

Guidelines
For
Competency Based Training Programme
FNB- Liver Transplantation
2022



NATIONAL BOARD OF EXAMINATIONS IN MEDICAL SCIENCES
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TABLE OF CONTENT

S.no	Content	Page No.
I.	Training Program:	3-4
II.	Teaching And Learning Activities:	5-6
III.	Syllabus:	7-9
IV.	Log Book:	10



I. TRAINING PROGRAM:

The fellowship is aimed to impart training in all aspects of patient care and encourage research initiatives.

This is planned under three heads: Academic, Clinical & Research

1. Academic:

Bedside rounds	Daily
Seminars	Weekly
Journal club	Weekly
Case discussion	Weekly
Multidisciplinary meetings	Twice weekly
Transplant Listing meeting	Weekly
Pathology meet	Monthly
Radiology meet	Fortnightly
Tumor board meetings	Fortnightly
Audit Meeting	Monthly

Each academic session will be moderated by one faculty member by rotation with inputs provided from all faculty members. Topics discussed in seminars will be related to anatomy, physiology, molecular biology, genetics, pathology, immunology, regenerative medicine, radiology, clinical surgery, gastroenterology, hepatology and pancreatology. The candidate will be expected under the guidance of a mentor to summarise the current knowledge in light of the available literature available on the subject. Journal articles related to the above topics will be analysed by the candidate under the guidance of a mentor.

- 2. Research:** All the fellows will be expected to undertake and complete at least one research project during their tenure. The proposal will be presented and modified by discussion among the faculty and the institutional review board before implementation. The progress will be reviewed monthly in research meetings and changes made as and when necessary. Completion of the project will be mandatory. Publication/acceptance in a peer reviewed journal will be desirable by the end of the candidate's tenure, and will count towards deciding on award of the "Honours' Certificate" at the completion of the Fellowship.



3. Clinical: The Fellowship program is aimed at grooming senior trainees to take on responsibility of functioning as independent Consultant liver transplant surgeons upon completion of their training. The candidate would be involved in all aspects of liver transplantation including the out-patient clinic, counselling and listing of patients, live donor selection and supervision of the investigation and preparation of out-patients and in-patients for liver transplantation. Round-the-clock management of post-transplant patients and patients with liver failure in the ICU will be the responsibility of the LT fellow. In addition, the fellow will be expected to coordinate the emergency helpline of the institute. At the end of program, he would have done independent liver/ biliary surgeries, and 30 recipient surgery independently and 10 donor surgeries under direct supervision. He will be required to have achieved proficiency in performing & supervising pretransplant assessment of donor and recipient, perioperative and postoperative care of the patients. A separate certificate of clinical competence and skilful performance of the procedures would also be issued by the Chairman of the institute.

Externship of 2-4 weeks.



II. TEACHING AND LEARNING 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 (Mortality and Morbidity review)-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 two 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.



- v. **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.
- vi. **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. Each candidate has to carry out clinical studies, which should be acceptable for publication in an Indian Journal or any International Journal. A poster and one oral presentation at least once during their training period in Zonal and National conference



III. SYLLABUS:

1. Basic sciences relevant to hepatobiliary disease & transplantation
2. Pathogenesis of hepatobiliary disease
3. Principles & practice of hepatobiliary-pancreatic surgery
4. Principles & Practice of Clinical Abdominal Organ Transplantation (Liver, intestine, pancreas)
5. Minimal access liver and biliary surgery
6. Hepatology relevant to liver transplantation
7. Immunology, Molecular biology & Genetics of Transplantation
8. Regenerative Medicine & Cell-based therapies in Hepatobiliary-Pancreatic Disease

Key contents in above areas: The list below covers the areas of knowledge that the Fellow would be expected to be well versed with by the end of their fellowship. This list is not meant to be exhaustive or exclusive and may be modified based on changes in clinical practice. The exit evaluation will primarily assess the application of this knowledge in clinical situations.

i. Immunology of Transplantation:

- a. Basic and clinical immunology including cellular and antibody mediated immune responses.
- b. Mechanism of ischemia/reperfusion injury, immune response to alloantigen's
- c. Mechanism of hyper acute, acute and chronic allograft rejection
- d. Tolerance mechanisms

ii. Pharmacology & Immunosuppression:

- a. Pharmacology of immunosuppressive agents
- b. Induction and maintenance immunosuppression
- c. Tailored immunosuppression: renal impairment, ACLF, HCC
- d. ABO incompatible liver transplant: protocols
- e. Adverse effects and drug interactions of immunosuppressive agents

iii. Deceased Donation, Organ Recovery & Allocation:

- a. 'Transplantation of Human Organs' act and its implications to liver transplantation in India
- b. Current legislation regarding diagnosis of brain death
- c. Determining brain death in a comatose patient
- d. Assessment of a deceased donor and deceased donor liver graft



- e. Technique of abdominal organ recovery from deceased donors, including DCD
- f. Principles of organ preservation & types of preservation fluids
- g. Organ preservation techniques: Static cold storage, machine perfusion
- h. Organ allocations systems in India & abroad: MELD based, centre based, waiting time

iv. Indications for Liver Transplantation:

- a. Indications for liver transplantation in adults & children
- b. Assessment of disease severity in chronic liver disease
- c. Etiology, diagnosis, management, transplantation for acute liver failure
- d. Acute on chronic liver failure: Definitions, management, timing of transplantation
- e. Indications & management issues in combined transplants- liver/kidney, liver/lung, liver/heart.

v. Live liver Donation:

- a. Donor assessment protocols
- b. Safety of live liver donation: Morbidity, mortality, near-misses
- c. Techniques of donor hepatectomy- open, laparoscopic, robotic
- d. Post-operative management after donor hepatectomy
- e. Long-term follow-up after donor hepatectomy

vi. Recipient surgery:

- a. Recipient hepatectomy, implantation techniques: whole graft/ partial graft
- b. Issues in LDLT: GRWR, venous outflow reconstruction, portal flow modulation
- c. Issues in pediatric liver transplantation
- d. Post-operative management of recipient: antimicrobials, immunosuppression, graft monitoring
- e. Risk factors & management of early post-op complications: vascular thrombosis, bile leaks, EAD
- f. Diagnosis & management of acute rejection episodes
- g. Variant techniques: split liver transplant, auxiliary transplant

vii. Long term management of liver transplant recipient

- a. Complications of immunosuppression
- b. Malignancies including PTLN
- c. Post-transplant metabolic syndrome
- d. Quality of life after liver transplantation



By the end of their Fellowship, the LT Fellow would have an in-depth knowledge of the above areas in clinical liver transplantation and hepatology relevant to transplantation, as well as be abreast with the latest in regenerative strategies and other areas of current research in Liver Disease and Transplantation.



IV. LOG BOOK:

Candidate has to maintain detailed logbook throughout the duration of the program, which would be countersigned by the guide monthly.

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.

