

# **SAUDI BOARD OF MEDICAL ONCOLOGY**

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## **INTRODUCTION**

The kingdom of Saudi Arabia (SA) has made remarkable advances in the health services.

Cancer and related disorders are one of the most challenging medical problems internationally and SA is no exception, as it constitutes one of the major causes of mortality in the Kingdom.

Consequently, it is important to start a national fellowship training program in medical oncology certified and accredited by the Saudi Commission of Health Specialties. This program will offer a state-of-the-art internationally recognized training in the field of medical oncology in the kingdom without the need to travel abroad. The training will give the fellow an evidence-based approach of all aspects of care of cancer patients including clinical, social, economic and environmental and cultural aspects. This program will hopefully attract active young board-certified physicians in medicine to medical oncology subspecialty by providing them an opportunity for board certification in this important subspecialty. At the end of training the candidates should be able to deal with all aspects of management of cancer patients in an independent and efficient manner. This fellowship program lasts 2 years; it is expected that the fellows in these programs will possess excellent clinical skills, deep knowledge of these disciplines and a standard of professional ethics.

## **GOALS AND OBJECTIVES**

### **GENERAL**

1. To graduate Oncologists with adequate knowledge and skills to be able to deal safely with all aspects of care for cancer patients.
2. Provide fundamentals of research and research-oriented approach in malignant tumors.
3. Train candidates to participate actively in training of colleagues in oncology and related subspecialties.
4. Create an environment of mentorship and guidance to help fellow to adopt Research-oriented approach to new problems.
5. Ensure internationally acceptable Scientific Standards and highest level of medical ethics.
6. Train candidates to realize the importance of the team approach to clinical problems.

## **SPECIFIC**

The medical oncology fellowship training program is divided into basic science clinical science and research.

### **a) Basic Science**

The fellow is required to develop competence in disciplines which include:

1. Basic knowledge in molecular biology of the adult malignancies.
2. Pharmacology, regulatory mechanisms of drug action, excretion and metabolism in order to avoid irreversible side effects from treatment.
3. Genetics: the mode of inheritance of various malignant diseases and the basic principles of genetics.

### **b) Clinical Science**

Clinical skills to be acquired include:

1. Expanded competence in medical oncology and related specialities.
2. Acquire solid, scientific knowledge in order to make appropriate. Clinical decisions in the management of patients in medical oncology problems respecting patient beliefs and integrity at all times.
3. Familiarity with natural history of oncological disease including genetics and predisposing factors.
4. Systemization of physical examination and implementation of efficient diagnostic evaluation
5. Rational expansion of differential diagnosis.
6. Correct interpretation of laboratory tests and data synthesis.
7. Gain skills in medical oncology diagnostic, molecular and therapeutic procedures.

### **c) Research**

1. Involvement in research projects "designing and conducting studies"
2. Writing abstracts for presentation at local national and international scientific meetings in the field.
3. Drafting manuscripts under the guidance of the medical oncology staff for submission to the national and/or international journals.

## **ADMISSION REQUIREMENTS**

To be admitted to the Saudi Medical Oncology Subspecialty Program the rules and regulations of the SCFHS will be applied therefore a Candidate must:

1. Possess the Saudi Board of Internal Medicine or its approved equivalent by the SCFHS or at least passed the written component of the final exam of the Saudi board in internal medicine.
2. Be licensed to practice medicine in Saudi Arabia.
3. Provide written permission from the sponsoring institution, allowing him/her to participate in full-time training for the entire 2-years of medical oncology program and three years for the combined Hematology and medical oncology program.
4. Sign an undertaking to abide by the rules and regulations of the Training Program and the SCFHS.
5. Successfully pass the interview for the particular subspecialty.
6. Provide three letters of recommendation from consultants with whom the candidate has recently worked.
7. Register as a fellow at the Saudi Council for Health Specialties.
8. Pay the training fees as set by the SCFHS.
9. The candidate must provide written permission from his/her sponsoring institution allowing him /her to participate in the program on full-time basis fellow shall be enrolled in continuous full-time training for whole period of the program.

## **STRUCTURE OF THE TRAINING PROGRAM**

### **a) Training Activities**

#### **1. Outpatient**

- *Longitudinal Weekly Clinic*  
In recognition of the importance of outpatient care in the practice of Oncology, all fellows are encouraged to spend at least half a day per week throughout the entire 2<sup>nd</sup> year period in an ambulatory care clinic at his/her base hospital in which Oncological diseases are managed.
- *Medical Oncology Day Chemotherapy*  
As part of the responsibility of oncologist, fellows are expected to learn aspects of caring for patients in the day chemotherapy unit and manage the complications of chemotherapy.
- *Other Ambulatory Clinics*  
During different rotations candidate will be participating in different disease site clinics.

#### **2. Inpatient**

- Medical oncology/Hemato-oncology Inpatient service
- Other inpatient activities during the rotation in radiation oncology or elective rotations
- Radiology-Pathology-Oncology Rounds

### **3. Consultation Services**

If Oncology consultant opinion is sought, the patient will be seen by the fellow who will review the history, physical examination and Investigations and present the case to the Medical Oncology consultant (Consultative Oncology).

### **4. Other Clinical Areas**

Elective rotations may include any of the following areas:

- Pediatric Oncology
- Allogenic Bone Marrow Transplantation
- Autologous stem cell therapy
- Radiation Oncology
- Radiology and nuclear medicine
- Palliative medicine
- Research
- Surgical Oncology
- Pathology and laboratory medicine

### **5. Non-Patient Care Activities**

In addition to patient care, fellows should have extensive exposure to other

Academic activities including:

- Self-education by reading current textbooks and relevant scientific literature
- Academic Half Day: one Half day afternoon every week is the academic half day.
- Medical Oncology (and when relevant Hematology) City-wide Journal Club. Preferably once monthly.
- National and international Medical Oncology Meetings:
- Introductory course to Medical Oncology Basic sciences: Will be held annually during the first year of training it will cover basic principles of medical oncology. (See appendix)

### **6. Research Activities:**

One of the objectives of the training program is to give an opportunity to the fellow to learn how to put research questions and how to use different research methods.

The faculty will provide fellows with mentorship and help them with access to electronic resources.

## **7. Medical Ethics and Issues around End of Life Care:**

One of the major aspects of medical care and especially palliative medicine is terminal care. Our Arab, Islamic society has its unique identity and hence the training program will allocate part of the training to discuss and meet with authorities on these aspects.

## **STRUCTURE OF THE PROGRAM**

- 3 months medical oncology/lung cancer and sarcoma rotation – A
- 3 months medical oncology/breast cancer rotation – B
- 3 months medical oncology/GI, head & neck cancer rotation – C
- 2 months medical oncology/GU and Gynae oncology cancer rotation – D
- 3 months medical oncology/Inpatient rotation – F
- 3 months hem-oncology and lymphoma rotation
- 2 months radiation oncology
- 1 month palliative care
- 2 months selective (to be done in the same hospital, the fellow will be in the on-call rota)
- 2 months elective (could be in other SCFHS approved institutions or abroad, no call during elective)

### **ROTATION A**

Site groups include: **Lung and Sarcoma**

#### **General Overview**

The predominant disease site in this rotation is lung and the fellow will attend lung disease site team rounds. It is suggested the fellow will presents any patient who need multidisciplinary team approach in general tumor board meeting, The Fellow should become familiar with landmark studies in lung cancer.

#### **Lung Cancer**

- a) Understand the epidemiology (incidence and mortality rates) of lung cancer.
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for lung cancer.
- c) Be familiar with the pathogenesis, pathology and tumour biology of non-small cell (NSCLC) and small cell lung cancer (SCLC)
- d) Understand issues surrounding treatment of lung cancer in elderly populations

#### ***Small Cell Lung Cancer (SCLC)***

- a) Define appropriate staging investigations for patients with SCLC
- b) Understand the factors influencing prognosis in SCLC
- c) Understand first and second line systemic therapy options for SCLC
- d) Understand the indications for thoracic radiation in SCLC
- e) Be familiar with the indications for prophylactic cranial radiotherapy in SCLC

#### ***Non Small Cell Lung Cancer (NSCLC)***

- a) Be familiar with the staging system for NSCLC including indications for surgical staging
- b) Define appropriate staging investigations for patients with NSCLC
- c) Understand the importance of staging in selecting treatment modalities (chemotherapy, radiotherapy) for patients with NSCLC



- d) Understand the factors influencing prognosis in NSCLC
- e) Understand the indications for adjuvant therapy for lung cancer
- f) Develop an understanding of the current approaches and controversies in combined modality treatment (chemo-radiation, trimodality therapy) of NSCLC
- g) Develop an understanding of the role of combination chemotherapy versus single agent chemotherapy in patients with advanced NSCLC
- h) Understand the current options for first, second, or third line therapy for advanced NSCLC
- i) Develop an approach to symptom management of patients with advanced NSCLC
- j) Understand the molecular pathways important in the pathogenesis and treatment of lung cancer
- k) Understand the role of current and emerging targeted therapies in NSCLC

### ***Mesothelioma***

- a) Understand the epidemiology of malignant pleural mesothelioma (MPM)
- b) Understand the pathogenesis of MPM
- c) Understand the controversies about the role of surgery and trimodality treatment approaches in MPM
- d) Understand the systemic therapy options for MPM
- e) Develop an approach to symptom management for patients with MPM

### **Sarcoma**

#### ***Bone Sarcomas***

- a) Understand the epidemiology (incidence and mortality rates) of bone sarcomas
- b) Be familiar with the risk factors (environmental and genetic) for bone sarcomas
- c) Be familiar with the pathogenesis, pathology (histologic subtypes) and tumour biology of bone sarcomas
- d) Understand the diagnosis (signs and symptoms, imaging, biopsy) of bone sarcomas
- e) Be familiar with the staging and prognostic factors for bone sarcomas
- f) Understand the treatment by stage for bone sarcomas (local and systemic) and indications for limb preservation and combined modality therapy for specific tumours
- g) Develop an approach to symptom management of patients with advanced bone sarcoma

#### ***Soft Tissue Sarcomas (STS)***

- a) Understand the epidemiology (incidence and mortality rates) of STS
- b) Be familiar with the risk factors (environmental and genetic) for STS
- c) Be familiar with the pathogenesis, pathology (histologic subtypes) and tumour biology of STS

- d) Understand the diagnosis (signs and symptoms, imaging, biopsy, chromosomal signatures) of STS
- e) Be familiar with the staging and prognostic factors for STS
- f) Understand the treatment by stage for STS (local and systemic) and indications for limb preservation
- g) Develop an approach to symptom management of patients with advanced STS

## **ROTATION B**

Disease sites include: **Breast and CNS Malignancies**

### **General Overview**

The predominant disease site in this rotation is Breast cancer and the fellow will attend Breast disease site team rounds. It is suggested the fellow will presents any patient who need multidisciplinary team approach in Breast tumor board meeting, The Fellow should become familiar with landmark studies in Breast cancer.

### ***Breast Cancer***

- a) Understand the epidemiology (Incidence and mortality rates) of breast ca.
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) and risk factor assessment models for breast cancer
- c) Be familiar with the role of prophylactic surgery and chemoprevention for women with risk factors for the development of breast cancer
- d) Understand the screening modalities for breast cancer (Mammography, MRI in BRCA mutation carriers)
- e) Be familiar with the pathogenesis, pathology and tumour biology of breast cancer.
- f) Understand the diagnosis (classic signs and symptoms, imaging, biopsy techniques (core, excision and needle localization)) of breast cancer
- g) Be familiar with the staging (TNM system) and prognostic factors for breast cancer
- h) Understand the different surgical techniques for the local treatment of breast cancer (breast conservation therapy, mastectomy, complete versus sentinel axillary nodal dissection)
- i) Understand the treatment by stage for breast cancer (local and systemic)
- j) Understand the indications for neoadjuvant therapy
- k) Understand the role of systemic therapy (chemotherapy, targeted therapy, hormonal therapy) for early and metastatic disease
- l) Develop an approach to symptom management of patients with advanced breast cancer
- m) Be familiar with complications of therapies and strategies for management (lymphedema, menopausal symptoms, bone health, sexuality and fertility, cognitive dysfunction, surgical reconstruction)
- n) Be familiar with follow up guidelines for breast cancer (screening)
- o) Be familiar with special problems in breast cancer management (occult primary breast cancer, male breast cancer, breast cancer in pregnancy)

### ***CNS Malignancies***

- a) Understand the epidemiology (incidence and mortality rates) of primary CNS cancer
- b) Be familiar with the pathogenesis, pathology and tumour biology of primary CNS cancer
- c) Be familiar with the risk factors including genetic syndromes associated with primary CNS cancer
- d) Understand the diagnosis (signs and symptoms, imaging, biopsy) of CNS cancer
- e) Be familiar with the staging and prognostic factors for primary CNS cancer
- f) Understand the treatment by stage for primary CNS cancer including observation
- g) Be familiar with treatment-related complications for CNS cancer
- h) Develop an approach to symptom management of patients with advanced CNS cancer
- i) Be familiar with the common malignancies that metastasize to CNS and their treatment

## **ROTATION C**

Site group includes: **Gastrointestinal (GI) and Head and Neck cancers**

### **General Overview**

The fellow will obtain exposure to the wide variety of upper and lower gastrointestinal and head and neck malignancies. The fellow will attend weekly GI tumour board and will be expected to make at least one presentation to the group on this rotation. They should also become familiar with clinical trials involving these patients.

### **Gastrointestinal Cancer**

#### ***Esophageal Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of esophageal cancer
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for esophageal cancer
- c) Be familiar with the pathogenesis, pathology and tumour biology of esophageal cancer
- d) Be familiar with the precursor lesions for esophageal cancer (Barrett's esophagus)
- e) Understand the diagnosis (signs and symptoms, imaging, biopsy) of esophageal cancer
- f) Be familiar with the staging and prognostic factors for esophageal cancer
- g) Understand the treatment by stage for esophageal cancer (local and systemic) and indications for combined modality therapy
- h) Understand the management of obstruction
- i) Develop an approach to symptom management of patients with advanced esophageal cancer

### ***Gastric Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of gastric cancer
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for gastric cancer, including the role of *Helicobacter pylori* infections
- c) Be familiar with the pathogenesis, pathology and tumour biology of gastric cancer
- d) Be familiar with the precursor lesions for gastric cancer
- e) Understand the diagnosis (signs and symptoms, imaging, biopsy) of gastric cancer
- f) Be familiar with the staging and prognostic factors for gastric cancer
- g) Understand the treatment by stage for gastric cancer (local and systemic) and indications for combined modality therapy
- h) Develop an approach to symptom management of patients with advanced gastric cancer

### ***Colorectal Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of colorectal cancer
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for colorectal cancer, including the role of diet, inflammatory bowel disease.
- c) Be familiar with preventative strategies for colorectal cancer including lifestyle changes, chemoprevention and colectomy
- d) Be familiar with screening for colorectal cancer including physical examination, fecal occult blood testing, colonoscopy
- e) Be familiar with the pathogenesis, pathology and tumour biology of colorectal cancer
- f) Be familiar with the precursor lesions for colorectal cancer
- g) Understand the diagnosis (signs and symptoms, imaging, biopsy) of colorectal cancer =
- h) Be familiar with the staging and prognostic factors for colorectal cancer
- i) Understand the treatment by stage for colorectal cancer (local and systemic) and indications for combined modality therapy
- j) Be familiar with follow-up recommendations after curative resection (colonoscopy, imaging, tumour markers)
- k) Understand the indications for resection of regional metastases (liver and/or lung)
- l) Develop an approach to symptom management of patients with advanced colorectal cancer

### ***Anal Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of anal cancer
- b) Be familiar with the risk factors (lifestyle and environmental) for anal cancer, including the role of HPV, HIV infection
- c) Be familiar with the pathogenesis, pathology and tumour biology of anal cancer

- d) Understand the diagnosis (signs and symptoms, imaging, biopsy) of anal cancer
- e) Be familiar with the staging and prognostic factors for anal cancer=
- f) Understand the treatment by stage for anal cancer (local and systemic) and indications for combined modality therapy
- g) Develop an approach to symptom management of patients with advanced anal cancer

### ***Hepatobiliary Cancers***

- a) Understand the epidemiology (incidence and mortality rates) of hepatobiliary cancer
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for hepatobiliary cancer, including the role of primary sclerosing cholangitis, inflammatory bowel disease, cirrhosis and viral infections
- c) Be familiar with preventative and screening strategies for hepatobiliary cancer
- d) Understand the role of alpha-fetoprotein in screening and diagnosis and monitoring response to treatment
- e) Be familiar with the pathogenesis, pathology and tumour biology of hepatobiliary cancer
- f) Understand the diagnosis (signs and symptoms, imaging, ERCP, biopsy) of hepatobiliary cancer
- g) Be familiar with the staging and prognostic factors for hepatobiliary cancer
- h) Understand the treatment by stage for hepatobiliary cancer (local and systemic)
- i) Understand the indications of liver transplantation
- j) Develop an approach to symptom management of patients with advanced hepatobiliary cancer including ablative procedures, hepatic artery embolization, biliary drainage

### ***Pancreatic Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of pancreatic cancer
- b) Be familiar with the risk factors (lifestyle and genetic) for pancreatic cancer
- c) Be familiar with preventative and screening strategies for pancreatic cancer
- d) Be familiar with the pathogenesis, pathology and tumour biology of pancreatic cancer
- e) Understand the diagnosis (signs and symptoms, imaging, ERCP, biopsy) of pancreatic cancer
- f) Be familiar with the staging and prognostic factors for pancreatic cancer
- g) Understand the treatment by stage for pancreatic cancer (local and systemic) and the indications for combined modality therapy
- h) Understand the palliative role of chemotherapy in locally advanced/metastatic pancreatic cancer
- i) Develop an approach to symptom management of patients with advanced pancreatic cancer including celiac block, biliary stenting and management of malabsorption

### ***Head and Neck Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of head and neck cancer
- b) Be familiar with the risk factors (lifestyle and genetic) for head and neck cancer including the role of HPV and EB
- c) Be familiar with the pathogenesis, pathology and tumour biology of head and neck cancer (squamous and adenomatous)
- d) Understand the diagnosis (signs and symptoms, imaging, ERCP, biopsy) of head and neck cancer
- e) Be familiar with the staging and prognostic factors for head and neck cancer
- f) Understand the treatment by stage for head and neck cancer (local and systemic) and the indications for organ preservation and for combined modality therapy
- g) Understand the principals of field cancerization.

## **ROTATION D**

Site groups include:

### **Genitourinary Cancer (GU) and Gynecological Cancers**

#### **General Overview**

The predominant disease site in this rotation are GU and gyne-oncology, the fellow will attend disease site team rounds. It is suggested the fellow will presents any GU or gynae-oncology cancer patient who need multidisplinary team approach in general tumor board meeting, The Fellow should become familiar with landmark published studies for patients with GU and Gynae oncology cancers.

### **Genitourinary Cancer**

#### ***Renal Cell Carcinoma***

- a) Understand the epidemiology (incidence and mortality rates) of renal cell cancer.
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for renal cell cancer.
- c) Be familiar with the pathogenesis, pathology and tumour biology of renal cell cancer.
- d) Understand the diagnosis (classic signs and symptoms, imaging and surgery) of renal cell cancer
- e) Be familiar with the staging (TNM system) and prognostic factors for renal cell cancer
- f) Understand the treatment by stage for renal cell cancer (local and systemic)
- g) Understand the role of surgery and systemic therapy (targeted therapy, biologic response modifiers) for metastatic disease
- h) Develop an approach to symptom management of patients with advanced renal cell cancer
- i) Be familiar with diagnosis and treatment of paraneoplastic aspects of renal cell cancer

### ***Bladder and other Urothelial Cancers***

- a) Understand the epidemiology (incidence and mortality rates) of urothelial cancer.
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for urothelial cancer.
- c) Be familiar with the pathogenesis, pathology and tumour biology of urothelial cancer.
- d) Understand the diagnosis (signs and symptoms, imaging and surgery) of urothelial cancer
- e) Be familiar with the staging (TNM system) and prognostic factors for urothelial cancer
- f) Understand the treatment by stage for urothelial cancer (local and systemic)
- g) Understand the controversies regarding neoadjuvant and concurrent therapy for bladder cancer
- h) Develop an approach to symptom management of patients with advanced urothelial cancer

### ***Prostate Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of prostate cancer.
- b) Be familiar with the risk factors (lifestyle, environmental and genetic) for prostate cancer
- c) Be familiar with the pathogenesis, pathology and tumour biology of prostate cancer
- d) Be familiar with screening strategies for prostate cancer including controversies regarding PSA
- e) Understand the diagnosis (signs and symptoms, imaging and surgery) of prostate cancer
- f) Be familiar with the staging (TNM system) and prognostic factors (including Gleason score) for prostate cancer
- g) Understand the treatment by stage for prostate cancer (local and systemic)
- h) Develop an approach to symptom management of patients with advanced prostate cancer

### ***Germ Cell Tumours***

- a) Understand the epidemiology (incidence and mortality rate) of germ cell tumours.
- b) Be familiar with anatomical locations of germ cell tumours (testes, pineal, mediastinum, retroperitoneum)
- c) Be familiar with the risk factors (lifestyle, environmental and genetic) for germ cell tumours
- d) Be familiar with the pathogenesis, pathology and tumour biology of germ cell cancer
- e) Understand the diagnosis (signs and symptoms, serum markers, imaging and surgery) of germ cell cancer

- f) Be familiar with the staging (TNM system, clinical versus surgical staging) and prognostic factors (International Germ Cell Consensus Classification, serum markers) score) for germ cell cancer
- g) Understand the treatment by stage for germ cell cancer (seminoma and non-seminomatous cancer, local and systemic therapy)
- h) Understand the management of residual disease
- i) Understand the follow-up of patients with germ cell cancers (Role of serum markers, supportive care issues, and long-term complications of therapy and sanctuary sites).

## **Gynecological Cancer**

### ***Ovarian Cancer/Tubal Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of ovarian/tubal cancer
- b) Be familiar with the pathogenesis, pathology and tumour biology of ovarian/tubal cancer
- c) Be familiar with the genetic syndromes associated with ovarian cancer (BRCA1/2, HNPCC) and screening and prevention strategies for high-risk women
- d) Understand the diagnosis (signs and symptoms, imaging, biopsy) of ovarian/tubal cancer
- e) Be familiar with the staging (FIGO) and prognostic factors for ovarian/tubal cancer
- f) Understand the treatment by stage for ovarian/tubal cancer
- g) Develop an approach to symptom management of patients with advanced ovarian/tubal cancer including management of ascites and obstruction (bowel and ureteric)

### ***Endometrial cancer***

- a) Understand the epidemiology (incidence and mortality rates) of endometrial cancer
- b) Be familiar with the pathogenesis, pathology and tumour biology of endometrial cancer Be familiar with the risk factors and genetic syndromes associated with endometrial cancer (HNPCC)
- c) Understand the diagnosis (signs and symptoms, imaging, biopsy) of endometrial cancer
- d) Be familiar with the staging (FIGO) and prognostic factors for endometrial cancer
- e) Understand the treatment by stage for endometrial cancer
- f) Develop an approach to symptom management of patients with advanced endometrial cancer

### ***Cervical Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of cervical cancer



- b) Be familiar with the pathogenesis, pathology and tumour biology of cervical cancer
- c) Be familiar with the risk factors (lifestyle, immunosuppression) for cervical cancer
- d) Understand the role of HPV and oncogenic types in the pathogenesis of cervical carcinoma
- e) Understand the role of screening and prevention strategies (education, Papanicolaou testing, HPV vaccines) in cervical cancer
- f) Understand the diagnosis (signs and symptoms, imaging, colposcopy and biopsy) of cervical cancer
- g) Be familiar with the staging (FIGO) and prognostic factors for cervical cancer
- h) Understand the treatment by stage for cervical cancer
- i) Be familiar with treatment-related complications for cervical cancer
- j) Develop an approach to symptom management of patients with advanced cervical cancer

### ***Vaginal and Vulvar Cancer***

- a) Understand the epidemiology (incidence and mortality rates) of vaginal and vulvar cancer
- b) Be familiar with the pathogenesis, pathology and tumour biology of vaginal and vulvar cancer
- c) Be familiar with the risk factors for vaginal and vulvar cancer
- d) Understand the diagnosis (signs and symptoms, imaging, biopsy) of vaginal and vulvar cancer
- e) Be familiar with the staging and prognostic factors for vaginal and vulvar cancer
- f) Understand the treatment by stage for vaginal and vulvar cancer
- g) Be familiar with treatment-related complications for vaginal and vulvar cancer=
- h) Develop an approach to symptom management of patients with advanced vaginal and vulvar cancer

### ***Gestational Trophoblastic Disease (GTD)***

- a) Understand the epidemiology (incidence and mortality rates) of GTD
- b) Be familiar with the pathogenesis, pathology and tumour biology of GTD
- c) Understand the diagnosis (signs and symptoms, imaging, biopsy) of GTD
- d) Be familiar with the staging (FIGO) and prognostic factors for GTD
- e) Understand the treatment by stage for GTD
- f) Develop an approach to symptom management of patients with advanced GTD

## **ROTATION E – Inpatient Medical Oncology**

The overall goal of this rotation is to develop skills to manage those patients requiring admission to hospital. This includes assessing and managing the systemic complications associated with the underlying diagnosis as well as treatment related complications. Fellows will also learn to effectively deliver end of life care and

function within a multidisciplinary team. Fellow will be expected to competently perform oncologic procedures including paracentesis, thoracentesis, bone marrow aspirate and biopsy and lumbar puncture and intrathecal chemotherapy.

Fellows will spend three months on the inpatient oncology unit, The inpatient physician team will consist of the fellows, general practitioners in oncology and a rotating medical oncologist. There may be other learners on the team (medical students, fellows from other programs). As part of the team, fellows responsibilities will include:

- Admission of patients from home, the clinic or the emergency ward to the hospital
- Development of care and discharge plans
- Participate in weekly multidisciplinary rounds and daily medical oncology ward rounds
- Organize and lead family meetings
- Handover to evening and weekend staff
- Documentation of admission, daily progress and discharge
- Conduct medical oncology consults on newly referred inpatients.

## HEMATOLOGY ONCOLOGY

### **General Overview**

The clinical hematology rotation is a four month rotation. The purpose of this rotation is to provide fellows with an experience in malignant hematology with an emphasis on conditions that medical oncologists may treat, particularly in the community setting. Fellows will engage in inpatient care and outpatient clinics as well as on-call experience.

### ***Acute Leukemia (Acute Myelogenous and Acute Lymphoblastic Leukemia)***

The fellow must demonstrate knowledge of:

- a) Epidemiology (including incidence and mortality rates) of acute leukemias
- b) Pathogenesis, pathology and tumour biology of acute leukemias (including specific associations of chromosomal translocations)
- c) Natural history, clinical and laboratory features, as well as prognostic differences between the subtypes of acute myeloid and lymphoid leukemia in adults
- d) Principles of therapy used for the treatment of acute myeloid and lymphoid leukemia in adults as well as a detailed understanding of the short and long-term side effects of commonly used agents and regimens
- e) Supportive care issues surrounding the care of such patients including tumour lysis precautions, venous access issues, transfusion support, recognition and treatment of infectious complications, management of gastrointestinal side effects and nutritional support
- f) Special issues related to treating patients with relapsed disease, elderly patients and those in whom palliation rather than cure is the goal of therapy

### ***Chronic Myeloid Leukemia (CML) and Chronic Lymphocytic Leukemia (CLL)***

The fellow must demonstrate knowledge of:

- a) Epidemiology (including incidence and mortality rates) of chronic leukemias
- b) Pathogenesis, pathology and tumour biology of chronic leukemias (including specific associations of chromosomal translocations)
- c) Natural history, clinical and laboratory features, as well as prognostic indicators in chronic leukemias in adult
- d) Routine and specialized laboratory investigations used in the diagnosis of adult patients with CML/CLL
- e) Principles of therapy used for the treatment of CML/CLL in adults
- f) Role of stem cell transplantation in adult patients with CML
- g) Special issues related to treating patients in the accelerated or blast phase of disease

### ***Lymphoproliferative Disorders (Non-Hodgkins Lymphoma and Hodgkins Lymphoma)***

The fellow must demonstrate knowledge of:

- a) Epidemiology (including incidence and mortality rates) of lymphoproliferative disorders
- b) Natural history, clinical and laboratory features, for the different subtypes of lymphoproliferative disorders in adults
- c) Staging and prognostic factors for adult lymphoproliferative disorders
- d) Indications for, and interpretation of, routine and specialized investigations applicable to the care of adult patients with lymphoproliferative disorders, including sound knowledge of relevant aspects of biochemistry, genetics, immunology, pathology and radiology
- e) Principles of therapy used for the treatment of different stages of lymphoproliferative disorders in adults as well as a detailed understanding of the short and long-term side effects of commonly used agents and regimens (including secondary malignancies, cardiac complications).
- f) Supportive care issues surrounding the care of such patients including tumour lysis precautions, venous access issues, transfusion support, recognition and treatment of infectious complications, management of gastrointestinal side effects and nutritional support
- g) Special issues related to treating patients with relapsed disease (including indications for marrow transplantation), elderly patients and those in whom palliation rather than cure is the goal of therapy.

### ***Plasma Cell Disorders (Multiple myeloma and related conditions)***

The fellow must demonstrate in depth knowledge of:

- a) Epidemiology (including incidence and mortality rates) of plasma cell dyscrasias

- b) Pathogenesis, pathology and tumour biology of plasma cell dyscrasias including risk factors
- c) Clinical and laboratory features used to establish a diagnosis of active multiple myeloma requiring therapy, smoldering myeloma, monoclonal gammopathy of undetermined significance as well as other conditions associated with a monoclonal gammopathy
- d) Indications for, and interpretation of, routine and specialized investigations applicable in the care of adult patients with plasma cell disorders, including sound knowledge of relevant aspects of biochemistry, genetics, immunology, pathology and radiology
- e) Staging and prognostic factors for plasma cell dyscrasias
- f) Principles of chemotherapy used for the treatment of plasma cell disorders as well as a detailed understanding of the short and long-term side effects of commonly used agents and regimens
- g) Potential role for radiation therapy in the care of patients with plasma cell disorders
- h) Supportive care issues surrounding the care of such patients including venous access issues, transfusion support, recognition and treatment of infectious complications, management of bone disease (bisphosphonates), pain management

***Supportive care of the patient with malignant disease***

The fellow must demonstrate in depth knowledge of:

- a) Nature, natural history, appropriate investigation and management of infectious diseases that arise in the setting of neutropenia and immunocompromise.
- b) Special issues relating to transfusion support in patients with profound or prolonged cytopenias and those with special needs due to immunocompromised states
- c) Appropriate use of anti-emetics
- d) Appropriate use of hematopoietic growth factors, including G-CSF and erythropoietin
- e) Approach to management of cancer related pain
- f) Special needs that arise in the patient and/or family around coping with the diagnosis of cancer

<b>RADIATION ONCOLOGY</b>
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**General Overview**

The radiation oncology rotation is a two month rotation whereby fellows are assigned to one to two radiation oncologists. The purpose of this rotation is to provide fellow with an experience in radiation oncology. Fellow will engage in primarily outpatient clinics with some opportunity for inpatient care of patients of their attending radiation oncologist.

***Patient Care Activities***

The fellow will be assigned to 1-2 radiation oncologists during the rotation depending on their disease sites of interest and attend all of the clinics of the staff. These clinics will involve both the assessment of newly referred patients, as well as the provision of care on an ongoing basis. Fellow will have the opportunity to participate in radiation simulation.

## **RESPONSIBILITIES OF THE FELLOWS**

### **Under supervision of the consultants, fellows are expected to:**

- carry out round every morning in all patients
- Join the consultant rounds
- Attend the hand over rounds
- Be responsible for care of all patients under the supervision of a consultant.
- Be responsible for admissions and should be available to receive report from the referring physician.
- Do on-call duties as appear on monthly rotation .
- Provide consultation to other services in the hospital.
- Participates in educational activities in the department or in the unit.
- At a senior level the fellow in medical oncology will participate in upgraded responsibilities and will take more senior role also he /she will be able to make more appropriate clinical decisions and manage patient efficiently.

## **RESOURCES**

### **UNIVERSAL RESOURCES**

1. Major Journals , NEJM,JCO ,Blood , the Lancet oncology ...etc
2. NCCN clinical practice guidelines.
3. ASCO clinical practice guidelines .
4. Cancer Care Ontario systemic reviews and evidence based disease site guidelines
5. Principles and practice of oncology, M De Vita.
6. Internet resources pubmed data base ,Ovid, etc

### **INSTITUTIONAL RESOURCES**

1. Core curriculum lectures /Half day
2. Tumor boards
3. Grand round
4. Journal club
5. Mortality and morbidity meeting
6. Regional cancer center meeting
7. National and international meeting (ASCO,ESMO ...etc )
8. Medical library.

## **TRAINING CENTER ACCREDITATION REQUIREMENTS**

Participating hospitals should meet the requirements for accreditation detailed in the general accreditation by laws of the Saudi council for health specialties in addition to the following:

### **1. Faculty**

- The program must include a minimum of three full-time ( or full time equivalents) faculties Members (consultants medical oncologists) including the Training Director.
- Disease site specific services should be provided for common malignancies.
- Three Adult Oncology nurses who are experienced in chemotherapy administration, knowledgeable in chemo protocols and experienced in management of complications of therapy.
- Certified radiologists with specific expertise in diagnostic imaging.
- Surgical and radiation oncology faculty trained and experienced in the treatment of specific disease sites
- Certified pathologists experienced in cancer pathology.
- Clinical oncology pharmacist in medical oncology team is recommended.

### **2. Facilities**

The following are essential for the training program:

- Adequate number of new and follow-up patients to ensure adequate exposure to Cancer problems. Minimum 450 patients newly diagnosed per year.
- In-patients minimum of dedicated 30 beds (including Neoplastic hematology) and ambulatory care facilities.
- Facility have to be accredited in internal medicine
- Facilities and staff for both diagnostic and Therapeutic procedures and laboratory facilities suitable for performing specialized serological, immunologic, and molecular, studies applicable to Medical Oncology.
- Supporting services for diagnostic and Interventional Radiology Unit, Emergency Services, critical care and Pathology Laboratory.
- A well-stocked library with the facility for internet and Literature search.
- 

### **3. Integrated Clinical Activities**

- Morbidity and Mortality Meetings.
- Multidisciplinary clinics
- Tumor board ( Clinical pathological and radiological rounds)
- Disease site specific tumor boards ( three at least excluding Leukemia tumor board)
- Grand rounds
- Academic half day and other educational activities
- Journal club

## **TRAINING CENTERS PERIODIC EVALUATION AND MANAGEMENT**

- The accredited training centers will be reviewed regularly by scientific board /committee of specialty and accreditation will be renewed periodically, according to the accreditation by-laws of the Saudi commission for health specialties.
- A structured educational program and academic activities are required by scientific board/committee of the subspecialty during the accreditation /renewal process.

## **Organization of the Program Content**

- There will be scientific committee of the medical oncology subspecialty at SCHS, monitors and improves the professional and educational standards of the training and approve the certification in medical oncology subspecialty according to the by-laws of SCHS.
- The scientific committee at SCHS will be responsible to appoint the training centers that will assume primary responsibility for monitoring fellows and assure the completeness and adequacy of the training.
- The scientific committee may not approve all rotations for a a qualified center. The trainee ( fellow) should do theses rotations at an approved center .
- Primary Center: Each fellow will have primary training center that will be responsible for monitoring and assuring completeness and efficacy of his/her training, the fellow will spend minimum of 75% of the training in the primary center.
- The fellow can do rotations outside the primary center (outside or inside the country) with the maximum of 25% of total training education; this should be arranged between the fellow primary center and visited center and approved by the scientific board of medical oncology fellowship.



## **TRAINING REQUIREMENTS**

1. Training shall be full time. Fellow shall be enrolled for the entire two-year period.
2. Training shall be conducted in institutions accredited for training by The Saudi Board of Internal Medicine and the subspecialty of Medical Oncology.
3. Training shall be comprehensive and include inpatient, ambulatory, Laboratory and emergency management.
4. Fellows shall be actively involved in patient care with gradual progression of responsibility.
5. Fellows shall abide by the training regulations and obligations set by the Saudi Board of Medical Oncology.

### **Leaves:**

Regulations governing holidays are as per Saudi commission for health specialities holidays are to be scheduled by the institution in such away that it will be not interfere with the quality of the training and with the patient care.

## **EVALUATION AND PROMOTION PROCESS**

All rules and regulations of the SCFHS will be abided by and applied throughout the training periods.

- a) Performance will be monitored through the year. A written assessment shall be submitted by the Consultant-in Charge of each rotation.
- b) The candidate will be assessed by the national supervisory committee at the end of each year based on the cumulative evaluations.
- c) Promotion Exams: The candidate will be promoted to the second level if he/she passes the evaluation. Failures will be treated as per the SCHS policies and procedures governing the evaluation process.
- d) Final Exam
  - Eligibility:
    - 1) Candidates have to finish all the rotations successfully
    - 2) Pass the End of year exam successfully
  - It includes:
    - a. **Written examination**
      - 1) **MCQ.**
      - 2) **Short essays**

Candidates must pass the final written examination before they can set for the final clinical examination.

- b. **Clinical examination may include any or all of the following:**
  - 1) Case scenarios and Data interpretation

## 2) Oral examination

The passing score for each component of the final examination is 60% and the passing score for the summative result of the two components should be 70%. However, if the percentage of the candidates passing the examination is less than 70%, the passing score can be lowered by one mark at a time aiming at achieving 70% passing rate or score at 65% whatever comes first. Under no circumstances, the score can be reduced below 65%. Negative marking is not allowed.

The candidate should pass each section of the final examination independently. Failures will be subject to the rules and regulations set by the council.

### **CERTIFICATION**

Upon successful completion of the required training and passing the final Examination, Saudi board of medical Oncology (SBMO) will be awarded to the Candidate.

# Appendix A

## **DETAILED ITEMS THAT WILL BE COVERED DURING MEDICAL ONCOLOGY FELLOWSHIP**

The following curriculum should be considered as the educational framework for the training of physicians in medical oncology.

- a. **Basic Scientific Principles**  
As a foundation for treating malignant disease, the fellow should understand the biology of cancer, principles of therapy, and proper conduct and interpretation of clinical research.
- b. **Cancer biology** Fellows should know the biology of normal cells and the basic processes of carcinogenesis. They should have an in-depth understanding of gene structure, organization, expression, and regulation. A fundamental understanding of the cell cycle, its control by oncogenesis, and its interaction with therapy is important. They should understand tumor cell kinetics, proliferation, and programmed cell death, and the balance between cell death and cell proliferation. Fellows should be familiar with molecular techniques, such as polymerase chain reaction, chromosomal analyses, and other techniques of molecular and tumor cell biology.
- c. **Tumor immunology** The fellow should have basic knowledge of the cellular and humoral components of the immune system and the regulatory action of cytokines on the immune system. They should understand the inter-relationship between tumor and host immune systems, including tumor antigenicity, immune-mediated antitumor cytotoxicity, and the direct effect of cytokines on tumors.
- d. **Etiology, epidemiology, screening, and prevention** Fellows should have an understanding of the etiology of genetic and environmental factors in oncogenesis. They should have a basic knowledge in epidemiologic factors and descriptors of disease. Fellows should understand the basic principles of screening and risk assessment. They should know the sensitivity and specificity of the test employed and the cost-benefit ratio. They should know the situations in which screening has a well-defined role and the situations in which the role of screening is unclear or not defined. They should be aware of the principles and indications for genetic screening and counselling. They should know the value of prevention in cancer development and what primary, secondary,

and tertiary preventive measures may be taken to prevent cancer development.

- e. **Clinical research including statistics** Fellows must be provided an education in the design and conduct of clinical trials. They must have an exposure to the development and conduct of these trials through international cooperative groups or in-house protocols. That instruction should include the following: clinical trial design, phase I -II -III trials; review of the ethical, regulatory, and legal issues involved in study design; criteria for defining response to therapy; tools used to assess quality of life; basics of statistics, including statistical methods, requirements for patient numbers in designing studies, and proper interpretation of data; toxicity assessment and grading; role and functioning of the institutional review board and ethical committees; experience obtaining informed consent from patients; government regulatory mechanisms of surveillance; instruction in grant writing and information about mechanisms of support for clinical research; cost of therapy and the cost-effectiveness of therapy; instruction in preparing abstracts, oral and visual presentations, and writing articles; and they should be able to critically evaluate the scientific value of published articles and their influence on daily clinical practice.
  
- f. **Basic Principles in the Management and Treatment of Malignant Diseases**  
The management of malignant diseases requires the expertise of many different medical subspecialties, and the majority of patients with malignant diseases are best managed in a multidisciplinary approach with integration of the various subspecialties because of increasing complexity of modern treatment. The fellow should recognize the contributions of each of these subspecialties in making the diagnosis, assessing disease stage, and treating the underlying disease and its complications. The fellows should interact with each of these disciplines in order to gain an appreciation of the benefits and limitations of each modality. Participation of the fellows in interdisciplinary meetings is encouraged. The fellows should be capable of assessing the patient's comorbid medical conditions that may affect the toxicity and efficacy of treatment, in order to formulate a treatment plan and be aware of the special conditions that influence the treatment of the growing population of elderly patients with malignant disorders.

- g. **Pathology/laboratory medicine/molecular biology** the fellow should know that the definite diagnosis of cancer is based on a cytology or biopsy. The fellows should have the opportunity to review biopsy material and surgical specimens with a pathologist. They should appreciate the role of the pathologist in confirming the diagnosis of cancer and in determining the severity and extent of disease. Fellows should be familiar with newer pathologic techniques and the contribution of these techniques to the staging and management of patients with cancer. Fellows should know what laboratory testing is appropriate in the staging and follow-up of patients. They should appreciate the utility of markers (serum tumor markers, cell membrane markers, DNA markers) and recognize their limitations.
- h. **Staging procedures** Fellows should know the tumor-node-metastasis staging system and how to stage a cancer patient. They should know the indications for clinical, radiographic, and nuclear medicine imaging procedures in the diagnosis, staging, and follow-up of patients with malignant diseases. They should learn to assess response to treatment using these tests.
- i. **Therapy**
- j. **Surgery**. By interacting with surgeons, the fellow should develop an understanding of the indications and contraindications of surgery. They should become knowledgeable about the role of surgery in the staging, cure, and palliation of patients with malignant diseases. The fellow should become familiar with the indications of organ preservation and the sequencing of surgery with other treatment modalities. They should recognize the risks and benefits of surgery as a definitive treatment and as an adjunct to radiotherapy and/or anticancer agents. In addition, the fellows should be aware of postoperative complications.
- k. **Radiation oncology**. The fellow should be familiar with the principles of radiation biology and the indications of radiation therapy as a curative and palliative modality. They should be familiar with the principles of treatment planning and dosimetry. The fellow should appreciate when radiation therapy should be sequenced with surgery and/or anticancer agents. They should recognize both the acute and late effects of radiation therapy.
- l. **Anticancer agents**. Fellows should be familiar with the indications and goals of useful treatment with anticancer agents in primary and recurrent malignant disorders. They should know the usefulness of

these agents in the neo-adjuvant, concomitant, and adjuvant setting. They should know the indications of anticancer agents as a radiation sensitizer. They should know the importance of dosing and treatment delay of specific anticancer agents. They should be able to assess a patient's comorbid medical conditions in order to determine the risk/benefit ratio of treatment with anticancer agents for that individual patient. Knowledge of the pharmacokinetics, pharmacogenomics, and pharmacology of the various agents should be obtained. Fellows should know the toxicity profile of each anticancer agent, including long-term hazards, how to adapt the dose and treatment schedule according to the individual patient in case of organ dysfunction, and how to handle these complications.

- m. **Biologic therapy.** Fellows should be familiar with the activities and indications for biologic therapy, including cytokines and hematopoietic growth factors. Knowledge should include the spectrum of specific side effects and their management and therapeutic combinations with chemotherapy. The fellow should also be familiar with basic concepts of targeted molecular therapies, such as monoclonal antibodies, tumor vaccines, cellular therapy, and gene-directed therapy.
- n. **Supportive and palliative measurements.** Fellows should know what supportive therapy during anticancer therapy is, and should be able to use supportive therapy. They should know the indications of the different supportive treatments and their limitations and side-effects. Fellows should know what palliative therapy is and should be able to determine when palliative care is indicated. They should know what palliative care and end-of-life care is and how to implement this in their clinical practice. They should know that palliative care is an integrated part of medical oncology, and that it has a multidisciplinary dimension.
- o. **Supportive measures:**
  - i. *Nausea and vomiting.*  
The fellow should know the various etiologies of nausea and vomiting in patients with malignancies, and recognize the mechanism of action and pharmacology of anti-emetic agents and how to use them in daily clinical practice.
  - ii. **Infections and neutropenia.**  
The fellow should know the principles of diagnosis and management of infections and neutropenic fever in all types of cancer patients. They should know how to treat and

prevent infections. They should know the indications of the use of hematologic growth factors.

iii. **Anemia.**

The fellow should know the indications and complications of red blood cell transfusions. They should be aware of the options regarding preparation and administration of these products. They should know the appropriate use of erythropoietin.

iv. **Thrombocytopenia.**

The fellow should know the indications and complications of platelet transfusions. They should be aware of the options regarding preparation and administration of these products.

v. **Marrow and peripheral-blood progenitor cells.**

Fellows should be familiar with the methods for marrow and peripheral-blood progenitor cells procurement and cryopreservation.

vi. **Organ protection.**

The fellow should be familiar with the use of organ-protective measurements and treatments. They should know the indications and side-effects of different organ-protective agents. They should know the techniques of gonad preservation to ensure the fertility of the patient (cryopreservation techniques).

vii. **Mucositis.**

The fellow should be able to distinguish mucositis, which is infectious, from that caused by anticancer agents. They should be aware of the need for pain medication and topical anesthetics as palliation.

viii. **Malignant effusions.**

The fellow should know the signs, symptoms, and treatments and their indication of ascites and pleural and pericardial effusions. They should be able to treat effusions by paracentesis.

ix. **Extravasation.**

Fellows should know that prevention is the most important factor in extravasation. They should be able to diagnose and treat extravasation.

- x. **Oncologic emergencies.**  
Fellows should recognize the clinical presentations that require immediate intervention (eg, spinal cord compression, pericardial tamponade). For patients in whom a diagnosis of cancer is suspected, the fellow should know the proper approach for obtaining a tissue diagnosis. They should know what therapy is required in the acute and chronic setting.
  
- xi. **Paraneoplastic syndromes.**  
Fellows should recognize the "remote effects" of malignancy, potentially manifested in every organ system. They should recognize which malignancies are most commonly associated with the individual syndromes. Fellows should know the appropriate management of each syndrome.
  
- xii. **Nutritional support.**  
Fellows should know the indications for and complications of enteral and parenteral support.
  
- xiii. **Palliative care and end-of-life care:**  
**Pain.**  
Fellows should be adept in their ability to assess location and severity of pain. They should have a working knowledge of the World Health Organization pain ladder and an understanding of the pharmacology and toxicity of the opiate narcotics and other analgesics. They should be able to manage cancer pain with the available modalities and recognize when referral for an invasive palliative intervention is indicated.
  
- xiv. **Other symptoms.**  
Fellows should be able to palliate other symptoms (respiratory tract, gastrointestinal tract, neurologic symptoms, cutaneous and mucosal symptoms, anorexia and cachexia, dehydration). They should know how to handle end of life symptoms.
  
- xv. **Communication.**

The fellows should be able to communicate with the patient and his family. They should be able to break bad news and act adequately in difficult situations. The fellows should learn to communicate and work together with other professional health care professionals in a team (eg, nurses, social workers, psychologists).



xvi. **Rehabilitation.**

The fellow should recognize the role of physical therapy, particularly in the postoperative setting. Fellows should recognize the role of occupational therapy, speech therapy, and swallowing therapy.

xvii. **Palliative Care and End-of-life Care:**

- 8 week rotation
- Fellow should participate in active practice of palliative medicine in base-hospital
- Cover the following objectives.

**Medical oncology  
Fellowship Program Manual**

**Appendix B**

**Model Rotation: Total duration of the training will be 2 years**

Fellow Name:

Fellow Number:

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
<b>F1</b>	Medical Oncology <b>ROTATION D</b>		In patient Medical Oncology <b>ROTATION F</b>			Malignant <b>Hematology</b>			Medical Oncology <b>ROTATION A</b>			<b>Palliative Care</b>
<b>F2</b>	Medical Oncology <b>ROTATION C</b>		Medical Oncology <b>ROTATION B</b>			Elective			<b>Radiation Oncology</b>		Selective Rotation	