

**GUIDELINES
FOR
COMPETENCY BASED TRAINING PROGRAM FOR
FELLOWSHIP IN ONCOPATHOLOGY**

Department of Pathology

Kasturba Medical College, Manipal

Manipal Academy of Higher Education (MAHE)

Program Motivation

The projected number of new cases of cancer in India tops 1.3 million for the year 2020, that implies 1 in every 9 Indian will develop cancer during their lifetime (Reference: NCG registry program 2020). Cancer care has evolved to be a specialised niche field and a robust oncopathology report forms the bedrock of all cancer management.

Manipal Comprehensive Cancer Care Centre(MCCCC) is one of the handful tertiary cancer care centres in South India providing competent yet affordable & ethical cancer care catering to a large geographic expanse of north & coastal Karnataka, North Kerala & Goa with full-fledged departments of oncosurgery, medical oncology, radiation medicine, pediatric oncology & palliative medicine, with pioneering work in cancer control, treatment, research, & training .

Currently fellowship in Oncopathology are being offered by a select few institutes in South India and include Kidwai memorial institute of oncology(Bengaluru), Regional cancer centre(Trivandrum) , Amrita institute of medical sciences(Kochi) & Yenepoya university(Mangaluru),.

Kasturba medical college, Manipal under the aegis of Manipal academy of Higher Education(MAHE) is a power house of academic & research excellence with innovation at its core; has been designated the coveted Institute of eminence in 2018 & is consistently ranked among the top 10 medical colleges of India, introduction of this unique and sought after training program will add another feather to its cap.

Feasibility of the program

Oncopathology forms one of the core competencies of comprehensive cancer care along with the oncosurgery & medical oncology, fellowship in Oncopathology is a structured & well curated training program offered by the Department of Pathology, Kasturba medical college, Manipal imparting critical skills & knowledge for the practice of the same.

The department comprises of a team of 20 pathologists & more than 10 adjunct faculty of international repute, specialising & practising as a part of specific tumour cluster with their clinical counterparts to form Multidisciplinary Tumour Board(MTB) teams. The department handles over 18000 histopathology, 15000 cytopathology & 6000 immunohistochemistry requests with a formidable panel of over 80 immunohistochemistry antibody markers.

The other state of art equipment & services include Deca head teaching microscope, slide scanner, immunofluorescence microscope, HLA cross typing, flow cytometry, dedicated PG teaching room with display, well stocked departmental library with over 120 books.

The laboratory services are NABL , ISO 9001 & ISO 14000 accredited and is an active participant in both internal & external quality assurance programs.

The course coordinator Dr.Vishwapriya M. Godkhindi(MD, DNB, HBNI fellow) currently working as Assistant Professor of Oncopathology , holds dual fellowship in Oncopathology & in hematology-oncology and has been trained at the prestigious Tata Memorial Hospital, Mumbai and will be responsible for the postings, academic activity and the overall conduct of the course

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I. Preamble

Oncopathology forms one of the core competencies of comprehensive cancer care, fellowship in Oncopathology is a structured full-time post-doctoral training program of one year duration offered by the Department of Pathology, Kasturba Medical College, Manipal & affiliated to the Manipal Academy of Higher Education (MAHE).

II. Goal & Objectives of the program

A) Program goal

The course aims to coach, mould & mentor a specialist in oncopathology capable of competent ethical practice individually or as a part of a multidisciplinary team to further patient care & medical research.

B) Program objectives

Knowledge

- 1) At the completion of course he/she shall acquire high standard of theoretical knowledge for the competent practice of oncopathology including surgical pathology, cytopathology & molecular pathology.
- 2) The candidate shall be conversant with the recent developments in knowledge, concepts & practice of oncopathology.
- 3) The candidate shall be proficient in teaching & mentoring of various categories of medical professionals.
- 4) The candidate shall develop an attitude & aptitude for ethical independent clinical & laboratory based scientific research.

Skills

- 1) He/she shall provide a comprehensive oncopathology report encompassing points relevant for diagnosis, staging, prognosis & theranostics.
- 2) He/she shall be able to engage with clinical counterparts as part of Multidisciplinary Tumour Board (MTB) team.
- 3) He/she shall acquire the necessary skills for planning, organizing, establishing, supervising of an oncopathology center.
- 4) He/she shall acquire necessary skills and practices to conduct fundamental & applied research & evolve as an independent researcher.
- 5) He/she shall be able to seek, analyse scientific literature on oncopathology, update concepts & practice evidence based medicine.
- 6) He/she shall exhibit communication skills of high order whilst engaging with colleagues, subordinates & patients.

III. Eligibility criteria, course duration & selection process

A) Eligibility criteria

Any candidate of Indian nationality who has successfully completed his MD/DNB in Pathology or its equivalent from a MCI recognised university in India and is registered with the state/Indian medical council is eligible for this course.

Students pursuing their MD/DNB in pathology are eligible for the course subject to their fulfilling the eligibility criteria & successful completion their MD/DNB course within 1 month (30 days) of issue of fellowship notification.

B) Course duration

The course duration is of one year (12 months) duration.

Every candidate admitted to the fellowship program shall pursue a diligent course of study on a full-time basis in the concerned department under the guidance of assigned teacher/consultant for a period of one year (12 months).

Candidates pursuing fellowship will be considered as Senior resident (Full time) with teaching experience.

Private practice is strictly prohibited during the course tenure.

C) Selection process

Academic credentials & Interview by a multidisciplinary interview panel consisting of atleast two subject experts

Preference will be accorded to candidates with,

- 1) Previous experience & aptitude of working in a super speciality cancer care centre.
- 2) Scientific publications in indexed journals.
- 3) Poster/Oral paper presentation at state & national level conferences.

Decision of the interview panel will be final.

IV. Program specific learning objectives & competencies

The training program is designed to strengthen the basic & advanced knowledge of oncopathology practice, to acquire a capacity to learn and investigate, to synthesize and integrate knowledge and develop a faculty to reason & research.

The curricular program and scheduling of postings provide the student with opportunities to achieve the above broad objectives. The student is expected to complement as an integral part of the activities of an academic department that usually revolves around three equally important basic functions of teaching, service & research.

A) Cognitive (Knowledge)domain

- 1) He/she shall be able to comprehend, interpret, diagnose & report surgical pathology, cytopathology & immunohistochemistry cases received in the laboratory.
- 2) He/she shall advice & interpret appropriate ancillary tests including immunohistochemistry, FISH and molecular tests.
- 3) He/she shall collate, correlate clinical & laboratory data so that the clinical & pathological manifestations & implications be explained.
- 4) He/she shall develop an aptitude for research and be able to independently plan, execute, & analyse research work.
- 5) He/she shall engage in post-graduate teaching program.
- 6) He/she shall be updated and strive for best practices in the laboratory including SOP, quality assurance, quality control, laboratory safety & waste disposal.
- 7) He/she shall be able to supervise the work delivered by subordinates & colleagues.

B) Psychomotor (skill)domain

- 1) He/she shall be able to critically inspect the surgical pathology specimen, dissect it, gross the specimen while noting critical anatomic features & submit appropriate sections for histological processing.
- 2) He/she shall be able to perform, process & interpret critical procedures & specimens such as cytology, frozen section, immunohistochemistry with reasonable competence.
- 3) He/she shall implement best practices in the laboratory including SOP, quality assurance, quality control, laboratory safety & waste disposal

C) Affective domain

- 1) He/she shall function as part of a multidisciplinary team & develop an attitude of cooperation & team work.
- 2) He/she shall empathise with the patient & respect his rights including that of confidentiality, second opinion & RTI whilst maintaining professional etiquettes & ethical values.

V. Syllabus

The student should be able to demonstrate an understanding of the etiopathogenesis & patho-physiologic features associated with various cancers. The student should be able to identify and systematically and accurately describe the chief histomorphological alterations in the tissue received in the surgical pathology service. He/she should also correctly interpret and correlate with the clinical data to diagnose common malignancies, request appropriate ancillary tests & produce a comprehensive surgical pathology report.

- General aspects of cancer biology
 - 1) Epidemiology of cancer.
 - 2) Characteristics of benign & malignant neoplasia.
 - 3) Etiopathogenesis of cancer.
 - 4) Molecular basis of cancer: Genetics & Epigenetics of cancer.
 - 5) Clinical aspects of cancer.

- General aspects of cancer diagnosis including use of ancillary techniques including immunohistochemistry, cytochemistry, special stains, FISH, PCR, & Next generation sequencing.

- General aspects of cancer staging including AJCC 8th edition, TNM staging & FIGO staging.

- General aspects of oncopathology reporting as per CAP/RCPATH protocol

- General aspects of cancer specimen grossing

- Tumours of the Head & Neck region

- Tumours of the Breast

- Tumours of the Lung, Mediastinum & Pleura

- Tumours of the GI tract & hepatobiliary system.

- Tumours of the Female reproductive organs

- Tumours of the Renal & Male genito-urinary system

- Tumours of Central nervous system

- Tumours of Bone & soft tissue

- Hematopoietic & Haemato-lymphoid malignancies

- Tumours of the endocrine organs

- Tumours of the skin & adnexa
- Cytopathology
- General aspects of special ancillary diagnostic techniques including Electron microscopy, FISH, PCR, Sanger sequencing & Next generation sequencing.
- General aspects of Laboratory safety, Quality control, Accreditation & waste disposal

VI. Teaching & training activities

Candidates joining the fellowship program shall work as “Full-time residents” during the course tenure with a minimum attendance of 80%(eighty percent). A structured training program with rotatory posting in each tumour cluster/disease management group is provided for along with regular didactic lectures, seminars, journal club, slide/gross seminars.

A) Teaching schedule

- 1) Subject seminar – Once a week.
- 2) Journal club – Once a week.
- 3) Case discussion/Slide/Gross seminar – Once a week.
- 4) Clinico-pathological meet – Once a month
- 5) Day to day case discussion during reporting of slides.

B) Rotatory Posting schedule

1.	Orientation, Quality control, Quality assurance & Laboratory safety	2 weeks
2.	Grossing Frozen section & IHC	4 weeks
3.	Head & Neck pathology	4 weeks
4.	Gynaecological pathology	4 weeks
5.	Breast pathology	4 weeks
6.	Lung & mediastinal pathology	4 weeks
7.	Gastrointestinal tract & hepatobiliary pathology	4 weeks
8.	Renal & genitourinary pathology	4 weeks
9.	Bone, soft tissue & paediatric pathology	4 weeks
10.	Hemato-lymphoid pathology	4 weeks
11.	CNS pathology	4 weeks
12.	Cytopathology	4 weeks
13.	Molecular & ancillary techniques	2 weeks
14.	Special posting (as per the students discretion).	4 weeks
TOTAL		52 weeks (1 year)

VII. Research activities & collaboration with other department/institutes

- A) Every candidate shall endeavour on an assigned short research project/topic under the guidance of a consultant & institutional ethical committee clearance.
- B) The purpose of research is to develop an attitude & aptitude for research, identify a relevant research question, critical review of literature, formulate hypothesis, determine the suitable study design, prepare a study protocol, undertake study, collect & collate data, analyse & interpret data, draw conclusion.
- C) Fellows will be posted in the departments to get acquainted with the techniques & practice of medical oncology, radiation oncology, paediatric oncology, molecular pathology as part of research initiative.
 - 1. Manipal comprehensive cancer care centre.
 - 2. Departments of Medical genetics.
 - 3. Department of Pharmacy practice.
 - 4. School of Life sciences.
 - 5. Central instrumentation facility.

The student is encouraged to actively collaborate & engage in interdepartmental research projects and activities.

- D) There will be periodic appraisal of research work.
- E) The research project shall be submitted for publication & is a mandatory prerequisite to be eligible to appear for the fellowship exit examination.

VIII. Ethics & medico-legal aspects

- A) He/she shall function as part of a multidisciplinary team & develop an attitude of cooperation & team work.
- B) He/she shall empathise with the patient & respect his rights including that of confidentiality, second opinion & RTI whilst maintaining professional etiquettes & ethical values.
- C) He/she shall practice ethical evidence based medicine.

IX. Log book

A candidate shall maintain a log book diligently recording the academic activities undertaken during the course tenure and be certified by the concerned consultant/head of tumour cluster, it is mandatory that this log shall be made available to the board of examiners during the final examination.

The log book shall contain the details of postings, procedures performed, seminar presentations, slide/gross seminars, journal presentation, teaching assignments, case presentations in CPC meets, lectures(including guest lectures) attended, CME/conference attended, poster/oral paper presentations, awards won, research & publication details.

X. Examination

A) Eligibility to appear for examination:

- 1) Attendance: Atleast 80%.
- 2) Atleast one Poster or Oral paper presentation at a state or national level conference.
- 3) Research paper sent/accepted for publication.
- 4) Log book of daily activities to be countersigned by the cluster head at the end of each sub specialty rotation.

B) Examination (Evaluation) pattern: Holistic assessment in the domains of knowledge, skills & attitude relevant to the subject.

Formative Assessment:

- 1) Informal assessment during daily case discussion & sign out.
- 2) Informal assessment during seminars, journal presentations, case discussions, slide seminars & teaching activities.
- 3) Research activities.
- 4) Log book.

Summative Assessment:

- 1) **Theory examination:** Two papers of 100 marks each & 3 hours duration (Averaged to 100 marks).

Paper 1: General pathology & systemic pathology.

Paper 2: Recent advances, molecular pathology, laboratory safety & quality parameters.

- 2) **Practical examination:** Will consist of Practical & viva voce (Total 200 marks): The modules will include,
 1. Slides for interpretation including histopathology, cytology, immunohistochemistry & frozen section (100 marks)
 2. Grossing of oncopathology specimen & other ancillary techniques (50 marks).
 3. Viva voce (50 marks).
 - Evaluation to be done by two (02) examiners.
 - Internal examiner - 1 External examiner – 1.
 - Grand total: Theory examination - 100 marks + Practical examination - 200 marks = 300 marks.
 - Minimum for passing: Atleast 50% individually in theory & practical examination.
 - Number of attempts: Three (03) attempts, course to be completed within two (02) years from the date of joining.

XI. LEAVE CRITERIA

- 1) A candidate can avail a maximum of 15 days leave in an academic year, while those undergoing advanced training will be allowed a maximum of 8 days for their extended period of 6 months, & includes academic leave to attend conferences/CME. This excludes regular weekly off/gazetted holidays as per hospital/university policy.
- 2) Maternity leave: A female candidate is permitted maternity leave but will have to complete an extended additional duty for the same duration to be eligible to appear for fellowship exit examination. The expected date of delivery should fall within the period of maternity leave & extension of maternity leave is permissible only under special circumstances with prior approval of MAHE. Candidates shall be paid stipend during the period of maternity leave only, & not the extension period.
- 3) No kind of study leave is permissible to the candidates.
- 4) Unauthorised absence from the training program for period of more than 7 days will lead to cancellation of registration & immediate termination of the fellowship program.
- 5) Medical leave is permitted on genuine medical grounds subject to submission of supporting medical documents certified by the head of department & approval of MAHE.
- 6) Decision of MAHE in all matters shall stand final.

XII. REFERENCE LIST OF BOOKS & JOURNALS

General surgical pathology

1. Robbins & Cotran, Pathological basis of disease; 10th Edition.
2. Fletcher, Diagnostic histopathology of tumours; 4th edition.
3. Sternbergs, Diagnostic surgical pathology; 6th Edition.
4. Rosai & Ackermans, Surgical pathology; 11th Edition.
5. Lester, Manual of surgical pathology; 3rd edition.
6. Silverberg, Principles and practice of Surgical Pathology & Cytopathology; 5th edition.

Head & Neck Pathology.

1. Barnes, Surgical Pathology of the Head & Neck; Vol. 1-3. 3rd edition.
2. WHO classification of tumours of the head, neck & salivary glands, IARC press, Lyon; 4th edition.

Breast pathology.

1. Tavassoli, Pathology & Genetics : Tumors of the breast & female genital organs.
2. Carter Darryl, Interpretation of Breast biopsies(Biopsy interpretation series); 3rd edition.
3. Frances P. O'Malley, Sarah E. Pinder, Breast Pathology; 2nd edition.
4. WHO classification of tumours of the breast, IARC press, Lyon, 5th edition.

Tumours of Lung, Pleura & Mediastinum.

1. Hraavis, Pathology & Genetics tumors of the lung, pleura, thymus & Heart.
2. WHO classification of tumours of the lung, pleura, heart & mediastinum, IARC press, Lyon, 4th edition.

Gastrointestinal tract & Hepatobiliary pathology.

1. Mac Sween, Pathology of the Liver; 4th edition.
2. Morson and Dawson, Gastro intestinal pathology; 5th edition.
3. Cecilia M. Fenoglio – Preiser, Gastrointestinal Pathology - an atlas and text; 3rd edition.
4. WHO classification of tumours of the gastrointestinal tract, IARC press, Lyon, 5th edition.

Endocrine pathology.

1. De Lellis, Ronald A, Pathology & Genetics of tumor of endocrine organs.
2. WHO classification of tumours of the endocrine organs, IARC press, Lyon, 4th edition.

Gynaecological pathology.

1. Robert J Karman, Blaustein's pathology of the female genital tract; 5th edition.
2. Tavassoli, Pathology & Genetics of tumors of the breast & female genital organs.
3. WHO classification of tumours of the female genital tract, IARC press, Lyon, 4th edition.

Renal & Genitourinary pathology.

1. Eble John N, Pathology & Genetic of tumor of the Urinary system and male genital organs.
2. Fogo, Diagnostic Atlas of Renal Pathology; 7th edition.
3. WHO classification of tumours of the kidney & male genitourinary system, IARC press, Lyon.

Bone & soft tissue pathology.

1. Enzinger & Weiss's Soft tissue tumours; 7th edition.
2. Fletcher, Pathology & Genetics of tumour of soft tissue & bone.
3. WHO classification of tumours of the Soft tissues & bone, IARC press, Lyon, 4th edition.

CNS pathology.

1. Richard A Prayson, Neuropathology.
2. Prayson & Cohen, Practical differential diagnosis in Surgical Neuropathology.
3. Mathew J Sehniederjan, Daniel J. Brat, Biopsy Interpretation of the Central Nervous System.
4. Mc Lendon, Pathology of tumor of the central Nervous System.
5. WHO classification of tumours of the Central nervous system, IARC press, Lyon, revised 4th edition.

Hematolymphoid & Lymph node pathology.

1. Jaffe, Pathology & Genetics of Tumor of Haematopoietic & Lymphoid tissues
2. Ioachim Harry L, Ioachim's lymphnode Pathology; 4th edition.
3. Anthony S-Y-Leong, A pattern Approach to Lymph Node Diagnosis.
4. WHO classification of tumours of the hematolymphoid system, IARC press, Lyon, 4th edition.

Pediatric pathology.

1. Stocker Thomas & J Dehner, Paediatric pathology.

Dermatopathology.

1. LeBoit, Pathology & Genetics of skin tumor.
2. Elder David, Lever's Histopathology of the skin; 10th edition.
3. McKees's, Pathology of the skin.
4. WHO classification of tumours of the skin & adnexal structures, IARC press, Lyon, 4th edition.

Cytopathology.

1. Gita Jayaram, Atlas and text of Thyroid Cytology.
2. Atkinson Barbara, Atlas of diagnostic Cytopathology; 2nd edition.
3. Chandra Grubb, Diagnostic cytopathology.

Immunohistochemistry & ancillary techniques.

1. Dabbs, Diagnostic immunohistochemistry: Theranostic & Genomic applications, 6th edition.
2. Bancroft, Theory & Practical of Histologic Technique; 5th edition.

Grossing techniques.

1. Westra, Surgical pathology dissection: An illustrated guide, 2nd edition.
2. The tata memorial hospital grossing manual, 1st edition.

Journals

1. American journal of Surgical Pathology.
2. Histopathology.
3. Diagnostic histopathology
4. International journal of surgical pathology.
5. The Journal of pathology.
6. Virchows archiv.
7. Human pathology.
8. Archives of pathology & lab medicine.
9. Modern pathology.
10. Acta neuropathologica.
11. American journal of pathology.
12. International journal of gynaecological pathology.
13. Cancer.
14. New England journal of medicine.
15. Nature.
16. Indian journal of pathology & microbiology.