women health issues
    - Health and disease states – gender difference in demographics, epidemiology, pathophysiology, clinical presentation.
    - Effect of menstrual cycle and menopause on digestive disease
    - Pharmacokinetics of medications – differences in absorption, metabolism and therapeutic response.

3. Pregnancy and child bearing
    - GI and liver changes / disorders in normal pregnancy
    - Effect of pre-existing GI and liver disorders on pregnancy and fertility.
    - Impact of pregnancy on gastrointestinal & liver disease
    - GI and liver disorders unique to pregnancy
    - Maternal-fetal transmission of infections and appropriate management of mother and infant
    - Pharmacokinetics and interactions of medications during pregnancy and breast feeding - potential harm to fetus.
    - Nutritional requirements Post-partum issues Rectal prolapse, hemorrhoids, urinary / fecal incontinence

RESEARCH

- Basic knowledge of clinical research methods, biostatistics, epidemiology and ethics.
- Basic knowledge of cell biology, molecular biology, molecular genetics and immunology
- Critical analysis of current literature, ability to formulate research questions, make a study design, calculate sample size, data management, ways to avoid bias etc
- .Preparation of proposals for funding and evaluation by institutional review boards
- Presentation of work in written/oral form at Conferences 6. Help mentors in peer review of articles submitted for publications.

Primer of Diagnostic Methods Endoscopic imaging

- Upper gastrointestinal endoscopy and mucosal biopsy
- Lower gastrointestinal endoscopy and biopsy
- Endoscopic ultrasonography,
- Diagnostic and interventional endoscopic retrograde cholangiopancreatography
- Enteroscopy (double-balloon)
- Capsule endoscopy
- Confocal endomicroscopy
- Self-propelled colonoscopy
- Percutaneous ultrasound
- Barium radiology
- Computed tomography
- Magnetic resonance imaging,

- Magnetic resonance cholangiopancreatography,
- Virtual colonoscopy
- Positron emission tomography
- Non-invasive liver assessment
- Functional testing
- Gastrointestinal motility testing
- Measurement of portal pressure
- Tissue testing
- Liver biopsy
- Optimal tissue sampling: the pathologist’s perspective

Primer of Treatments

- Medical treatments
- Drug prescription in liver disease,
- Nutritional assessment and support
- Therapeutic endoscopy
- Variceal ligation, sclerotherapy, and other hemostatic techniques for varices and other lesions,
- Non-variceal upper gastrointestinal bleeding
- Snare polypectomy and foreign body removal from GI Tract
- Photodynamic therapy in the gastrointestinal tract,
- Percutaneous endoscopic gastrostomy and jejunostomy,
- Endoscopic techniques of removing early gastrointestinal neoplams,

- Dilation and stenting of the gastrointestinal tract,
- NOTES, (Observation only)
- Percutaneous therapy
- The transjugular intrahepatic portosystemic shunt (TIPS Interventional radiology) (Observation only)
- Paracentesis, A synopsis of surgical operations
- Liver operations (Observation only)
- Gastrointestinal operations, (Observation only)
- Minimally invasive surgery (Observation only)

1. Biostatistics & clinical epidemiology
2. Preventive Gastroenterology and Hepatology
3. Management of GI emergencies like upper and lower GI bleed, Acute pancreatitis, hepatic encephalopathy and cholangitis
4. Psychological factors in GI diseases
5. Medicine relevant to Gastroenterology
6. Bio ethics, ethical issue in transplantation, including 'Human Organ Transplant Act'

LABORATORY METHODS

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

- Liver function tests
- Auto analyzer functioning

- Gastro and Liver pathology interpretation including immuno-fluoresence and electron microscopy.
- Electrolyte and acid base analysis
- Digital subtraction angiography.
- Selective Gastrointestinal angiography and interventional angioplasty and stenting
- Doppler studies
- CT imaging
- Magnetic resonance imaging including MRCP
- Percutaneous Trans hepatic Biliary Drainage (PTBD) Nuclear Medicine:
- Various gastro-intestinal isotope imaging and functional technique Microbiology:
- Viral, Bacterial and fungal cultures, Serological and PCR techniques and Immunological test:
- ANA, anti SMA, Anti-LKM, AMA and ANCA, TTG, Anti-endomysial antibody Tissue typing:
- Cross match, serological typing, and molecular HLA typing Pancreatic function testing
- Stool Fat- Sudan, 24hr stool Fat
- Fecal chymotrypsin
- Research: The candidate will present at least two paper in the national conference and publish at least one paper in a journal. Practical work:
- Radiology: Reading and interpreting the common x-ray films including X-ray films of the abdomen
- Barium studies
- Ultrasound examination, CT scans
- MR scans and angiography and ERCP films
- GI Pathology Reading and interpreting histological slides of common gastrointestinal and liver disease

- **Biostatistics, Research Methodology and Clinical Epidemiology**
- **Ethics**
- **Medico legal aspects relevant to the discipline**
- **Health Policy issues as may be applicable to the discipline**

ROTATION

During the Training Period.

The resident would be required to rotate through clinical gastroenterology, hepatology, diagnostic and therapeutic endoscopy. In addition, he/she will spend some time in rotations through allied specialities (pathology, radiology, laboratory medicine etc.) Extramural rotations (Institutions outside the primary centre) or rotation at affiliated centres for a maximum period of 3 months will be possible during after the 1st year of training.

Posting in Gastroenterology

1) Clinical Gastroenterology and Hepatology
2) Diagnostic and Therapeutic Endoscopy
3) Radiology / Surgery / Pathology
4) OPD consultation Critical care etc

The pattern of training in each of the semester would be as follows :

1st year

Clinical ward posting including ICU Initiating Research process Human Rights information Awareness about right to information Development of communication skills both in the vernacular and English language Ethical training Defining brain death Counseling for organ transplantation Computer orientation Initiating Doppler ultrasound scan under supervision

2nd year

Change of posting to a busier ward with greater responsibility Independent OPD and Doppler ultrasound scanning Initiating Oesophagogastro duodenoscopy under supervision Organising CME, workshops and seminars

3rd year

Change of posting – Independent charge of the wards Independent Oesophagogastro duodenoscopy and ultrasound scan based procedures Teaching (Inter and

intradepartmental) Organising CME, workshops and seminars Outside posting Organising CME, workshops and seminars

Schedule of Posting

The residents should be posted in the gastroenterology ward, emergency (casualty) and gastroenterology intensive care unit during the three year course. They should also undergo rotation in allied specialties. The following should be the training program in the department

1. Gastroenterology Ward - 2 years
2. Endoscopy Lab - 4 months
3. Gastroenterology ICU - 3 months
4. Emergency Ward - 3 months
5. Gastro-intestinal Surgery - 15 days
6. Pathology - 15 days
7. Microbiology - 15 days
8. Radiology - 15 days

A candidate will be required to achieve proficiency under supervision in the following:

- Routine diagnostic endoscopies
- Therapeutic endoscopic procedures Endoscopic
- Retrograde Cholangio Pancreatography (ERCP) Liver biopsy Hepato-biliary ultrasound Percutaneous drainage of liver abscess Gastrointestinal Motility studies Hydrogen Breath tests
- No. Upper GI Endoscopy
- Side Viewing duodenoscopy
- Endoscopic variceal ligation
- Endoscopic sclerotherlapy
- Proctosigmoidoscopy (rigid)
- Pile banding
- Flexible sigmoidosocpy

- Full length colonoscopy
- Polypectomy
- Endoscopic retrograde cholangio-pancreatography
- ERCP with papillotomy
- May only assist
- Imaging and laboratory Diagnostic techniques like radiological and other imaging and laboratory techniques relevant to patients with gastroenterological diseases must receive attention.

Competencies

Affective Domain Development of attitude is a very important part of training. It would be the constant endeavor of the faculty to develop desirable attitudes in the P.G. trainees during the course by personal examples, interaction and group discussion. Constant watch will be maintained during their work in the wards to ensure that this objective is being met. Although there will be no formal evaluation of attitude, some aspects of this domain would be covered during the formative evaluation as per the enclosed proforma for continued internal assessment

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 afore 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.

f. 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.

g. 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 Gatroenterology. 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
- Symptomatology and Physical examination
- Nutrition in Gastroenterology

- Gastroenterologic relations with other systems
- The Esophagus
- The stomach and Duodenum
- Research methodology

Paper II:

- The stomach and Duodenum
- The intestine
- The Liver
- The Biliary Tract
- The Pancreas

Paper III:

- The Peritoneum and Mesentery
- Management of Gastrointestinal cancer
- Endoscopy
- Recent advances and Investigations
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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

SUGGESTED READINGS:

Books

1. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) – Saunders

2. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) – Saunders

3. Yamada. Textbook of Gastroenterology (2 Vol)

4. Walker. Paediatric Gastrointestinal Disease (2 Vol) – B.C. Docker

5. A.K. Rustgi – Gastrointestinal Cancer. – Elsevier, Saunders

6. Kelsen. Principles and practice of gastrointestinal oncology – LWW

7. Castell D.O. The esophagus – LWW

8. Schiff. Disease of Liver (2 Vol) – LWW

9. Jaron Rodes. Textbook of Hepatology – Blackwell

10. Sherlock S. Diseases of Liver & Biliary system – Blackwell

11. umgart. Surgery of liver & biliary tract – Saunders

12 Busutil R.W. Transplantation of Liver (2 Vol) – Elseiver Saunders

13 Gore text book of Gastrointestinal Radiology.

Reference books:

1) Bockus text book of Gastroenterology
2) Esophagus: D Castell

JOURNALS

1) Gastroenterology
2) Hepatology
3) Journal of Gastroenterology and Hepatology

4) Gut

5) Indian Journal of gastroenterology

6) Endoscopy

7) GI endoscopy

8) Seminars in liver diseases

9) GCNA

10) Lancet / NEJM / Annals Internal Medicine

Various website and CD-ROM programme which will help in keeping updated are recommended

1) Gastrohep. Com

2) Medscape. com

3) Cochrane reviews

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