MALABAR CANCER CENTRE, THALASSERY

(POST GRADUATE INSTITUTE OF ONCOLOGY SCIENCES AND RESEARCH (PGIOSR)
An autonomous Institution under Health & Family Welfare Department, Government of Kerala)

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INSTITUTIONAL FELLOWSHIP PROGRAMME BROCHURE (MEDICAL) JAN-2026

LIST OF FELLOWSHIP PROGRAMMES

- **Fellowship in High Precision Radiotherapy**
- **Fellowship in Gastrointestinal Oncology (Surgical)**
- **Fellowship in Head and neck Oncology(Surgical)**
- **Fellowship in Oral oncology(Surgical)**
- **Fellowship in Breast Oncology (Surgical)**
- **Fellowship In Onco-anaesthesiology**
- **Fellowship In Hemat-Oncology And BMT**
- **Fellowship In Hematopathology**
- **Fellowship in Solid Tumour Oncology (Medical)**
- **Fellowship in Aphaeresis Medicine**
- **Fellowship in Dental and Maxillofacial Onco-Rehabilitation**

1. MALABAR CANCER CENTRE, THALASSERY

MCC-PGIOSR, Thalassery is an autonomous institution under Health and Family Welfare Department, Government of Kerala, started with an aim to establish a comprehensive cancer centre, providing the much-required oncology care to the population of Northern region of Kerala and neighboring parts of Karnataka and Tamil Nadu states. The main objective of the centre is not only to provide comprehensive cancer care but also to develop as a Research and Training Centre of international standards. A society named Malabar Cancer Centre Society was registered under Societies Registration Act XXI of 1860 with the above aims and clinical work in MCC-PGIOSR started from March 2001 onwards. At present MCC-PGIOSR has 350 in-patient bed strength. The control and management of the Society are vested in the Governing Body consisting of 23 members with the Honourable Chief Minister of Kerala as the Chairman. The routine activities and functions of the Centre are supervised by the Executive Committee, with the Secretary, Department of Health and Family Welfare, Government of Kerala being the Chairperson of the Committee. The members in the Governing Body and Executive Committee are functioning by virtue of their official positions.

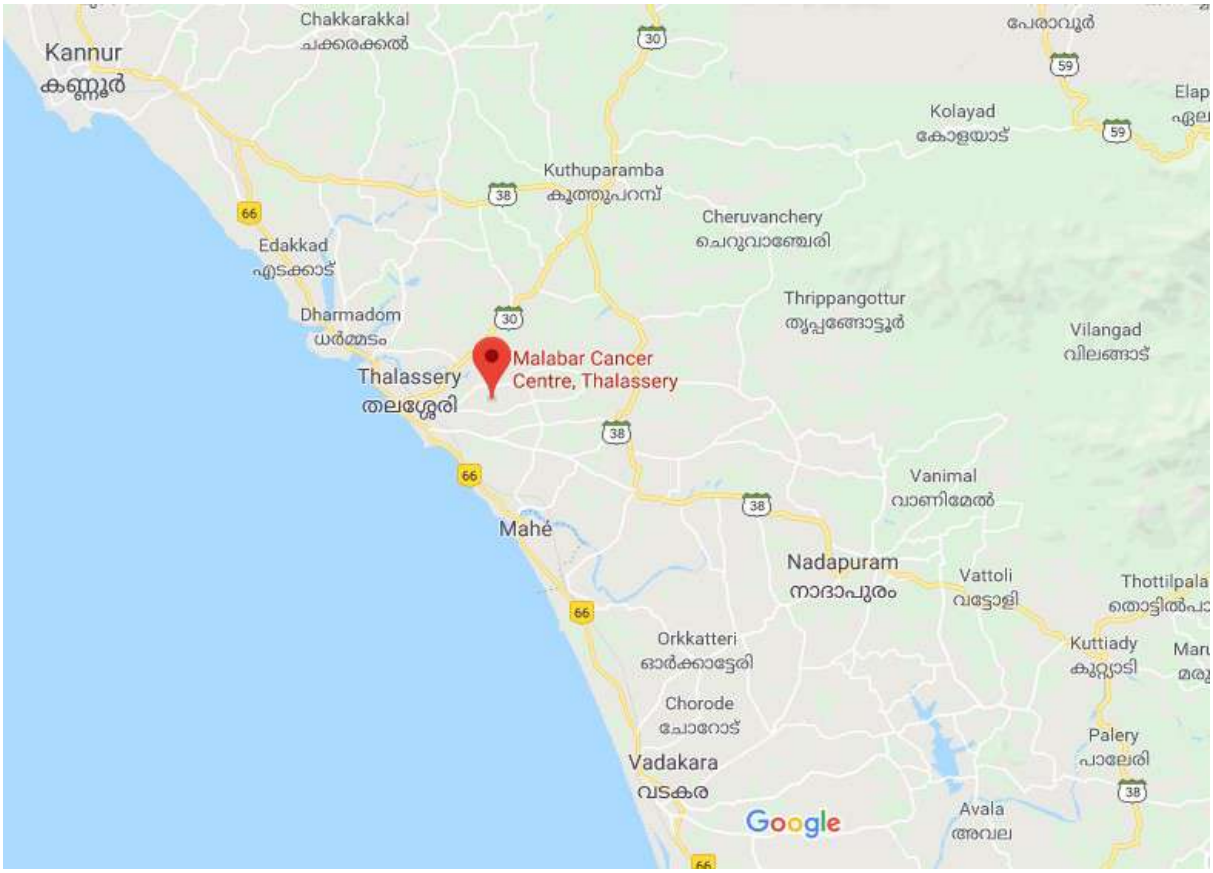
MCC-PGIOSR provides a full spectrum of oncological care as an autonomous not-for-profit institution funded by the State Government and other sources. Patients are categorized according to their economic status, and accordingly it is expected that 95-97% of patients will be provided free treatment through various financial assistance schemes of the Government. The main modalities of treatment offered by MCC-PGIOSR to patients, presently, include radiotherapy, chemotherapy, onco-surgery and palliative care. The Centre also carries out Community Oncology activities including cancer awareness and early detection programmes. The institute caters to patients from 7 districts of Northern Kerala in addition to the neighbouring states of Tamil Nadu, Karnataka and Mahe (a total population of over 1.5 crores).

Location: Kodiyeri, Thalassery, Kannur District, Kerala.

Thalassery (formerly Tellicherry) is a commercial town on the Malabar Coast in Kannur district, in the state of Kerala, India, bordered by the districts of Mahe (Pondicherry), Kozhikode, Wayanad and Kodagu (Karnataka). The town of Thalassery is historically renowned for its 3 “C “ s of ***Cake, Circus and Cricket***. Thalassery is at times referred to as the city of cricket, cakes and circus. It was a British bastion in the pre-independence era with marked contributions of colonial rule.

It is the second largest populated municipality of North Malabar.. The Europeans nicknamed the town "Paris" or in other words "The Paris of Malabar", as it was the sole French military base in Kerala in that era..Thalassery municipality has a population just under 100,000.and an area of 23.98 square kilometres. It is 22 km south of the district headquarters -Kannur city.

Thalassery municipality was formed on 1st November 1866 according to the Madras Act 10 of 1865 of the British Indian Empire, making it the second oldest municipality in the state. At that time the municipality was known as Thalassery Commission, and Thalassery was the capital of North Malabar. G. M. Ballard, the Malabar collector, was the first President of the municipal commission. Later a European barrister, A. F. Lamaral, became the first Chairman of Thalassery municipality. Thalassery grew into a prominent place during European rule, due to its strategic geographic location. Thalassery has played a significant historical, cultural, educational and commercial role in the history of India, especially during the colonial period.



2. INTRODUCTION

Global Cancer Burden

Cancer is an umbrella term covering over 40,000 unique disorders characterized by unlimited replicative potential, virtual mitotic immortality and propensity to invade non native tissues. Despite being one of the few curable non communicable diseases, cancer remains a major public health problem worldwide, accounting for over 8 million deaths worldwide. As per Globocan 2018 data, there were 18.1 million new cases of cancer. While cancer has been traditionally viewed as a disease of the affluent world, 65% of the cancer deaths occur in the less developed nations. Cancer is the 4th most common cause of death, accounting for almost 12.5% of all deaths occurring worldwide. Not only does cancer cause suffering in terms of mortality and morbidity, but it also has a significant socio-economic impact. As per the Global Economic Cost of Cancer Report (American Cancer Society), the total economic impact of premature death and disability from cancer worldwide was $895 billion in 2008. This figure, which does not include direct costs of treating cancer, represents 1.5 percent of the world's GDP. Cancer causes the highest economic loss of all of the 15 leading causes of death worldwide. The economic toll from cancer is nearly 20 percent higher than heart disease, the second leading cause of economic loss ($895 billion and $753 billion, respectively).

Burden of Cancer in India

As per the estimates provided by Globocan 2018, worldwide the age standardized incidence of all cancers including non melanoma skin cancers, were 218 per 100,000 in males and 182.6 per 100,000 in females. In India it is around 90 per 100,000 population in males and females. In India the five most common cancers are cervical cancer, Breast Cancer, Head Neck Cancers, Lung and Colorectal cancers. This is also unlike the case in the USA where Prostate, Breast, Lung, Colorectal cancers and melanomas are the 5 most common cancers. It should be remembered that this data probably represents a gross under-representation of the true burden as the NCRP data that is the basis for this report has a single rural based cancer registry, where 70% of the Indian population is known to reside. As per Globocan 2018 there are 1.15 million new cancer cases annually. Perhaps more worrisome is the fact that the burden of cancer will nearly double in the next two decades with an estimated 1.7 million new cases and 1.2 billion cancer deaths occurring annually by the year 2035.

As India's population ages and the deaths attributable to infectious diseases are reduced, the burden of mortality due to non communicable diseases will experience an upsurge. Deaths caused by cancer are projected to increase from 730 000 in 2004 to 1·5 million in 2030, and those attributable to cardiovascular causes from 2·7 million in 2004 to 4·0 million in 2030 as per the Global Burden of disease study.

Challenges to Cancer Care in India

In a well publicised position paper in Lancet Oncology, Professor Mallathet al, have highlighted several challenges facing our nation in ensuring adequate and equitable cancer care. Despite the substantial socioeconomic progress made over the past 5 decades since Independence, our per capita purchasing power is only 5-10% of that of the Western nations. If we take the example of Trastuzumab, a monoclonal antibody that has proven to have significant benefits in a subgroup of breast cancer patients, the annual cost of treatment for an average Indian female works out to be $20,000. This represents ~ 30% of the cost incurred for the same drug in the USA ($70,000). As can be appreciated in terms of relative purchasing power, the same drug, although retailed for a lesser price, extracts a far more severe economic penalty on Indians. This economic burden is aggravated by the fact that use of such life saving drugs is associated with a net societal economic benefit in terms of quality adjusted life years (QALY) saved. As estimated by Lopes et al, the mean societal cost benefit due to herceptin in Singapore is $4300. Given the central role that a woman plays in the family in India the socio-economic impact of lives lost, due to inability to afford this medication is likely to be higher. This is not only the case for new drugs but also for existing drugs and devices.

India is also experiencing a slower demographic transition in terms of disease burden. While the burden of chronic disease is increasing, a high burden remains for acute infectious diseases and accidents. As a result formulating an effective health policy remains a challenge. India thus requires a health care policy that combats malnutrition while emphasizing prevention of obesity at the same time. Till date the national cancer control program has focussed its efforts on enhancing and upgrading infrastructure at select cancer centres along with emphasizing education as the primary modality for prevention. We lack dedicated screening programmes for most cancers as till date the population prevalence for most cancers is below 5 per 100,000.

As highlighted in the report by Professor Mallath et al, India invests less than 1·5% of its GDP on central government-funded and state-funded health care, out of a total public plus private spend of little more than 4% of GDP. No other comparable nation spends as small a proportion of its national resources on public health care. The situation is further complicated by factors such as poor fiscal governance; sub-optimum (health sector-related) relationships between the federal and state governments; poor public health expertise (compounded by inadequate medical and other health professional education); substantial regional variations; and gross education, caste, and class-related inequalities in income and access to services.

Although Indian society places strong emphasis on familial bonds, there is an absence of a corresponding emphasis on ensuring adequate funding for service requirements in the community. As

a result majority of the treatment costs are borne out of pocket resulting in further exacerbation in the disparities in cancer care.

Perhaps the biggest problem faced by the policymakers in India today is the inadequate infrastructure available for training and education for professionals. While 60% of specialist facilities are located in regions to the south and the west of India, 50% of the population lives in the Central and Eastern parts of the country. The regional disparity in cancer care is even more apparent when we consider the imbalance in availability of therapy facilities. In addition to the disparity among regions, there is an imbalance in the availability of services in rural and urban areas. As a result of this disparity patients with cancer often have to travel long distances and stay in suboptimal conditions to access appropriate cancer care which they can afford.

Challenges to Cancer Research in India

Even more worrisome is the state of cancer research in India. India, which has about 17% of the world population, is involved in only about 1.5% of all clinical trials worldwide. The amount of ongoing research activities can be gauged from the number of clinical trials ongoing in the nation. In this respect a search of the Clinical Trial Registry of India reveals that there are only 331 registered trials in Cancer of which only 141 are actively recruiting participants. Of the 57 clinical trials being conducted in Kerala none are open to recruitment at present. In contrast, a search of the clinical trial registry database of the National Cancer Institute reveals 1518 active clinical trials dealing with various aspects of cancer research. As can be easily appreciated, the number of trials being conducted in India on Cancer at this point of time is less than 10% of what is being conducted in the USA. Perhaps more worrisome is the fact that there is a dearth of investigator initiated research with less than 3% of the registered trials being investigator initiated studies.

Another metric to gauge the research output is the number of publications in peer reviewed journals. In this regard also India is far behind that of the USA. In a bibliometric analysis of publications related to cancer research reported by Patra et al, only 648 publications were identified in Pubmed as originating from India in contrast to the 1,53,341 publications from India. Of the total number of publications, India contributed to only 0.4% of the available publications. The authors found that most of the publications were in low impact factor journals and there was a marked regional disparity with Kerala accounting for only 6.5% of the national research output.

We conducted a search of Pubmed using the same filters and found that 25,047 articles were identified from India. However during the same time period, the total number of publications from the USA was 3, 80,771. In the year 2012, 2122 articles were published from India as compared to 25,364 articles from the USA. Thus over the period of the last decade while some increase in research

activities has been observed the total research output of India remains less than 10% of that in the USA.

Hence from the above it can be easily concluded that Cancer research is at a nascent stage in India. Given the dearth of manpower and high patient load at most cancer centres it is not difficult to imagine the reasons behind the lack of research activities. Further impediments in conducting research activities in India include the phenomenon of "brain drain", lack of appropriate training and infrastructure to conduct research, absence of incentives for conducting research and less funding available for research. Other problems that have been highlighted in a publication by Saini et al and Thatte et al include:

1. Shortage of trained staff well versed in GCP norms.
2. Lack of formal training in bioethics and research methodology
3. Heavy burden of clinical duties
4. Sub-optimal administrative support
5. Absence of oversight of functioning of ethics committees
6. Lack of mechanisms for ensuring quality of ethics review heightens societal concerns about safety of participants.

The current socioeconomic reality of the Indian health care system is that very few patients are able to get access to innovative drugs and treatments. The per capita total spending on health is $132 for India versus $3480 for the United Kingdom (currency assumed to be international dollars as per purchasing power parity). 70.8% of all healthcare expenditure in India is borne by private spending, compared to only 16.1% for the United Kingdom. As a result there is no incentive for international pharmaceutical companies to market the latest products in India. This, coupled with an adverse intellectual property environment, results in the large majority of the innovative drugs reaching the Indian market very late in their development. The need of the hour is to develop a robust mechanism to conduct clinical trials that have relevance to the cancer burden in India in the country itself. In this regard availability and continuous training of manpower assumes paramount importance.

3.FELLOWSHIP PROGRAMMES

ALL FELLOWSHIP PROGRAMS CONDUCTED BY MCC-PGIOSR **ARE INSTITUTIONAL FELLOWSHIP PROGRAMS.**

Fellowship Programme in	Duration	Vacancy	Eligibility
High Precision Radiotherapy	**1 year**	**One**	• The candidate should possess an MD/DNB Radiotherapy/ Diploma in Medical Radiation Therapy (DMRT) • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.
Gastrointestinal Oncology	**1year**	**One**	• MCh/ DNB in Surgical Oncology OR MCh/DNB in Surgical Gastroenterology Or MS/DNB in General Surgery • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.
Head & Neck Oncology	**2 years**	**One**	• MS/DNB in Otorhinolaryngology (ENT) or DLO OR MS/DNB (General Surgery) • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1 st January of the current year.

Oral Oncology	**2 years**	**One**	• MDS in Maxillofacial Surgery. • Candidate should have valid MCI/DCI registration certificate • Candidates should not cross 45 years as on 1 st January of the current year.
Breast Oncology	**1 year**	**Two**	• The candidate should have MS in General Surgery or DNB in General Surgery . • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year
Onco Anaesthesiology	**1 year**	**Two**	• MD/DNB in Anaesthesiology or Diploma in Anaesthesiology • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.
Hemato-Oncology & BMT	**1year**	**Two**	• MD/DNB degree in General Medicine or Pediatrics or MD(Transfusion Medicine) or MD Pathology • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.
HematoPathology	**1 year**	**One**	• MD/DNB degree in Pathology • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.

Solid Tumour Oncology	**1 year**	**Two**	• The candidate should possess DM /DNB in Medical Oncology OR MD/DNB degree in Radiotherapy OR MD/DNB in General Medicine • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1st January of the current year.
Aphaeresis Medicine	**1 year**	**Two**	• M.D. Transfusion Medicine/DNB Transfusion Medicine/M.D. Pathology/ DNB Pathology / DCP in Clinical Pathology • Candidate should have valid MCI registration certificate • Candidates should not cross 45 years as on 1 st January of the current year.
Fellowship in Dental Oncology and Maxillofacial Rehabilitation	**1 year**	**One**	• BDS from any dental college recognized by the Dental Council of India. • (MDS can also Apply) • Candidates should have a valid DCI registration certificate. • Candidates should not cross 45 years as on 1 st January of the current year.

THESE PROGRAMS DO NOT HAVE THE RECOGNITION OF REGULATORY BODIES OR UNIVERSITIES.

THE PROGRAMS ARE STRUCTURED SO THAT CANDIDATE WILL GET ADEQUATE EXPOSURE AND PRACTICAL KNOWLEDGE IN RESPECTIVE FIELDS

4. FELLOWSHIP IN HIGH PRECISION RADIOTHERAPY

Introduction

The Department of Radiotherapy, MCC-PGIOSR intends to start a one year structured fellowship in high precision radiotherapy. Over the last decade there have been significant improvements in radiotherapy technology. Improvements have been occurring in all fields involved in the treatment planning and delivery. However these technological improvements are expensive to implement and require know-how for safe delivery. The high doses used in several of these technologies along with the minimal margins employed leave little room for errors. Unfortunately the majority of Government centres in India do not have access to these high precision techniques in Radiotherapy. The present fellowship is designed to meet this lacuna in the training of radiation oncology students in the country. The structured nature of the fellowship will ensure time bound training with regular and rigorous evaluation at defined time points. In addition the program aims to foster research in these technologies as the fellows will be required to take up a research project they can complete within the span of one year. About 40% of the time will be reserved for research and 60% will be for clinical assignments and classes in this programme. After completion of this fellowship, the fellows will be having a sound knowledge of the theoretical as well as practical aspects of these technologies in addition to having a good idea about the intensive quality assurance required for safe implementation of these technologies.

Eligibility

- Candidates should have completed their MD / DNB in Radiotherapy or Diploma in Medical Radiation Therapy (DMRT)
- Candidate should have valid MCI registration certificate
- Candidates should not cross 45 years as on 1st January of the current year.

Fellowship Objectives

1) To gain an understanding behind the theoretical basis of high precision radiotherapy techniques.
2) To understand the practical aspects of modern radiotherapy treatment planning including immobilization, simulation, image acquisition and volume delineation.
3) To gain an understanding of the latest protocols of image segmentation including both organs and target volumes in accordance with the ICRU guidelines.
4) To gain an understanding of the methods and principles behind image registration.
5) To gain practical as well as theoretical experience in planning of 3DCRT/IMRT/4DRT/SBRT and Adaptive IMRT.
6) To understand and apply the various methods of image guidance and verification available in modern radiotherapy practice.

7) To participate in the development of clinical and translational research protocols aiming at improving the therapeutic ratio of radiotherapy through the application of these high precision radiotherapy techniques.

Fellowship structure

The fellowship will be comprised of the following:

1. **Project Work**: Fellows will be expected to take up one or more projects to be completed within a span of 1 year. Acquiring extramural funding for these projects will be encouraged and fellows are expected to have a submitted publication prior to completion of the fellowship in the project concerned. In addition to this conference presentations are recommended and encouraged. Projects should ideally be prospective and should involve some aspect of High precision radiotherapy. Fellows will be expected to complete the project prior to getting a completion certificate. The fellows will be encouraged to prepare a project proposal prior to joining the fellowship which they can pursue during the tenure of their fellowship.

2. **Didactic Teaching**: Didactic teaching will be provided by the Faculty of MCC-PGIOSR according to the schedule given below. The aim of the didactic teaching is to have one to one sessions where the fellows can get to interact with the teaching faculty on various topics related to high precision radiotherapy.
3. **Practical Demonstration Session**: Practical demonstration sessions will be conducted on the topics mentioned below to enforce the learning imparted in didactic teaching sessions. These sessions will be tailored according to the existing level of training of the fellowship candidate and will be designed to demonstrate the full workflow involved in the treatment of patients with these techniques. A suggested list of practical demonstration classes is given below. The candidate will be expected to work with the faculty and members of the department for scheduling of these demonstration classes.
4. **Journal Club**: Candidates will be expected to conduct at least one Journal Club each month. Each Journal Club will be on a specific journal article that has important implications for practice in the department and will include a short presentation of the main paper followed by a structured discussion on the merits and demerits. The aim is to help ensure that the fellow learns to appraise scientific articles critically as per the guidelines proposed by JAMA. It is expected that the fellows will be discussing the existing evidence behind the application and use of various high precision radiotherapy technologies during this Journal Clubs.
5. **Chart Rounds**: The fellowship candidate will be expected to lead and conduct chart rounds on Saturdays with the radiotherapy team on Saturdays to critically analyse the plans being delivered as well as to correct any errors.

6. **Treatment Planning**: The fellows will be expected to participate in the treatment planning process of patients being treated in the department. During the process the fellow should familiarize themselves with the principles and methods involved in immobilization, image acquisition, image registration, image segmentation, treatment planning, verification and quality assurance as well as treatment delivery. Fellows are encouraged to participate in all aspects of the treatment planning process in order to gain the maximum benefit.
7. **Multi-speciality Board Meetings**: The candidates will be expected to participate in the discussions conducted in the Multispeciality board meetings conducted in the hospital between Tuesdays to Fridays.
8. **Performance Review**: The fellows will be part of a 3 monthly performance review in the department. The review will be conducted in a friendly environment in order to appraise the progress of the project(s) the fellow may be undertaking as well as review the problems that the fellow may be facing. Attendance in the performance review meetings will be considered compulsory for the fellows. The fellows are expected to maintain an up to date logbook to present at these review sessions.
9. **End of Fellowship Examination**: An end of fellowship examination will be conducted to evaluate the candidate in terms of the knowledge gained from the fellowship (both theoretical and practical). The examination will be mandatory for passing the fellowship and for grant of the fellowship completion certificate along with completed project work mentioned above.

Didactic Teaching

The following are the suggested topics for didactic teaching. The total duration of didactic teaching sessions will be 30 hours.over a period of 12 months. Didactic teaching will be conducted through presentations and bed-side demonstrations. Attendance in teaching classes is considered mandatory.

Suggested Topics
Introduction to High Precision Radiotherapy
History of conformal radiotherapy, Rationale behind high precision Radiotherapy, Potential advantages and limitations of high precision radiotherapy
Imaging for High Precision Radiotherapy
Basics of patient positioning and immobilization, Various Imaging Modalities in Use in High Precision Radiotherapy, Special points to note while imaging, MRI and special MRI sequences for treatment planning, PET CT and basics of PET CT based target delineation, Introduction to DICOM and DICOM-RT standards
Image Manipulation for High Precision Radiotherapy

Importing and exporting Images for treatment planning, Creating 3D and 4D image datasets, Image registration principles and methods. Deformable and non deformable image registration, introduction to image registration algorithms
Volume delineation in High Precision Radiotherapy
Revision of the ICRU concepts in Radiotherapy treatment planning, Review of important ICRU reports - 50, 64 and 78, Tools for image segmentation, Choosing the appropiate window and MRI sequence for image delineation, Target volume and Organ at risk delineation protocols and guidelines, How to create a PTV
Practical Radiotherapy Treatment Planning
Preliminary steps and checks to be made prior to starting treatment planning, Image manipulation prior to treatment planning, Use of accessories and treatment aids (e.g. bolus), Fluence and intensity, Techniques for obtaining a modulated fluence in a treatment field, Concept of the Beams Eye View, Principles of optimization in radiotherapy, Inverse planning and optimization algorithms, Dose calculation algorithms, plan evaluation techniques, Understanding the Dose Volume Histogram, Understanding Rapidarc treatment delivery and VMAT optimization, 4 D radiotherapy planning
Quality Assurance of High Precision Radiotherapy
Machine Quality Assurance Procedures for IMRT/3DCRT, Understanding principles and basics of patient specific Quality Assurance, Absolute Dosimetry versus Relative Dosimetry, Gamma Analysis, Various DosimetryEquipments for implementing patient QA in IMRT, AAPM guidelines for IMRT quality assurance, Verification of patient treatment and motion management, Understanding adaptive and image guided radiotherapy delivery
Starting a High Precision Radiotherapy Programme
Drawing up specifications for a machine, Regulatory approvals required for setting up a machine, Potential bottlenecks and pitfalls, Negotiating the contract and how to get the best out of the vendors, Designing and optimal workflow for successful implementation of the programme

Practical Demonstration Classes

A suggested list of practical demonstration classes to be taken during the fellowships is given below.

Patient selection for High Precision Radiotherapy, Explaining the cost benefits of High Precision Radiotherapy, Explaining the Risks of High Precision Radiotherapy
Patient immobilization and positioning - demonstration of how to make a thermoplastic cast and immobilization with vacuum cushions.
Creating a 2D compensator
Obtaining a 4D CT scan and importing it into the treatment planning system

Image registration of a CT with CT and CT with MRI for one or more sites (eg. brain, head neck, pelvis
Contouring the Target volumes and Organs at Risk for common situations following Guidelines: Brain, Nasopharynx, Oropharynx, Postoperative Oral Cavity, Larynx, Lung, Breast - Post Mastectomy, Breast - Post Lumpectomy, Esophagus, Stomach and GE Junction, Rectum, Cervix, Bladder, Extremity Soft Tissue Sarcoma. Contouring on a 4 D CT scan for 4 D treatment planning
Complete IMRT and Rapidarc treatment planning from start to finish including optimization
Plan export and creating a plan for Quality Assurance
Participating in patient Specific Quality Assurance
Patient setup verification using Electronic Portal images, KV Xray and Cone beam CT
Respiratory gated radiotherapy using ABC system
Adaptive Radiotherapy planning on Cone beam CT for lung and on repeat planning CT for head neck cancers

Journal Club

A journal club will have to be conducted by each candidate every alternate week. During the Journal Club a scientific article will be critically appraised and presented to the faculty. The session will be conducted over a period of 1 hour and the candidate is expected to make a short presentation on the article. The critical appraisal should be patterned on the recommendations of JAMA on critical appraisal of scientific articles. It is expected that the fellow will notify the faculty regarding the paper to be appraised at least 2 weeks in advance so that the paper can be studied in greater detail. Preference would be given to papers that deal with high precision radiotherapy including the clinical and physics aspects of the techniques. The selection and the appraisal will be the responsibility of the fellowship candidate who is free to seek the help of the faculty.

Chart Rounds

The fellowship candidate is also expected to lead the chart rounds that will be conducted every Saturday in the department. During the chart round the candidate will be checking the charts of the patients undergoing treatment in the department. The radiation charts along with the plans will be reviewed in the presence of at least two faculty members, one physicist and one technologist to critically analyse the plan in terms of target volume coverage, organ at risk sparing etc. Verification imaging performed during the period will also be reviewed to identify setup and motion related errors.

In addition, toxicity of the patients will be reviewed in order to find out patients having atypical patterns of toxicity.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal &external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

5. FELLOWSHIP IN GASTROINTESTINAL ONCOLOGY

Objective of the Programme

The objective of the fellowship program is to provide the training foundation for those individuals who want to pursue their professional career in the field of Gastro Intestinal (GI) oncology through training in the areas of basic as well as interdisciplinary management, complex oncologic procedures and research. This additional expertise emphasizes critical analysis of clinical problems and development of additional skills in the performance of techniques required for the practice of this subspecialty, including consultation skills and multidisciplinary treatment planning, with emphasis in basic and clinical research methodologies. It has another great vision of providing more expert cancer specialists to the society in order to provide a better quality management of disease for the people even in the lower levels of the community.

Eligibility

- MS/DNB in General Surgery MCh/ DNB in Surgical Oncology or MCh/DNB in Surgical Gastroenterology (preferred)
- Candidate should have valid MCI registration certificate
- Candidates should not cross 45 years as on 1st January of the current year.

Duration of the program

The proposed duration of the course will be 1 year.

Educational Objectives

The goals of this fellowship are to provide comprehensive, multidisciplinary training to individuals who are committed to a career in Gastrointestinal oncology. The fellowship program will be a one year course. The fellowship training will provide a broad exposure to a multidisciplinary management in basic oncological concepts including the Surgical aspects, Radiotherapy and Medical Oncology Upon completion of a one-year fellowship, the surgeon may aim to possess the following characteristics: a) Expertise in the multidisciplinary management of patients with GI cancers. b) Oncological aspects of Surgery in GI cancers c) Broad knowledge and comprehension in principles of: radiation oncology, medical oncology, oncopathology, diagnostic radiology/nuclear medicine and research d) Judgment and ability to perform complex tumor resections and an understanding of the technical limitations of the procedure e) Appreciation of scientific methodology, study design, clinical trials and data analysis f) Ability to practice effectively in an academic, tertiary care setting and to participate in medical education and translational research.

Fellowship Curriculum

The fellowship must provide clinical and/or didactic exposure to the following a) Gastrointestinal oncology b) Oncopathology c) Radiation and medical oncology relevant to the field d) Research e) Community Oncology

Duties and Responsibilities

The candidates will be full time residents of the institutions and will perform the duties and responsibilities of a full time surgeon in the department of Surgical Oncology. The learning process will be facilitated by; 1) Clinical expertise gained by working alongside experienced Oncologists. 2) Active participation in daily multi-specialty tumor boards. 3) Teaching sessions, which would include interdisciplinary seminars (involving radiation, medical and palliative care besides the parent unit), Journal clubs, and case presentation. 4) Assisting and hands on experience in common surgical procedures 5) Posting to Medical, Radiation, Community oncology and palliative care for an exposure to these areas of oncology. 6) Project work and publications in oncology journal. 7) Lectures by experts in the field of basic sciences, preventive oncology, tumor registry, molecular biology & genetics.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

6. FELLOWSHIP IN HEAD &NECK ONCOLOGY

Objective of the Programme

The aim is to provide the training foundation for those surgeons dedicated to careers in head and neck surgical oncology through training in the areas of interdisciplinary management, complex head and neck oncologic surgery and research. This additional expertise emphasizes critical analysis of clinical problems and development of additional skills in the performance of techniques required for the practice of this subspecialty, including consultation skills and multidisciplinary treatment planning.

Academic Eligibility

- MS/DNB/DLO in Otorhinolaryngology (ENT)
- MS/DNB (General Surgery)

Duration of the program

The duration of the course will be 2 years.

Educational Objectives

The goals of these fellowships are to provide comprehensive, multidisciplinary training to individuals who are committed to a career in head and neck surgical oncology. The fellowship programme will be a two year course . The fellowship training will provide a broad exposure to the clinical problems encountered in a tertiary head and neck oncology practice. Upon completion of a two-year fellowship, surgeon is expected to possess the following:

1) Expertise in the multidisciplinary management of patients with head and neck cancer.
2) Broad-based knowledge and comprehension of principles of: radiation oncology, medical oncology, maxillofacial prosthetics, oncologic nutrition, head and neck pathology, diagnostic radiology/nuclear medicine and rehabilitation of speech and swallowing.
3) Expertise in conservation surgical procedures, judgment and ability to perform complex tumour resections, loco regional flap reconstructions and basics of microvascular free flap reconstructions.
4) Appreciation of scientific methodology, study design, clinical trials and data analysis.

Fellowship Curriculum

The fellowship will provide clinical exposure to the following

1) Oral cavity cancer & management
2) Oropharyngeal cancer& management
3) Laryngeal cancer & management
4) Hypopharyngeal cancer & management
5) Cervical esophageal cancer & management

6) Neck dissections and management of neck nodes

7) Paranasal sinus malignancy & management

8) Salivary gland neoplasms & management

9) Thyroid neoplasms & management

10) Head and neck melanoma & management

11) Skull base neoplasms & management

12) Head and neck sarcoma & management

13) Non-melanoma skin cancer & management

14) Partial laryngeal surgery

15) Head and neck reconstruction

16) Head and neck pathology

17) Radiation biology and therapeutic radiation oncology

18) Head and neck medical oncology

19) Maxillofacial prosthetics

20) Nutritional Oncology

21) Head and neck diagnostic radiology and nuclear medicine

22) Speech and language rehabilitation

23) Morbidity and mortality conferences

24) Journal clubs

25) Clinical research protocol

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

7. FELLOWSHIP IN ORAL ONCOLOGY

Objective of the Programme

The objective is to provide the training foundation for surgeons dedicated to careers in oral oncology through training in the areas of interdisciplinary management, complex oral oncologic surgery and research. This additional expertise emphasizes critical analysis of clinical problems and development of additional skills in the performance of techniques required for the practice of the subspecialty, including consultation skills and multidisciplinary treatment planning, with emphasis in basic and clinical research methodologies.

Eligibility

- ✔The candidate should possess MDS degree in Maxillofacial Surgery
- ✔Candidate should have valid MCI/DCI registration certificate
- ✔Candidates should not cross 45 years as on 1 st January of the current year.

Duration of the program

The duration of the course proposed is 2 years.

Educational Objectives

a) The goals of these fellowships are to provide comprehensive, multidisciplinary training to individuals who are committed to a career in oral oncology.
b) The fellowship programme will be a two year course
c) The fellowship training will provide a broad exposure to the full range of clinical problems encountered in a tertiary oral oncology practice.
d) Upon completion of a two-year fellowship, the surgeon will possess the following characteristics:
    1) Expertise in the multidisciplinary management of patients with oral cancer
    2) Broad-based knowledge and comprehension of principles of: radiation oncology, medical oncology, maxillofacial prosthetics, oncologic nutrition, oral pathology, diagnostic radiology/nuclear medicine and rehabilitation of speech and swallowing
    3) Expertise in conservation surgical procedures
    4) Judgment and ability to perform complex tumor resections
    5) Knowledge and/or skills in microvascular free flap reconstruction
    6) Appreciation of scientific methodology, study design, clinical trials and data analysis
    7) Ability to practice effectively in an academic, tertiary care setting and to participate in medical education and translational research.

Fundamental Components of the Fellowship

a. The fellow must participate in the evaluation, management and care of a minimum of 200 oral cancer cases

b. Participation in a minimum of 100 surgical procedures, representing the full scope of head and neck surgical oncology
c. Intensive exposure to the interdisciplinary management of head and neck oncologic patients
d. Participation in the development and implementation of head and neck oncologic research.

Duties and Responsibilities:

The candidates will be full time residents of the institutions and will perform the duties and responsibilities of a full time physician in Surgical Oncology. The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced Oncologists.
2) Attendance in daily Multi-speciality tumor boards.
3) Teaching sessions, which would include interdisciplinary seminars (involving radiation, medical and palliative care besides the parent Unit.), Journal clubs, and case presentation.
4) Assisting and hand on experience in all Head and Neck oncology procedures
5) Posting to Medical, Radiation, Community oncology and palliative care for an exposure to these areas of oncology.
6) Project work in the form of at least one publication in any oncology journal and involvement in community based intervention programmes for cancer
7) Lectures by experts in the field of basic sciences, preventive oncology, tumor registry, molecular biology & genetics.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

8. FELLOWSHIP IN BREAST ONCOLOGY (SURGICAL)

Objective of the programme

Breast cancer is the most common cancer affecting women in Kerala. The Fellowship Programme is initiated with an intent to train individuals to provide state of the art multidisciplinary care for patients with cancer, develop leaders in the field of oncology, and provide a rigorous academic experience in which fellows can participate in clinical, translational and basic science research. Fellows completing the programme will have finely honed skills in surgical diagnosis and treatment of breast cancers.

Objectives of the Programme

1) To provide expert clinical training in the diagnosis,evaluation, and treatment of breast cancer
2) To learn about the multidisciplinary approach in the management of breast cancer.
3) Training in assessing, clinical staging and treatment decisions in breast cancer.
4) Hands-on training in surgical procedures employed in the treatment of breast cancer including biopsy, mastectomy, breast conservation surgery, axillary dissection, sentinel lymph node biopsy and oncoplastic reconstruction techniques.
5) Exposure to advanced techniques like Lympha.
6) Orientation toward basic and advanced cancer research activities related to breast cancer
7) To actively take part in research activities of the department including clinical trials
8) To learn interpersonal communication skills and communication skills towards patients and their relatives.

Duties and Responsibilities

The candidates will be full-time residents of the institution and will perform the duties and responsibilities of a full-time surgical oncologist in the department of surgical oncology including night duties.

● **Patient care** – outpatient clinic, casualty, preoperative wards, operation theatre, postoperative wards, maintenance of case records, preparation of case summary, discharge card and summary. Letters to local doctors with instructions, patient education, Consent preparation, all intervention procedures and patient counselling.

The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced faculty

2) Active participation in daily multi-speciality tumor boards.

3) Teaching sessions, which would include interdisciplinary seminars (involving radiation, medical and palliative care besides the parent unit.), Journal clubs, and case presentation.

4) Project work aimed at least two publications in any oncology journal

5) Lectures by experts in the field of breast cancer and basic oncology.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club & tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

9. Fellowship in Onco-anaesthesiology

Objective of the programme

The purpose is to provide training for Aspirant Anaesthesiologist in the field of Oncoanaesthesia and Research.This additional expertise emphasizes critical analysis of clinical problems and development of additional skills in the performance of techniques required for the practice of this subspecialty.The trainees will be allowed to administer Anaesthesia for therapeutic and diagnostic procedures in surgical oncology.

Academic Eligibility

- MD/DNB in Anaesthesiology
- Diploma in Anaesthesiology

Duration of the program

- The duration of the course will be 1 year

Educational Objectives

- Anaesthetic care in the operating theatres for all types of surgical, diagnostic and therapeutic procedures. Hands-on experience of advanced techniques such as thoracic epidural, ultrasound guided nerve blocks; ultrasound guided difficult vascular access, difficult airway management techniques such as fibre-optic intubation/ video-laryngoscopy and advanced haemodynamic monitoring.
- Training in anaesthetic management of critical and complex long duration surgeries such as free flap reconstruction surgeries, advanced hepato-pancreatico-biliary surgeries, video Assisted thoracoscopic surgeries,HIPEC surgery and cytoreductive surgeries
- Non-operating room anaesthesia (NORA):training in anaesthesia outside Operating room like MRI, CT, Radiotherapy (RT), PET-CT and Radiofrequency Ablation
- Postoperative Care Unit: Postoperative critical care of complex surgeries will also be part of the training.
- Pain management:

  Providing pre- and post-operative pain management procedures like Epidural block, Patient controlled analgesia,Transdermal patch and regional nerve blocks.

  Pain Clinic: Providing inpatient and outpatient chronic pain management.

- Academic activities include Topic discussions,Journal club, morbidity & mortality meetings and lectures in biostatistics. Appreciation of scientific methodology, study design, clinical trials and data analysis. Fellows have the opportunity to participate in the

workshops/conferences for national and international audience

Number of seats allotted

Two seats will be allotted per year

Fellowship Curriculum

1. Organization and functioning of operating theaters
2. Digital hospital information network and data processing
3. Pre-anaesthesia evaluation
4. Patient assessment in Post-anaesthesia care unit
5. Anaesthesia for Gastro-intestinal oncological surgery
   a. Anaesthesia considerations in gastro-intestinal and hepatico-pancreatico-biliary surgeries
   b. Advanced hemodynamic monitoring and fluid management
6. Anaesthesia for gynaec-oncological surgery
   a. Perioperative considerations for debulking and cytoreductive surgery
   b. DVT prophylaxis- mechanical and pharmacologic methods
7. Anaesthesia for uro-oncological surgery
   a. Perioperative management of major radical uro-surgical procedures
8. Anaesthesia for breast and plastic surgery
   a. Management of LD flap and TRAM flap surgeries-
9. Anaesthesia for head and neck oncological surgery
   a. Head and neck free flap reconstructions
   b. Difficult airway management- algorithm
10. Anaesthesia for thoracic oncological surgery
    a. One lung ventilation
    b. Introduction to double lumen tubes and bronchial blockers
    c. Introduction to fibreoptic bronchoscopy
11. Anaesthesia for Ocular oncological surgery
12. Post Operative pain management
    a. Patient controlled analgesia: machines, drugs, regimes
    b. Post-operative epidural analgesia
13. Chronic pain management
    a. Pharmacological management of chronic pain
14. Onco-critical Care
    a. Post-operative ventilation
    b. Weaning from ventilation strategies
    c. CLABSI,VAP,CAUTI bundles
    d. Fungal infections in ICU

e. Enteral feeding: when to start, how?
f. Sepsis guidelines

PRACTICAL TECHNIQUES IN ONCO-ANAESTHESIA

1. Arterial cannulation: catheter over needle (Jelco) and Seldinger technique (Leadercath): Radial, femoral and dorsalis pedis artery cannulation.
2. Central venous cannulation- internal jugular,subclavian,femoral veins.
3. Regional anaesthesia techniques:
    a. Sub arachnoid block
    b. Epidural anaesthesia: lumbar and thoracic
4. Airway management devices:
    a. LMA- Classic, proseal, supreme
    b. I-gel
    c. Flexo-metallic tubes
    d. RAE tubes
    e. MLS tubes
5. Difficult airway management techniques
    a. Awake fibreoptic intubation
    b. CMAC video laryngoscope
    c. Cook- airway exchange catheters
    d. Percutaneuscricothyrotomy (PCT)
    e. Trans tracheal jet ventilation device
6. Advanced haemodynamic monitoring:Estimated Continuous Cardiac Output (ESCCO)technology.
7. Depth of Anaesthesia Monitoring-ENTROPY,BIS(Bispectral index)
8. Neuromuscular monitoring-TOF,DBS

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club & tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

10.FELLOWSHIP IN HEMATO-ONCOLOGY & BMT

Objective of the Programme

1. Gain deep knowledge in the subject, both practical and theoretical aspects
2. Learn fundamentals of BMT and the application of BMT in various hematological disorders.
3. Orientation toward basic and advanced cancer research activities
4. To actively take part in research activities of the department
5. To learn interpersonal communication skills and communication skill towards patients and their relatives.
6. To learn about the applied laboratory aspects of the subject.

The aim is to provide the training foundation for those individuals who want to pursue their professional career in the field of hemato oncology . This additional expertise emphasizes critical analysis of clinical problems and development of additional skills required for the practice of this specialty, including consultation skills and multidisciplinary treatment planning, with emphasis in basic and clinical research methodologies.

It has another great vision of providing more expert hematology specialists to the society in order to provide a better quality management of disease for the people even in the lower levels of the community.

Eligibility

- The candidate should possess **MD/DNB degree in General Medicine or Pediatrics** or **MD(Transfusion Medicine)** or **MD Pathology**
- Candidate should have valid MCI registration certificate
- Candidates should not cross 45 years as on 1st January of the current year.

Duration of the program

The proposed duration of the course will be 1 year.

Fundamental Components of the Fellowship

- The fellow must participate in the evaluation, decision making and management of hematological cancers.
- Candidates will have BMT, Outpatient, Intensive chemotherapy and other inpatient chemotherapy postings. This should be followed strictly.
- Candidates will require to learn the basics in peripheral smear reporting and bone marrow aspirate reporting which are essential parts of learning the subject.
- In addition they will have postings in the blood bank to learn the basics of stem cell collection and preservation techniques.

- Candidate will have exposure to Flow cytometry evaluation of hematologic disorders and stem cell enumeration
- Candidates should actively participate in the daily academic activity of the department/institution without any fail.
- An attendance of 90% is mandatory for the completion of the course.
- A log book should be maintained. This has to be submitted at the end of course

- Candidate should preferably have publications in an indexed journal- two case reports or a prospective study- in his/her account for completion of the course.

Duties and Responsibilities

The candidates will be full time residents of the institution and will perform the duties and responsibilities of a full time physician in the department of Clinical Hematology.

- Patient care – BMT, Intensive chemotherapy unit, inpatient chemotherapy rounds, Outpatient clinic, maintenance of case records, preparation of case summary, discharge card and summary. Letters to local doctors with instructions, patient education, Consent preparation, all intervention procedures and patient counselling.

The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced faculty
2) Active participation in daily Multi-speciality tumor boards.
3) Teaching sessions, which would include interdisciplinary seminars (involving radiation, medical and palliative care besides the parent unit.), Journal clubs, and case presentation.
4) Project work in the form of at least two publication in any hematology/oncology journal
5) Lectures by experts in the field of basic sciences, tumor registry, molecular biology & cancer genetics.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

11.FELLOWSHIP IN HEMATOPATHOLOGY

Objective of the Programme

1. Gain deep knowledge in the subject, both practical and theoretical aspects

2. To learn the current practices and recent advances in hematopathology.

3. To learn about fundamentals of molecular pathology and flow cytometry.

4. Orientation toward basic and advanced cancer research activities

5. To actively take part in research activities of the department

6. To learn interpersonal communication skills and communication skills towards patients and their relatives.

The aim is to provide the training foundation for those individuals who want to pursue their professional career in the field of hematology and hematopathology. This additional expertise emphasises development of additional skills required for the practice of this specialty, including consultation skills and multidisciplinary treatment planning, with emphasis in basic and clinical research methodologies. It has another great vision of providing more expert pathology specialists to the society in order to provide a better quality management of disease for the people even in the lower levels of the community.

Eligibility

 The candidate should possess MD/DNB degree in Pathology

 Candidate should have valid MCI registration certificate

 Candidates should not cross 45 years as on 1 st January of the current year.

Duration of the program

The duration of the course will be 1 year.

Educational Objectives

a. The fellow must participate in the diagnostic works which includes morphologic evaluation and decision making of hematological disorders.

b. Candidates will have postings in the central laboratory division of Laboratory Haematology & Molecular oncology. This should be followed strictly.

c. Candidates will be oriented in the techniques of transfusion medicine including component separation and apheresis.

d. Candidates will require to learn the basics in Molecular and genetic methodologies as essential parts of learning the subject.

e. In addition they will have postings in the division of bone marrow transplant to learn the basics of stem cell collection and preservation techniques.

f. Candidate will have exposure to Flow cytometry evaluation of hematologic disorders and stem cell enumeration

g. Candidates should actively participate in the daily academic activity of the department/institution without any fail.

h. An attendance of 90% is mandatory for the completion of the course.

i. A log book should be maintained. This has to be submitted at the end of course

j. Candidate should preferably have publications in an indexed journal- two case reports or a prospective study- in his/her account for completion of the course

Fellowship Curriculum

The fellowship will provide exposure to the following

1) Evaluation and diagnostic decision making in bone marrow specimen, lymphnode biopsies and radical excision specimens of suspected hematolymphoid neoplasm's.

2) Training in immunohistochemistry

3) Training in flow cytometry

4) Training in hemostasis and coagulation

5) Training in molecular techniques

6) Journal clubs and topic presentations

7) Multispecialty board meetings

8) Clinical research methodologies

Peripheral Posting of fellows

● The aim of each fellowship programme is to provide the training foundation for those individuals who want to pursue their professional career in the concerned specialty

● This additional expertise emphasizes the development of additional skills required for the practice of respective specialty

For getting adequate exposure and comprehensive training in areas of concerned specialty, a fellow can be posted in other institutes/centre/hospital within the state of Kerala or outside Kerala provided adequate exposure of the same is not available in the concerned department.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &;tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

12.Fellowship in Solid Tumour Oncology (Medical)

Objectives of the Programme

1. To provide expert clinical training in the diagnosis,evaluation, and treatment of adult solid tumours
2. To learn about the multidisciplinary approach in the management of solid tumours
3. Orientation toward basic and advanced cancer research activities
4. To actively take part in research activities of the department including clinical trials
5. To learn interpersonal communication skills and communication skills towards patients and their relatives.
6. To learn about the applied laboratory aspects of the subject including the basics of molecular oncology related to solid tumors

The aim of the program is to offer state-of-the-art training in the diagnosis and management of adult solid tumors. This will provide the foundation for the multidisciplinary management of solid tumors and in the use of systemic agents in various solid tumors. This additional expertise emphasizes critical analysis of clinical problems and the development of additional skills required for the practice of this specialty, including consultation skills and multidisciplinary treatment planning, with an emphasis in basic and clinical research methodologies. As solid tumors constitute the majority of the cancers in our country and the world , to have professional training in the newer developments in the specialty and the comprehensive management of solid tumours will improve the cancer care and control activities in our country.

Eligibility

- The candidate should possess DM /DNB in Medical Oncology or MD/DNB degree in Radiotherapy, MD/DNB in General Medicine
- Candidate should have a valid MCI registration certificate
- Candidates should not cross 45 years as of 1st January of the current year

Duration of the program

The proposed duration of the course will be 1 year.

Fundamental Components of the Fellowship

- The fellow must participate in the evaluation, decision making and management of various solid tumours

- Candidates will have Outpatient, Intensive chemotherapy unit, and other inpatient and day care chemotherapy unit postings. This should be followed strictly.

- Candidates will require to attend multidisciplinary tumor boards regularly

- Candidates have to gain expertise in the baseline evaluation, administration and monitoring of chemotherapy/Targeted therapy/hormonal therapy and immunotherapy.

- Candidates should actively participate in the daily academic activity of the department/institution without any fail.

- The candidate will be involved in the clinical research activities including the clinical trials conducted in the department

- Candidates will have posting in rotation in the surgical oncology,radiation oncology, pathology , molecular oncology departments, radiology and palliative medicine to have adequate exposure in the multidisciplinary care

- An attendance of 90 % is mandatory for the completion of the course.

- A log book should be maintained. This has to be submitted at the end of course

- Candidate should preferably have publications in an indexed journal- two case reports or a prospective study- in his/her account for completion of the course and at least one presentation in a national or international conference

Duties and Responsibilities

The candidates will be full-time residents of the institution and will perform the duties and responsibilities of a full-time physician in the department of Clinical hematology and Medical oncology including nigh duties

● **Patient care** – Day care chemotherapy unit , Intensive chemotherapy unit, inpatient chemotherapy rounds, Outpatient clinic, maintenance of case records, preparation of case summary, discharge card and summary. Letters to local doctors with instructions, patient education, Consent preparation, all intervention procedures and patient counselling.

The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced faculty
2) Active participation in daily multi-speciality tumor boards.
3) Teaching sessions, which would include interdisciplinary seminars (involving radiation, medical and palliative care besides the parent unit.), Journal clubs, and case presentation.
4) Project work in the form of at least two publications in any oncology journal
5) Lectures by experts in the field of basic sciences, tumor registry, molecular biology & cancer genetics.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

13.Fellowship in Aphaeresis Medicine

Objective of the Programme

The Apheresis Medicine Fellowship is a structured, competency-based training programme designed to develop skilled clinicians and scientists in therapeutic apheresis, donor care, cellular therapy, and advanced laboratory support services. The fellowship provides comprehensive hands-on exposure to a wide range of apheresis procedures while integrating cross-disciplinary training in immunohematology, HLA testing, flow cytometry, and cell processing.

Our aim is to train future leaders capable of delivering high-quality patient care, advancing transfusion science, and contributing to cellular therapy practices.

Eligibility

- M.D. Transfusion Medicine/DNB Transfusion Medicine/M.D. Pathology/ DNB Pathology / DCP in Clinical Pathology
- Candidate should have valid MCI registration certificate
- Candidates should not cross 45 years as on 1 st January of the current year.

Duration of the program

The duration of the course is 1 year.

Educational Curriculum

1. Laboratory:

This would involve rotation in the various sections –

A. Therapeutic & Donor Apheresis

Fellows receive intensive training in the full spectrum of apheresis procedures, including:

- Donor selection, counselling, and adverse donor reaction management
- Stem cell collection (PBSC)
- Therapeutic plasma exchange (TPE), Leukapheresis & thrombocytapheresis,
- Red cell exchange
- Management of vascular access and procedure-related complications

B. Exposure to HLA & Immunogenetics Laboratory

To enhance understanding of transplant immunology, the fellowship offers structured rotations in the HLA Lab, including:

- Principles of HLA genetics and clinical relevance
- High-resolution HLA typing (SSO, NGS platforms)
- Antibody detection and identification (Luminex-based SAB)

- Crossmatch techniques (flow cytometric crossmatch)
- Donor–recipient compatibility assessment in HSCT
- Interpretation of reports for clinical decision-making

C. Training in Cell Therapy Laboratory

The fellowship integrates hands-on experience in cell therapy, including:

- Processing and cryopreservation of hematopoietic stem cells
- Quality control and viability assays
- Preparation of CAR-T therapy samples (as per institutional facilities)
- TCRab and CD19 depletion
- Enrichment of Virus specific T cells
- GMP documentation and compliance

D. Flow Cytometry Rotation

Flow cytometry skills are integral to modern transfusion and cell therapy practice. Training includes:

- Basics of flow cytometry instrumentation and panel design
- CD34 stem cell enumeration
- Leukocyte subset analysis
- Basic understanding of Immunophenotyping for leukemia/lymphoma, Minimal residual disease
- Data analysis and interpretation using software platforms
- Maintaining all tests/ activities / processes and records as per Drug control and NABH requirements.

2. Clinical:

The post holder would be expected to perform daily clinical rounds, interact with clinical colleagues regarding blood transfusion needs for patients, suspected transfusion reactions and safe transfusion practices, and responds to queries on these issues.

Targeted apheresis component therapy for hemo-oncology patients, BMT patients and patients with suspected transfusion reactions.

3. Management responsibilities:

The post holder would be expected to write / help other laboratory staff to write standard operating procedures, drafting policy documents, carrying out external Quality control, hemovigilance and timely audit.

Participation in equipment calibration, maintenance, and quality control activities and assessments undertaken by Drug Controllers and the NABH is also expected.

4. Academic responsibilities:

- Journal Clubs and Seminars: The post holder would be expected to attend / present seminars and findings from recent scientific publications, in departmental and allied speciality meetings. Candidates should actively participate in the daily academic activity of the department/institution without any fail.

- Audit and Research: The post holder would be expected to be involved in laboratory work, present papers in scientific conferences, and write articles for publication in indexed journals.

- Teaching: The post holder would be expected to teach clinical, laboratory, and nursing staff, as and when required.

The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced faculty

2) Participation in daily Multi-speciality tumor boards.

3) Teaching sessions, which would include interdisciplinary seminars, Journal clubs, and case presentations.

4) Project work in the form of at least two publications in any transfusion medicine/hematology/oncology journal

5) Lectures by experts in the field of basic sciences, tumor registry, molecular biology & cancer genetics.

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club &tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

14. Fellowship in Dental and Maxillofacial Onco-Rehabilitation.

Dental & Maxillofacial Onco-Rehabilitation is a very complex treatment modality and only limited Professionals offer such expertise services. The Proposed Fellowship in Dental & Maxillofacial Onco-Rehabilitation is an innovative step to train the Dental graduates/Post graduates and equip them to rehabilitate the Cancer patients and improve their Quality of Life.

Objectives

1. To develop a regular full time academic program with extensive theoretical inputs and rigorous clinical experience in the area of Dental Oncology & Maxillofacial Onco-Rehabilitation.

2. To prepare the Fellow to be a qualified Dental & Maxillofacial Rehabilitation Expert and to improve the masticatory and Aesthetic Outcomes in cancer patients and thereby enhance their Quality of Life.

3. To conduct short-term research in Dental Oncology & Maxillofacial Rehabilitation along with real clinical experience.

Eligibility

- BDS /MDS from any dental college recognized by the Dental Council of India.
- Candidate should have Valid DCI Registration
- License to Practice in the State of Kerala (Candidate shall apply for the license, if selected)
- Candidate Should not cross 45 Years as on January of the Current Year

Duration of the program

The duration of the course is 1 year.

Course of Fellowship

One year full time clinical training divided into four parts

I. Theoretical Learning

   a. Dental Treatment planning in Oncology patients- General
   b. Dental Treatment Planning in Head and Neck Cancer Patients
   c. Cancer Treatment- Different Modalities
   d. Oro-dental Complications related to Cancer Treatment
   e. Dental Rehabilitation- Concept, Implementation & Challenges

f. Maxillofacial Rehabilitation- Concept, Implementation & Challenges.
g. Biomedical Research

II. Clinical & Practical hours

a. Out Patient & In patients Consultations
b. Dental & Maxillofacial Procedures
c. Operation Theatre Postings
d. Prosthetic Lab works
e. Case study & Case reports
f. Postings in Other Oncology specialities

III. Research Dissertation

a. Viva-voce

IV. Internship in an outside Hospital (Optional)*

a. 2 weeks

b. Institutional visit

*The expenses for Internship (Observership) in another hospital shall be borne by the Candidate.

Educational Curriculum

1. Biology of Oral Cancer- Risk factors, Epidemiology

2. Treatment of Head and Neck cancers- TNM staging, Stage wise treatment approaches, Surgical, Radiation and Chemotherapy Modalities

3. Treatment for Solid Tumours and Hematological malignancies- a comprehensive learning

4. Dental considerations in Head neck cancer patients- Pre treatment, during treatment & Post treatment approaches.

5. Dental Considerations in Haematological malignancies- Pre treatment, during treatment & Post treatment approaches.

6. Dental Considerations in Paediatric malignancies- Pre treatment, during treatment & Post treatment approaches.

7. Dental Considerations in Solid Tumours- Pre treatment, during treatment & Post treatment approaches.

8. Management of Oral Complications related to cancer treatment- Oral mucositis, radiation caries, xerostomia, dentinal hypersensitivity, oral pain, Osteoradionecrosis,

9. Dental Treatment challenges in Cancer patients

10. Dental Rehabilitation of Oral cancer patients- approaches & Challenges

11. Implant based dental rehabilitation in cancer patients- Planning & evaluation , risk & complications and implementation.

12. Maxillofacial Prosthetic rehabilitation- concept, planning and evaluation, materials, and implementation.

13. Advances in dentistry- Applications of new technologies like intra oral scanner, 3D Printer and surgical planning softwares for predictive rehabilitation.

14. Research Methodology- Introduction, designs, Statistics

Methodology of Teaching:

Lectures, Seminar, Presentations, Discussions, Assignments, Journals. MDT, Article writing & Publication

Duties and Responsibilities

The candidates will be full-time residents of the institution and will perform the duties and responsibilities of a full-time Dental Faculty in the department of Dentistry & Rehabilitation.

● **Patient care** – outpatient clinic, preoperative wards, postoperative wards, maintenance of case records, patient education, Consent preparation, all dental procedures (not limited to any particular dental speciality)

The learning process will be facilitated by;

1) Clinical expertise gained by working alongside experienced faculty

2) Active participation in daily multi-speciality tumor boards.

3) Teaching sessions, which would include interdisciplinary seminars (involving other specialties besides the parent unit.), Journal clubs, and case presentation.

4) Clinical studies aimed at a minimum of one publication in any Indexed journal

5) Lectures by experts in the field of Oral Oncology & Dental & Maxillofacial Rehabilitation.

EVALUATION OF THE CANDIDATES

Fellowship Examination:

A] Internal assessment of the candidates by the faculty- (100 marks)

This will be done on a continual basis with respect to the overall objectives of the course, and specifically with respect to their clinical skills, management of patients, seminars, journal club & tumor board presentations.

B] Final examination - by both internal & external examiner.

It will consist of :

I theory papers (100 marks)

Practical examination (40X2)= 80 marks (As per individual department curriculum)

Dissertation: 20 marks

15. SUBMISSION OF APPLICATION

Online Application:

The applications should be submitted ONLINE through our website **www.mcc.kerala.gov.in.**

Application Fee:

Application fee is **Rs.2,500/-** (Rupees Two Thousand Only). The application fee shall pay online through the payment gateway system provided in the online application

Selection process:

The selection will be based on a personal interview. A screening test may be performed based on the number of applicants as per institutional policy.

16. FEES AND STIPENDS

- One-time Fellowship Fee: **Rs. 50,000/- per annum** (excluding GST @ 18%).
- Library Fee: **Rs. 1,000/- per annum**.
- Alumni Fee: **Rs. 1,000/-** (one-time).
- Caution Deposit: **Rs. 10,000/-** (refundable).
- **Total payable:** Rs. 62,000/- in the first year and Rs. 51,000/- in the second year.
- Stipend: **Rs. 57,876/- per month** in the first year and **Rs. 58,968/- per month** in the second year.
- For sponsored candidates, the institution may decide the fee structure as appropriate.
- Annual fees once remitted will not be refunded if the candidate discontinues before completing the course.
- For BDS candidates joining the Fellowship in Dental & Maxillofacial Onco-Rehabilitation, the stipend will be **Rs. 30,000/- per month**.

17. FACULTIES

SURGICAL ONCOLOGY	Dr.Satheesan Balasubramanian, M.S. M.Ch. (Surgical oncology) Director & Professor, Surgical oncology.
	Dr.Nizamuddin.M.P (MS, MCh.), Professor and HOD, Surgical Oncology
	Dr AdarshD . MS (OBG), Additional Professor in Gyn Oncology
	Dr Sandeep Vijay MS (ENT), Associate Professor
	Dr Anoop.A MS (ENT), Associate Professor
	Dr Ashitha MS (OBG), Associate Professor
	Dr Raveena Nair(MS ENT) Assistant Professor
	Dr Shamna Muhammed (MS,MCh)Assistant Professor
	Dr Parmita Tiwari(OBG), Assistant Professor
CLINICAL HEMATOLOGY AND MEDICAL ONCOLOGY	Dr.Chandran K. Nair, M.D.,DNB(Int. Medicine), D.M. (Clinical Hematology), Fellowship in Bone Marrow/Peripheral blood Stem cell transplantation(Vancouver, Canada) Professor and HOD
	Dr.Praveen Shenoy (MD, DM)Professor
	Dr Nandini Devi(MD,DM),Associate Professor
	Dr.Shoaib Nawaz (MD,DrNB), Assistant Professor
	Dr. Abhilash Menon (MD, DM), Assistant Professor
	Dr Arun Krishnan(MD,DM),Assistant Professor
	Dr.Jithin T K (MD, DM), Assistant Professor
	Dr.K G Gopakumar (MD, DM),Assistant Professor
CLINICAL LABORATORY SERVICES AND TRANSLATIONAL RESEARCH	Dr.Sangeetha K Nayanar MD, DNB (Pathology), Professor and HOD
	Dr.Parthiban R, PhD Professor, Microbiology
	Dr.SitharaAravind MD (Pathology), Additional Professor
	Dr Mohandoss M MD (Transfusion Medicine), Additional Professor
	Dr Aswathy Krishnan M MD,DNB (Pathology), Associate Professor
	Dr Kandathil Philip Joseph MD,DNB (Pathology), PDCC Assistant Professor
	Dr Anand Narayanan MD (Pathology), Assistant Professor
	Dr.Vivek Nair, MD(Pathology), Fellowship in Oncopathology, Assistant Professor
	Dr.Deepak Roshan PhD , Associate Professor, Cytogenetics
	Dr.Vipin Gopinath PhD, Associate Professor, Molecular Oncology
	Dr.Sindhu ER PhD, Associate Professor, Biochemistry
	Dr Sarath KE MD, Assistant Professor, Microbiology
	Dr Anju KurupMD ,Assistant Professor ,Transfusion Medicine
RADIATION ONCOLOGY	Dr.Geetha M. MD (Radiotherapy),Professor and HOD
	Dr Joneetha Jones MD,DNB(Radiotherapy), Additional Professor
	Dr Greeshma K E DMRT,DNB (Radiotherapy), Associate Professor
	Dr Nabeel Yahiya MD (Radiotherapy), Assistant Professor
	Dr Arun.P.Narendran MD,DNB(Radiotherapy), Assistant Professor
	Dr Akhil.P.Suresh MD (Radiotherapy), Assistant Professor
	Dr Megha Prem MD(Radiotherapy),Assistant Professor
	Dr Shija Merin DNB (Radiotherapy) ,Assistant Professor
ONCOANESTHESIOLOGY	Dr Jeshma C,DNB (Anesthesia), Associate Professor

	Dr Joona P,MD (Anesthesia), Associate Professor
	Dr Sonali Opneja ,MD (Anesthesia),EDAIC,IPAC,Associate Professor
	Dr Roopesh ,MD (Anesthesia),EDAIC, Assistant Professor
	Dr Namrata Divakaran ,MD (Anesthesia),Assistant Professor
	Dr Rahul K V ,MD (Anesthesia), Assistant Professor
IMAGEOLOGY	Dr Ashish Pavanan,MD (Radiodiagnosis) , Assistant Professor
	Dr Preethi,MD (Radiodiagnosis) , Assistant Professor
	Dr Gayathri ,MD (Radiodiagnosis) , Assistant Professor
PULMONOLOGY	Dr Arya Gopi , MD ,DM(Pulmonology), Assistant Professor
	Dr Dhyana ,MD ,DM(Pulmonology), Assistant Professor
PALLIATIVE MEDICINE	Dr Biji M S, Assistant Professor
COMMUNITY ONCOLOGY	Dr Neethu,MBBS,MPH, Assistant Professor Dr Phinse Philip, BDS,MPH,PhD,Assistant professor
CANCER REGISTRY & EPIDEMIOLOGY	Dr SainaSunilkumar, MBBS,MPH,Lecturer
	Dr Ratheesan,MSc,PhD,MBA,Assistant Professor in Biostatistics
	Dr. Bindu, MSc,PhD, Assistant Professor in Biostatistics
DENTAL & MAXILLOFACIAL REHABILITATION	Dr Pramod Sankar S, MDS Prosthodontics, Associate Professor
CLINICAL RESEARCH & BIOSTATISTICS	Mrs Maya Padmanabhan,MSc,Mphil, Lecturer in Biostatistics
	Mr Riyas,MSc,Lecturer in Biostatistics
PSYCHO-ONCOLOGY	Mrs. Jisha Abraham,MSc,Mphil, Lecturer in Psycho-oncology

18. RULES AND REGULATIONS

1) The course is full time. Candidates are expected to perform all types of clinical, research and academic assignments as prescribed by the Academic Council of MCC-PGIOSR.
2) It is a resident program of post-graduate training
3) Candidate is expected to wear identity card provided by MCC-PGIOSR
4) **Dress code:** Lady candidates are expected to put up the hair during working hours. She is permitted to wear any decent dress preferably, Sari and churidhar. Gentleman candidates should wear formal shoes. White apron is compulsory during working hours
5) **Attendance:** The candidate should mark the attendance in Biometric punching machine and also sign in the register kept in the department.
6) Completion of project work is compulsory for fellowship certification.
7) **Leaves:** Candidates will be eligible for 12 days leave during the programme. Not more than 5 days of leave will be granted together. Candidates who avail for more than 12 days of leave will have extension for those additional days of leave. Holiday leave/ holiday duty off will be given as per discretion of the Head of Department.
8) **Accommodation:** Accommodation is the responsibility of the candidate. For lady candidates, if available and formally requested in the Request form, shared room accommodation may be provided in the Nurses hostel. This is not guaranteed and it is not a right of the candidate. If accommodation is provided a nominal rent will be deducted from the stipend. A caution deposit of Rs. 1,000/- should be paid. This is refundable when the candidate vacates the hostel. Gentleman candidate is expected to find an accommodation themselves
9) Candidates should follow the rules and regulations of MCC-PGIOSR.

19.0 CONTACTS

For any clarifications and queries, please feel free to contact;

- Dr.Sangeetha K Nayanar, Professor & HOD, Department of Clinical Laboratory Services and Translational Research, E-mail: sgeetanayanar@yahoo.com, Phone: 0490 2399 219
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- Dr.Satheesan B, Professor & HOD, Department of Surgical Oncology, E-mail: directormcctly@gmail.com, Phone: 04902399212
- Dr.Geetha M, Professor & HoD, Department of Radiation Oncology ,Email: geethasatheeshan@gmail.com, Phone: 04902399732
- Dr.Nizam M Pareekutty, Professor, Department of Surgical Oncology E-mail:drnizamudheen@gmail.com,, Phone: 04902399214
- Dr Jashma C ,Associate Professor Professor,Department of Oncoanesthesia E-mail:jashmanizam@gmail.com,, Phone: 0490239
- Dr.Mohandoss M, Additional Professor, Division of Transfusion Medicine, E-mail: mohandossmurugesan@gmail.com,, Phone: 0490 2399 227
- Dr Pramod Sankar S, Associate Professor, Dentistry & Rehabilitation, E-mail: sankar.pramod@gmail.com, Phone: 0490 2399 231
- Mrs.Maya Padmanabhan, Division Incharge,, Division of Clinical Research & Biostatistics, Email:mayapnambiar@gmail.com ,Phone 04902399249
- Mrs.Jisha Abraham,Division Incharge, Division of Psycho Oncology , Email:jishasarah@gmail.com, Phone:04902399268

Any technical queries regarding online applications please contact System Manager, Email: sm@mcc.kerala.gov.in with application Number (Phone: 0490-2399400, 2359881)

Academic Office- Phone: 0490-2399249

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