



الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

Adult Medical Oncology Fellowship



سَبِّحْ لِلَّهِ حَمْدًا

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DISCLAIMER

The primary goal of this document is to enrich the training experience of postgraduate trainees by outlining the learning objectives to become competent and proficient future periodontists.

This curriculum may contain sections outlining some training regulations. However, such rules need to comply with the most updated “General Bylaws” and “Executive Policies” of the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website (<https://www.scfhs.org.sa/MESPS/TrainingProgs/RegulationBoard/Pages/default.aspx>).

As this curriculum is subjected to continuous development, please refer to the electronic version posted online for the most updated version.

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FOREWARD

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V. Introduction

This curriculum is developed to provide the trainers and trainees with the outlines of training in medical oncology and to ensure equal opportunity of all trainees among different institutions and hospitals. Also, to ensure that trainees are exposed to the important aspect of medical oncology that will make them ready to practice individually with competency in the field of medical oncology.

The standard practice is taken into account during the development of this curriculum and will be periodically updated to meet the goals of up-to-date practice and ensure competency of fellows.

1- Context of practice

Medical oncology specialty plays a significant role in caring for cancer patients with a vast spectrum of practice scope from prevention to end-of-life care. The word cancer comes from the Greek word (Karkinos) for crab or crayfish; this comes from the solid malignant tumor's appearance. The earliest description of human cancer goes back to ancient Egypt (1600 BC). Oncology (from the Ancient Greek 'onkos', meaning bulk, mass, or tumor, and the suffix -logy, meaning "study of")

Worldwide, It is estimated that the incidence of cancer will increase substantially, in 2018 there were around 18 million new cases, and it is estimated to reach more than 29 million in 2040, not only in incidence but also in mortality with more than nine million in 2018 to over 16 million in 2040.(1)

In Saudi Arabia, the projection of incidence and mortality is growing according to the recent reports from the Global cancer observatory agency and Saudi cancer registry. Thus, there is an unmet need to train and graduate a competent medical oncologist on the national level.

Medical oncology is evolving with so many advances in all aspects of cancer care, not only giving cytotoxic chemotherapy but practicing in the era of precision medicine with more options available like immunotherapy, biological and targeted therapies.

Medical oncology is fascinating and dynamic, what you are doing this time might not be the same next year due to new discoveries not on the medication level but in all areas of cancer care.

2- Goal and responsibility

The medical oncology fellowship program's ultimate goal is to graduate a competent medical oncologist who provides comprehensive patient-centered care.

Goals:

- Provide fellows with clinical exposure for an adequate experience in oncology disciplines.
- Prepare fellows for leadership roles in in quality improvement and health education.
- Train fellows to provide cost-effective and high standard of care for patients.
- Prepare fellows with skills for valuable contributions in research and academic community.
- Train fellows to deliver compassionate care and to communicate and exchange information efficiently with patients and relatives.
- Train fellows to understand limitations and collaborate with colleagues and other disciplines to develop optimal treatment plan.
- Train fellows on evidence- based approach, critical thinking, and appraisal of scientific evidence.

VI. Abbreviations Used in This Document

Abbreviation	Description
SCFHS	Saudi Commission for Health Specialties
F (1)	First year of Fellowship
F (2)	Second year fellowship
PT	Progress test
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
OPD	Outpatients' department
Mini-CEX	Mini-Clinical Experience report

DOPS	Direct Observation of Procedural Skills report
CBD	Case-Based Discussion report
CBE	Competency-Based Education
CPD	Continuous Professional Development
ITER	In-Training Evaluation Report
COT	Consultation Observation Tool
CT	Computed Tomography
PET	Position Emission Tomography
ASCO	American Society of Oncology
ESMO	European Society of Medical Oncology

Table 1: Abbreviations Used in adults' medical oncology training program template

VII. Program Entry Requirements

- To have the bachelor's degree in medicine and surgery from an accredited university.
- To have the Saudi Board in Internal medicine or to have an equivalent certification approved by the SCFHS based on which the candidate has been promoted to a registrar level at the SCFHS.
- To be interviewed and accepted by the Scientific committee of medical oncology in the SCFHS.
- To be interviewed and accepted for training in an accredited training center by the SCFHS for medical oncology fellowship
- To pay the training fees upon acceptance to the program.
- To present three letters of recommendations upon application.

VIII. Learning and Competencies

Training should be guided by well-defined “learning objectives” that are driven by targeted “learning outcomes” of a particular program to serve specific specialty needs. Learning outcomes are supposed to reflect the professional “competencies” and tasks that are aimed to be “entrusted” by trainees upon graduation. This will ensure that graduates will meet the expected demands of the healthcare system and patient care in relation to their particular specialty. Competency-based education (CBE) is an approach of “adult-learning” that is based on achieving pre-defined, fine-grained, and well-paced learning objectives that are driven from complex professional competencies.

Professional competencies related to healthcare are usually complex and contain a mixture of multiple learning domains (knowledge, skills, and attitude). CBE emphasizes the critical role of informed judgment of learner’s competency progress, which is based on a staged and formative assessment that is driven from multiple workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare (example: CanMEDs by the Royal College of Physician and Surgeon of Canada (RCPSC), the CBME-Competency model by the Accreditation Council for Graduate Medical Education (ACGME), tomorrow’s doctor in UK and multiple others).

Trainees are expected to progress from novice to mastery level in certain set of professional competencies. SCFHS has endorsed the CanMEDs to articulate professional competencies. This curriculum applies principles of competency – based medical education, where “CanMeds 2015/ACGME 2018 framework” has been applied in this curriculum to identify the competencies required in medical training to achieve satisfactory patient care and meet needs of the community.

Medical oncology fellows should be able to learn and demonstrate the following competencies.

1. **Medical expert:**

- Obtain medical history (include detailed history of oncological family history) and perform physical exam in an organized manner.
- Identify the investigations required for initial workup and follow up assessment (Laboratory, scans) of oncological presentations and interpret the results to establish the diagnosis, and construct management plan.
- Recognize the issues to be addressed and prioritized during patient's visit.
- Recognize patient-related comorbidities and its impact on any intervention.
- Perform standard bedside procedures competently e.g., bone marrow biopsy and understand the indications.
- Communicate with other disciplines in tumor boards as needed to ensure optimal plan of management.
- Organize management plans based on available resources and best evidence
- Develop a plan with other team members to ensure follow up of toxicity and treatment response using clinical assessment and appropriate investigation.
- Make recommendations to the patient and care givers: explain goals/indications of treatment/intervention (surgery, radiotherapy...etc.), prognosis, expected outcomes and alternative options, and address complex scientific issues and ambiguity during the discussions to help patients in decision-making.

- Obtain informed consent after thorough explanation of the rationale, risks and benefit of the procedures and medications to be offered and ensure proper documentation in medical records.
- Implement supportive and palliative measures in disease management.
- Recognize the complications/side effects of systemic therapy, and oncological emergencies and apply urgent and early intervention as indicated.
- Recognize and report incidents that negatively influence patient's safety to support improvement of quality of care.

2. Scholar:

- Recognize available resources for decision- making based on best available evidence.
- Develop a clear plan and vision for continuous education and to identify the area of needs for self-development and career progress.
- Develop skills for future contributions to literature and academic community.
- Participate in teaching residents, internes and medical students and evaluating new evidence.

3. Communicator:

- Communicate with patients and families and team members professionally
- Maintain completeness of medical records and include all relevant details for further planning and follow up in timely manner.
- Identify the main reasons of referrals and consultations.
- Present patients' data and lectures competently
- Demonstrate the ability to discuss with patients and care givers: goals of care, end of life discussion, bad news in clear and compassionate way.

4. Professional:

- Maintain integrity, honesty, ethical conduct, resilience, altruism and respect professional boundaries.

- Respect diversity and maintain respectful interactions with colleagues, patients, and their families.
- Disclose any limitations that could potentially impact patient's outcome.
- Understand and respect medico-legal regulations pertaining to practice.
- Adhere to codes of ethics in dealing with conflicts and ethical dilemmas encountered.
- Show commitment to excellence in practice and professional responsibilities including mentorship and collegiality.
- Facilitate hand-over of care of patients to other team members promptly and in a professional fashion.
Secure patient's confidentiality and privacy and respect patient's wishes.
- Be honest, truthful and take responsibility for medical errors and harmful incidents affecting patient's safety.
- Disclose any conflicts of interest if required.
- Demonstrate self-awareness and manage negative impacts on well-being that could interfere with optimal standards of care.
- Recognize colleagues facing difficulties and provide support.
- Show commitment to society and to promoting public health.

5. Leader:

- Supervise, guide and teach junior staff in the team.
- Stewardship and taking responsibility to deliver high quality patient-centered care, by being involved in meetings, and with other team members for decision making.
 - Structure plans with priority-setting.
- Apply efficient time management and integrate personal life with clinical and administrative duties.
- Engage in administrative managerial roles and multidisciplinary rounds.

6. Health advocate

- Commit to improving health of the patient and the community (e.g., becoming involved in health education and disease prevention program and activities).
- Support the patients in navigating the system and utilizing the resources available
- Protect and enhance rights and safety of the patients and health equity
- Influence positive change through clinical practice, and through proposals to regulators and health care organizations to meet needs of the patient and society for better quality of care.

7. Collaborator:

- Conduct efficient communication with health care team members to for hand over and transition of care to achieve satisfactory outcome.
- Share responsibilities' and manage conflicts and differences with others.
- Build relationships based on respect and trust with patients, caregivers and colleagues for shared decision-making and optimal outcome.
- Share perspectives and negotiate constructively with other disciplines.

2. Program Durations

Full-time training for an entire two years in adult medical oncology as per approval of the degree released by the Executive Council of Training and Education.

3. Program Rotations

As per the below table.

Rotation	Duration in Weeks	
	Year -1	Year -2
Inpatient/consultative oncology	4	4
Breast Oncology Clinic	4	8
Gastrointestinal cancer	4	8
Lung/ CNS Oncology clinic	4	4
Head and Neck / Sarcoma oncology clinic	4	4
Malignant hematology	4	4
Palliative care	4	0
Radiation	4	0
Genitourinary oncology	4	4
Elective	0	4
Selective	4	0
Gynecology	4	4
Annual leave	4	4
Continuity Oncology clinic	Half day per week for 6 months (24 weeks), overlapping with other blocks	

Table 2: Rotations during training, blocks in weeks.

*Mandatory Core Rotation: Set of rotations that represent program core component and are mandatory to do.

*Elective: Includes major medical oncology subspecialty rotation, as determined by the scientific council/committee (lung, GI, GU, breast), and the trainee is required to do some of them.

*Selective: include preferred four-week continuous training in desired subspecialty in medical oncology other preferred training related to cancer care. for example: radiology, genetics, pathology)) to enhance competency acquisition of the specialty.

*Research: Fellows should participate in writing a protocol and conduct a research under a consultant (for completion of the projects over a 2-year period)

N.B: Vacations to follow SCFHS regulations

4. Mapping of learning objectives and competency roles to program rotations:

4.1 Inpatients' Rotation

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 the treatment related complications. Fellows will also learn to effectively deliver end of life care and function within a multidisciplinary team. The inpatient's team consists of fellows, consultant and assistant medical oncologist. There may be other learners on the team (medical students, fellows from other programs).

Objectives are as the following:

- Admit patients from home, and through outpatient department (OPD) or the emergency unit to the hospital
- Recognize patient's needs and develop discharge plans
- Participate in weekly multidisciplinary rounds and daily medical oncology ward rounds
- Communicate with collaborators in consultation teams for optimal care
- Communicate with patients and their families to obtain and deliver information and address concerns.
- Effectively conduct handover to evening and weekend staff
- Effectively document admission, daily progress and discharge notes
- Conduct medical oncology consults on newly referred inpatients

4.2 Outpatients' Rotations

The overall goal of these rotations is to develop skills to manage patients in the outpatient's sitting.

These rotations depend on the block that the fellows are entitled to. The following is a general outline of the training Objectives in the OPD sitting are:

- Recognize the epidemiology (Incidence and mortality rates) of cancers locally and internationally

- Describe the natural course and patterns of spread of cancers
- Recognize genetic predisposition syndromes, conduct confirmatory procedures and investigations, and counsel patients to apply prophylactic measures and recommendations based on guidelines and available evidence in literature.
- List the risk factors (lifestyle, infections, chronic inflammation e.g., inflammatory bowel disease, and primary sclerosing cholangitis, environmental and chemical exposures, radiation, and genetics) and risk factor assessment models for cancers
- Explain the pathogenesis and biology of cancer.
- Describe the basis of disease diagnosis (signs and symptoms, imaging, biopsy results: core, excision and needle localization).
- Select the most appropriate investigation to confirm diagnosis, complete staging, plan therapy and follow up therapeutic response.
- Stage cancers and list the relevant predictive and prognostic features.
- Develop personalized treatment plan based on stage, performance, and pathological features, gene expression profile using current guidelines and best available evidence.
- Identify and manage the treatment-related complications and apply recommended prophylactic measures.
- Assess treatment response (clinical, laboratory parameters and diagnostic imaging)
- Describe the optimal approach of post- treatment surveillance after potentially curative treatment.
- Recognize and manage para-neoplastic syndromes and oncologic emergencies.
- Explain the concept of oligometastatic disease and the possible therapeutic options and treatment rationale.

4.3 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). The fellow will formulate a plan of management based on literature and current guidelines **to be discussed with the supervising consultants.**

4.4 Continuity Longitudinal Clinic

- In recognition of the importance of outpatient care in the practice of Oncology, all second-year fellows are encouraged to undertake a continuity clinic where they spend a specific half-day per week in a specific outpatient clinic at their training center for at least 6 months. Fellows may choose the continuity clinic based on their interest in certain sites. During this period of longitudinal training, fellows will have the opportunity of longer follow-up of newly diagnosed patients. This will allow an expanded experience which includes outlining the initial plans of management, and patient's follow-up to assess treatment response, manage adverse events, and adjust medication doses or choose alternative therapies. Also, fellows will learn how to choose subsequent lines of therapy with consideration of available evidence-, tolerability and toxicity of preceding lines of therapies. This should be of great value in enhancing the clinical and decision-making experience.

Here in, we list the specific site blocks and the relevant objectives in each block

- **Medical Oncology Chemotherapy Day Unit**

This rotation will give the fellows an opportunity to learn different dimensions of caring for patients in the chemotherapy day unit (CDU) and to manage the complications (mainly acute) of systemic therapies such as chemotherapy, immunotherapy, and biotherapy.

Fellow's responsibilities will include:

- a. Interview and evaluate patients (physical and clinical) arriving to CDU to receive different protocols of systemic therapies
- b. Ensure clearance from any clinical or laboratory contraindications prior to infusion of therapy.
- c. Outline the different treatment protocols, radiological and clinical responses and potential side effects.
- c. Provide and follow the responses to supportive measures in cancer care such as antiemetic and growth factors, etc.

- **Breast Cancer Rotation**

This is mainly an outpatient training block during the two-year training. The objectives are as the following:

- Recognize the different surgical techniques and the indications for the local treatment of breast cancer (breast conservation therapy, mastectomy, complete versus sentinel axillary nodal dissection)
- Discuss the treatment by stage for breast cancer (local and systemic)
- Recognize the rationale for neoadjuvant and adjuvant therapies in different sittings
- Interpret prognostic tools
- Explain the role of systemic therapy (chemotherapy, immunotherapy targeted therapy, hormonal therapy) for early and metastatic disease
- Develop an approach to symptomatic management of patients with advanced breast cancer
- Describe the screening and follow up modalities for breast cancer (Mammography, MRI in high-risk patients).
- Explain the complications of therapies and strategies for management (lymphedema, menopausal symptoms, bone health, sexuality and fertility, cognitive dysfunction, surgical reconstruction)

- Recognize and manage the special breast cancer groups (elderly, BRCA carriers, males, pregnant)

- **Gastrointestinal Cancer Rotation:**

1- Esophageal, esophagogastric junction, and gastric cancer:

- Differentiate the treatment by stage and anatomic site for esophageal cancer (local and systemic).
- Identify candidates for respectable disease and indications for multimodality therapy.
- Define the precursor lesions for gastric and esophageal cancer and the therapeutic options.
- Identify the indications for postoperative therapy.
- Recognize candidates for surgical and endoscopic palliative procedures (e.g stent placement, brachytherapy).
- Outline the risks and management options for strictures and fistula (benign and malignant).
- Discuss the management for progressive, recurrent and metastatic disease.
- Select subsequent lines of therapy based on morbidity, performance, histology, MSI-H, dMMR, PDL-1 status.

2- Colorectal Cancer

- Differentiate treatment by stage, and family history (hereditary predisposition).
- Recognize the need for preoperative CEA and a colonoscopic examination of the entire colon prior to surgery.
- Identify candidates for radical surgery.
- Outline the treatment options for patients presenting with complications related to the primary tumor (bleeding, obstruction, perforation).
- Identify candidates for possible endoscopic resection as an alternative to radical surgery in low-risk early-stage colon cancers arising in a polyp.
- Discuss the rationale of neoadjuvant therapy in locally unresectable colon cancer, and those who are medically inoperable.
- Analyze the benefit and rationale of adjuvant chemotherapy (and radiotherapy) in stage II and III colon cancer, and select the optimal chemotherapy regimen,

and duration of management based on clinicopathological features (and dMMR status).

- Discuss the optimal initial systemic therapy in metastatic setting based on
 - a. primary location of the tumor, disease burden and fitness,
 - b. the mutational status of RAS, BRAF v600E genes,
 - c. the presence of dMMR deficiency/MSI-H/ high tumor mutational burden.
- Recognize candidates for potentially resectable synchronous hepatic and/or lung metastasis, the treatment rationale and the optimal therapeutic approach in this setting.
- Explain the rationale of alternative therapeutic strategies for hepatic surgery in stage IV disease with isolated liver metastasis (radiofrequency ablation, transarterial chemoembolization and stereotactic radiosurgery).
- List subsequent lines of therapies in recurrent, and refractory disease.
- Outline the treatment considerations for elderly frail patients and those with poor performance status.
- Identify candidates for surgical and nonsurgical palliative procedures: stenting to relieve obstruction, angioembolization for bleeding, and intraluminal tumor ablation,

3- Gallbladder and Hepatobiliary Cancers

- Recognize the role of tumor markers, endoscopic ultrasound (EUS) and endoscopic retrograde cholangiopancreatography (ERCP) in the diagnosis.
- Outline palliative options of obstructive jaundice (drainage, stent).
- Recognize the role of staging laparoscopy in hepatobiliary cancer.
- Identify candidates with resectable tumors and the optimal surgical approach.
- Outline the indications, rationale for therapeutic strategies in adjuvant therapy.
- Discuss the indications and rationale for neoadjuvant therapy and orthotopic liver transplantation in hepatobiliary cancer.
- Discuss the preferred initial and subsequent lines of therapies in unresectable, advanced disease, and the potential role of next generation sequencing in treatment selection.
- Consider screening for viral hepatitis B and C in hepatocellular carcinoma and, discuss the implications of positive results on management in hepatocellular carcinoma.
- Assess Hepatic reserve, as indicated by Child-Turcotte-Pugh class to select the optimal therapeutic options in hepatocellular carcinoma.
- Outline the selection criteria and rationale of liver resection, liver transplantation (the Milan criteria), and local nonsurgical therapy (e.g, radiofrequency ablation,

embolization, percutaneous injection therapy (with ethanol or acetic acid), external beam radiation therapy).

- Identify candidates for possible conversion/bridging therapy to liver transplantation.
- Recognize candidates who are only eligible for best supportive care based on performance, liver function and treatment history.

4- Pancreatic Cancer

- Recognize the role of endoscopic ultrasound and laparoscopy in staging.
- Define borderline resect ability and contraindications for resection (a consensus statement from the Society of Abdominal Radiology/American Pancreatic Association).
- Analyze the indications and rationale of neoadjuvant therapy in borderline resectable, and locally advanced unresectable disease.
- Analyze the indications and rationale of postoperative therapeutic strategy.
- Discuss the standard surgical approach in tumors of the head and tail of the pancreas, the benefit of extended lymphadenectomy and the value of postoperative tumor marker measurement.
- Outline the management options for local and distant progression.
- Select the optimal initial and subsequent lines of therapy based on comorbidity, liver function, genomic studies, previous exposure and the presence of MSI-H or dMMR.
- Construct management options for patient with biliary obstruction, and those with poor performance status.
- Recognize symptoms related to disease burden and requiring ongoing supportive care e.g., pain, pancreatic insufficiency, biliary obstruction, thrombosis and psychological distress.

Lung Cancer

- Identify the histological and molecular classification of lung cancer, and prognostic and predictive features.
- Explain the role of mediastinal evaluation and the optimal therapeutic approach of stage I, II, III in non-small cell lung cancer (NSCLC).
- Identify the surgical contraindications and the significance of marginal status.
- Explain the indications and rationale of adjuvant chemotherapy and radiation therapy.
- Outline the approved chemotherapy regimens in adjuvant and concurrent setting and the anticipated toxicity.
- Explain the role and treatment rationale of immunotherapy and EGFR targeted therapy in stage IIIIB NSCLC.
- Discuss the potential palliative measures in different settings (symptomatic pleural effusion, superior vena cava syndrome, air-way obstruction, hemoptysis).
- Describe the optimal initial therapeutic approach, subsequent lines of therapy and treatment rationale in advanced NSCLC with actionable mutations.
- Identify the role of PDL-1 testing and its impact on the preferred therapeutic approach in stage IV NSCLC without actionable mutations.
- Outline the management recommendations in oligometastatic and oligoprogression.
- Describe the optimal initial therapeutic approach, subsequent lines of therapy and treatment rationale in extensive stage small cell lung cancer (SCLC).
- Explain the role and treatment rationale of thoracic radiation in extensive SCLC with residual disease post-treatment response.
- Explain the role and treatment rationale prophylactic radiotherapy in small cell lung cancer.

- **Sarcoma Rotation**

This is mainly an outpatient training. The objectives are as the following:

- Describe the initial treatment based on stage, size and histological features in both bone and soft tissue sarcomas (local and systemic)
- Recognize the indications of multimodality therapy in specific tumors
- Recognize signs of progression and describe potential subsequent therapies and treatment rationale.
- Develop an approach for symptomatic management of patients with advanced sarcoma.

- **Head and Neck Cancer**

- Recognize the multidisciplinary approach required for decision making and optimal management, and sequencing of therapy (involving dietitians, dentists and speech, psychologist and speech/swallowing therapist, prosthodontists).
- Recognize the anatomic subsites of head and neck cancer, and TNM staging
- Recognize the impact of HPV and EB infection on staging, prognosis and management.
- Identify the indications for postoperative radiation and concurrent chemotherapy in early-stage squamous cell carcinoma based on pathological features.
- Explain the role of concurrent chemotherapy in organ preservation in locally advanced disease
- Discuss the management of radiologically residual disease and high-risk disease of nodal metastasis.
- Differentiate the management of nasopharyngeal carcinoma, tumor of the nasal cavity and paranasal sinuses and the salivary glands
- Perform reconstructive surgery and functional rehabilitation.
- Recognize acute and delayed toxicities of management and quality of life issues.
- Discuss the management of head and neck squamous cell carcinoma of unknown primary.
- Discuss the management of oligometastatic disease.
- Recognize the management of locally recurrent disease (to be distinguished from second primary) and recognize candidates of salvage and conservative surgery, reirradiation,
- Discuss the management of metastatic disease based on performance, comorbidities, PDL0-1 status, tumor growth rate and previous treatment history.

1- **Thyroid cancer:**

- Identify histological subtypes, staging and prognostic features of thyroid cancer.
- Recognize the optimal surgical approach in differentiated thyroid cancer and define indications for total thyroidectomy, and the potential postoperative complications.
- List the indications and contraindications of the radioiodine ablation in differentiated thyroid cancer, patient preparation and post treatment precautionary measures.
- Discuss the preferred therapeutic approach of anaplastic thyroid cancer based on stage, resectability, presence of BRAFV600E and other targetable mutations.
- Select the preferred therapeutic approach in refractory disease based on growth rate, disease burden and presence of actionable mutations for potential targeted therapy.

▪ **Hematology 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 only in outpatient clinics with care of Lymphoproliferative Disorders (Non-Hodgkin's Lymphoma and Hodgkin's Lymphoma)

The objectives are as the following:

- Discuss epidemiology (including incidence and mortality rates) of lymphoproliferative disorders
- Differentiate between natural history, clinical and laboratory features, for the different subtypes of lymphoproliferative disorders in adults
- Explain staging and prognostic factors for adult lymphoproliferative disorders
- Explain the 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
- Discuss the principles of therapy used for the treatment of different stages of lymphoproliferative disorders in adults as well as the short and

long-term side effects of commonly used agents and regimens (including secondary malignancies, cardiac complications).

- Discuss 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
- Outline the 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.

- **Palliative Care**

The objective of this rotation is to learn how to improve quality of life of cancer patients during therapy. It is a critical component and an integrated part of medical oncology, and it has multidisciplinary dimensions in cancer management.

Objectives:

- Recognize basic principles and clinical implications of supportive care in cancer patients.
- Recognize the indications, limitations and side-effects of different supportive measures in oncology.
- Implement end-of-life care in clinical practice.

- **Radiation Oncology**

Each fellow will be assigned to 1-2 radiation oncologist with an opportunity to participate in outpatient and in-patient clinical evaluation and simulation sessions.

Objectives:

1. Describe the different techniques of radiation therapy, mechanism of action and the concept of radiotherapy planning target volume.
2. Discuss the indications of radiation therapy (curative and palliative)
3. Recognize and manage short and long-term complications of radiation therapy.

- **Genitourinary Cancer Rotation:**

- 1- **Renal Cell Carcinoma**

- Explain the indications and rationale for radical and partial nephrectomy
- Recognize the significance of marginal status, retroperitoneal lymph node exploration, adrenal gland involvement.
- Differentiate the treatment by stage, histology and high risk- features for renal cell cancer (local and systemic)
- Describe the role of surgery and the optimal systemic therapy (targeted therapy, immunotherapy) in metastatic setting.
- Develop an approach to symptom management of patients with advanced renal cell cancer and those with paraneoplastic syndrome

- 2- **Bladder and other Urothelial Cancers**

- Differentiate the treatment by stage for urothelial cancer (local and systemic)
- Recognize optimal therapeutic approach for elderly patients.
- Identify the indications of radical cystectomy, urinary diversion procedures, and the potential candidates for strategies of bladder-sparing approach
- Outline the indications of neoadjuvant chemotherapy, the chemotherapy regimens of choice and the alternative regimens.

- 3- **Prostate Cancer**

- Interpret prostate biopsy, and apply risk stratification of localized prostate cancer, according to the NCCN recommendations.
- Differentiate the treatment by stage and risk stratification for prostate cancer (local and systemic)
- Recognize the clinical utility of molecular biomarker prognostic assays in clinically localized prostate cancer.
- Recognize the quality-of-life issues associated with prostatectomy and radiation therapy.
- Identify the high-risk features and the preferred initial therapeutic approach (chemotherapy, and androgen deprivation therapy) in stage IV disease.
- Identify signs of disease progression and the optimal subsequent lines of therapy.
- Recognize the role of bone modifying agents, and testing for BRCA, PALB2 and deficiency of mismatch repair genes/ microsatellite instability.

4- Germ Cell Tumors

- Differentiate the treatment by stage for germ cell cancer (seminoma and nonseminoma, local and systemic therapy) and how to manage residual disease.
- Effectively follow-up of patients with germ cell cancers (Role of serum markers, supportive care issues, and long-term complications of therapy and sanctuary sites)

Central Nervous System (CNS) Malignancies

- Identify the manifestations of secondary central nervous system tumor, surgical and radiotherapy indications and treatment rationale.
- Identify the active agents in CNS metastasis.
- Recognize the clinical presentation, diagnostic approach and therapeutic options of leptomeningeal disease metastases.
- Recognize the WHO molecular classification of gliomas.
- Describe the optimal treatment approach of gliomas based on disease extent, histology, performance, and genetic alterations
- Recognize and manage treatment-related complications of CNS cancer.
- Distinguish radiological features of pseudoprogression, radiation necrosis and pseudoresponse during therapeutic course of the disease.
- Identify the optimal therapeutic approach of primary CNS lymphoma, medulloblastoma, ependymoma and meningioma.
- Identify the diagnostic approach and optimal management of primary and metastatic spinal cord tumors.

Gynecological Cancer

Gynecological Cancer

- Use the special staging system for cervical, vulvar and endometrial cancer. (FIGO system).
- Employ surgical staging, molecular classification and risk assessment in endometrial and ovarian cancer.
- Discuss the role and treatment rationale of endocrine therapy, HER-2 targeted therapy, platinum rechallenge, pembrolizumab in metastatic setting of endometrial cancer.
- Identify the indications of adjuvant therapy (chemo and radiotherapy) in endometrial cancer.
- Identify the criteria to select candidates of fertility preservation approach in endometrial cancer and the potential risks.
- Describe the role and treatment rationale of PARP inhibitors in ovarian cancer.
- Explain the management and the treatment rationale of cervical cancer based on stage, risk features (positive margins, lymph node and parametria involvement), and fertility considerations.
- Identify the indications, rationale of concurrent chemo-radiation in cervical cancer and the optimal chemotherapy regimen in this setting.
- Recognize the different surgical techniques and the indications of radical hysterectomy and lymph node evaluation.
- Describe the management of suspected paraaortic lymph node involvement in locally advanced cervical cancer.
- Recognize the application of primary radiotherapy for poor surgical candidates due to poor performance and comorbidities in early- stage cervical and endometrial cancer.
- Recognize the indications of adjuvant radiation therapy (SEDLIS criteria) in cervical cancer patients without lymph and parametrial involvement and with negative margins.
- Select the preferred therapeutic approach at regional recurrence (surgical and non-surgical candidates), and at distant metastasis in gynecological cancer.
- Discuss the role and treatment rationale of bevacizumab, and pembrolizumab in metastatic setting of cervical cancer
- Discuss the genetic syndromes associated with ovarian and uterine cancers (BRCA1/2, HNPCC/Lynch syndrome) and the current recommendations

IX. Continuum of Learning

This includes learning that should take place in each key stage of progression within the specialty. Trainees are reminded of the fact of life-long Continuous Professional Development (CPD). Trainees should keep in mind the necessity of CPD for every healthcare provider in order to meet the demand of their vital profession. The following table states how the role is progressively expected to develop throughout junior, senior and consultant levels of practice.

Specialty General Practice	F1 (Junior Level)	F2 (Senior Level)	Consultant sub specialist
Sub- specialty non-practicing	Dependent/supervised practice	Dependent/supervised practice	Independent practice/provide supervision
Obtain basic health science and foundational level to core discipline knowledge	Obtain fundamental knowledge related to core clinical problems of the specialty	Apply knowledge to provide appropriate clinical care related to core clinical problems of the specialty	Acquire advanced and up-to-date knowledge related to core clinical problems of the specialty
Internship to the practice of discipline	Apply clinical skills such as physical examination and practical procedures related to the core presenting problems and procedures of the specialty	Analyze and interpret the findings from clinical skills to develop appropriate differential diagnoses and management plan for the patient	Compare and evaluate challenging, contradictory findings and develop expanded differential diagnoses and management plan

Table 3: Adult medical oncology fellowship program continuum of learning

X. Teaching Methods:

The teaching process in Medical Oncology Fellowship Program is based mainly on the principles of adult learning theory. The trainees' feel the importance to learn and to have active roles in the content and the process of their own learning. The training program implements the adult learning concept on each feature of the activities where the trainees are responsible for their own learning requirements. Formal training time would include the following three formal teaching activities:

- Program Specific Learning Activities
- Universal topics
- General Learning Opportunities

1.1. Program Specific learning activities:

The program specific activities are educational activities that are specifically designed and intended for trainees' teaching during their training time. The trainees are required to attend these activities and non-compliance can subject trainees to disciplinary actions. Program administration should support these activities by providing protected time for trainees to attend these activities and to allow them to participate in such activities. Fellows are also encouraged to participate in presentations, case-based discussions, multidisciplinary meetings during their scheduled rotations.

A) Program Academic half-day: "Appendix B"

Every week at least 2-4 hours of formal training time (commonly referred to as academic half day). It is a formal teaching time that is planned in advance with assigned tutor, time slots, and venue. Academic half day excludes bedside teaching, clinic postings etc....) and it is designated to cover the core specialty topics which are determined and approved by the Medical Oncology Scientific Committee aligned with the specialty-defined competencies and teaching methods. The core specialty topics will ensure that important clinical problems of the specialty are well taught. It is recommended to conduct the lectures in interactive, case-based discussion format. The learning objectives of each core topic need to be clearly defined and it is preferable to use a pre-learning material.

Whenever applicable, core specialty topics should include workshops, team-based learning (TBL) and simulation to develop skills in core procedures. Regional supervisory committees in coordination with academic and training affairs, program directors, and chief fellows should work together to ensure planning and implementation of academic activities as indicated in the curriculum. There should be an active involvement of the trainee in the development and delivery of the topics under faculty supervision; the involvement might be in the form of delivery, content development, research...etc. The supervisor's educator should make sure that the discussion each topic is stratified into three categories of the learning domain: knowledge, skill, and attitude (see appendix-C of logbook). The recommended numbers of half- day that conducted annually is 40 sessions per training academic year, with reserving time for other form of teaching methods such as Journal club, Clinical/practical teaching. Through the fellowship training committee, program directors, and chief fellows in coordination with academic and training affairs and regional supervisory committees, should work together to ensure planning and implementation of academic activities as indicated in the curriculum. This should aim for efficient use of available resources and to optimize exchange of expertise.

The following outline have been developed to ensure an effective planning of the academic half-day activities in the program:

1. Chief fellow will take attendance and coordinate the activities.
2. Lectures will be allocated to one center if feasible or could be done on zoom at time convenient for all centers.
3. The chief fellow/coordinator should email announcements for the scheduled lectures to the fellows, council members, and program directors.
4. We will follow the timetable below to cover requirements of oncology fellowship program

5. Attendance should be included in the logbook (75% attendance is compulsory).
6. Journal Club: a selected paper could be discussed for critical appraisal with the fellows at the end of the presentations.
7. Case-based discussion could be prepared by one of the fellows with the presenter (a schedule allows participation of all of the fellows)

B) Practice-based learning:

The practice-based learning allows the educator to supervise the fellows to become competent in the required program practical skills which ensure fulfilling knowledge, psychomotor and/or attitude learning domains.

The outpatient clinic is a fundamental example of a clinical sitting of practice-based learning in medical oncology fellowship. Herein, the fellows will have the opportunity to manage newly diagnosed cancer patients (who require higher level of communication and planning), patients on active systemic therapy (whom are in need of close and regular assessment, and palliative support), and patients on active surveillance. Furthermore, inpatient coverage provides an experience in managing emergency events, disease related complications, and terminally ill patients. This wide spectrum of clinical presentations in controlled setting under the supervision of an expert play essential role in fellow's academic progress. Also, attending multidisciplinary tumor board conference in association with sub-specialized experts and collaborators will involve the fellows in critical case- based discussions that address diagnostic or therapeutic questions to improve decision- making and collaborative skills.

Self-directed learning in several clinical settings (e.g., chemotherapy treatment units, on-call coverage, family meetings) is also critical in academic development and building the fellows' competencies.

C) Morning report:

Morning report is a case-based teaching session: it is common to many residency and fellowship programs with varying purposes and focuses. The goals for morning report are to teach efficient handover strategies, case presentation skills, to allow discussion of the management of interesting cases, and to enhance problem solving and multidisciplinary team skills.

1.2. Universal Topics:

Universal topics has been developed by SCFHS and are available, as e-learning via a personalized access for each trainee (to access the online modules). Each universal topic will have a self-assessment at the end of the module. As indicated in the "executive policies of continuous assessment and annual promotion", universal topics are mandatory component of the criteria for the annual promotion of trainees from their current level of training to the subsequent level. Universal topics will be distributed over the whole period of training. Please refer to the tables below (table 4) for universal topics modules assigned to every training year/stage of your program.

Universal Topics are high value, interdisciplinary topics of utmost importance to the trainee. The reason for delivering the topics centrally is to ensure that every trainee receives high quality teaching and develops essential core knowledge. These topics are common to all specialties. Topics included here meet one or more of the following criteria:

- Impactful: these are topics that are common or life-threatening
- Interdisciplinary: hence topics that are difficult to teach by a single discipline
- Orphan: topics that are poorly represented in the undergraduate curriculum
- Practical: topics that trainees will encounter in hospital practice

Development and Delivery:

Core topics for curriculum will be developed and delivered centrally by the Commission through e-learning platform. A set of preliminary learning outcomes for each topic will be developed. Content experts, in collaboration with the central team, may modify the learning outcomes.

These topics will be didactic in nature with focus on practical aspects of care. These topics will have more content heavy as compared to workshops and other face-to-face interactive session planned.

The suggested duration of each topic is 1.30 hours.

Assessment: The topics will be delivered in a modular fashion. At the end of each Learning Unit there will be on-line formative assessment. After completion of all topics there will be a combined summative assessment in the form of context rich MCQ. All trainees must attain minimum competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with specialty examination.

Some ideas: may include case studies, high quality images, worked examples of prescribing drugs in disease states, and internet resources.

Training Year	UT module	Topic	Subjects
F1	Module-1	Introduction	<ul style="list-style-type: none"> • Safe drug prescribing • Hospital- acquired infections • Sepsis
	Module-2	Cancer	<ul style="list-style-type: none"> • Principles of management of cancer • Side effects of chemotherapy and radiation therapy • Oncologic emergency • Cancer prevention • Surveillance and follow-up of cancer patients
	Module 3	Medical and surgical emergencies	<ul style="list-style-type: none"> • Management of acute breathlessness • Management of altered sensorium
F2	Module 4	Acute care	<ul style="list-style-type: none"> • Acute pain management • Chronic pain management
	Module 6	Frail elderly	<ul style="list-style-type: none"> • Assessment of frail elderly • Mini-mental state examination • Prescribing drugs in the elderly • Care of the elderly
	Module 7	Ethics in healthcare	<ul style="list-style-type: none"> • Ethical issues: treatment refusal; patient autonomy • Role of doctors in death and dying • Patient Advocacy

Table 4: universal topics modules in medical oncology program

1.3. General Learning Opportunities:

A formal training time should be supplemented by other practice-based learning (PBL) such as:

- Journal Club^{**}: will be held once a month, to discuss research methodology, and to improve critical appraisal techniques and analysis of emerging data. Fellows encouraged to present, contribute with literature review.
- Grand rounds^{**}: to present and discuss emerging data with collaborators in other disciplines.
- Involvement in quality improvement committees and meeting
- Continuous professional activities (CPD) relevant to adult medical oncology (international conferences, workshops, courses).
- Morbidity and Mortality (M&M) ^{**}: to be held once a week, and fellows must present once yearly. M&M conference offers trainees an opportunity to discuss patient cases where adverse effect had occurred (through errors or anticipated complications). The goal of this resource is to refocus the content of morbidity and mortality and transform it into a platform for teaching principles of patient safety and emphasizing error reduction strategies.

^{**} Any of the above academic activities could be part of activities held within the training center or the General Learning Opportunities outside the center.

XI. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessment plays a vital role in the success of postgraduate training. Assessment will guide trainees and trainers to achieve defined standards, learning outcomes, and competencies. On the other hand, the assessment will provide feedback to learners and faculty regarding curriculum development, teaching methods, and quality of the learning environment. A reliable and valid assessment is an excellent tool to assess the curriculum alignments between the objectives, learning methods, and assessment methods. Finally, Assessment assures patients and the public that health professionals are safe and competent to practise

Assessment can serve the following purposes:

- a. **Assessment for learning:** As trainers will use information from trainees' performance to inform their learning for improvement. It enables the educators to use information about trainee's knowledge, understanding and skills to provide feedback to trainees about learning and how to improve.
- b. **Assessment as learning** involves trainees in the learning process where enable them to monitor their own progress. Trainees use self-assessment and the educators' feedback to reflect on their progression. It develops and supports trainees' metacognitive skills. Assessment as learning is crucial in helping residents/fellows become lifelong learners.
- c. **Assessment of learning** uses to demonstrate achievement of your learning. This is graded assessment and usually counts towards the trainee's end-of -training degree.
- d. **Feedback and evaluation:** As assessment outcomes will represent a quality metrics that can improve learning experience.

2. Formative Assessment

2.1 General Principles

Trainees, as an adult learner, should strive for feedback throughout their journey of competency from “novice” to “mastery” levels. Formative assessment (also referred to as continuous assessment) is the component of assessment that is distributed throughout the academic year aiming primarily to provide trainees with effective feedback.

Every 12 weeks, at least 30 minutes should be assigned to trainees to meet with their mentors, in order to review performance reports (e.g., ITER, procedures, feedbacks from clinics, research progress, etc.).

Input from the overall formative assessment tools will be utilized at the end of the year to make the decision of promoting each individual trainee from current-to-subsequent training level. Formative assessment will be defined based on the scientific committee recommendations.

According to the executive policy on continuous assessment (available online at www.scfhs.org)

- a) Multisource: minimum four tools.
- b) Comprehensive: covering all learning domains (knowledge, skills, and attitude).
- c) Relevant: focusing on workplace-based observations.
- d) Competency-milestone oriented: reflecting trainee’s expected competencies that matches trainee’s developmental level.

Trainees should play an active role seeking feedback during their training. On the other hand, trainers are expected to provide timely and formative assessment. SCFHS will provide an e-portfolio system to enhance communication and analysis of data arising from formative assessment. Trainers and trainees are directed to follow the recommendations of the scientific

council regarding the updated forms, frequency, distribution, and deadlines related to the implementation of evaluation forms.

2. Formative Assessment Tools

Learning Domain	Formative Assessment Tools	Description
Knowledge	Annual Written Test (International exam)	<p>Annual Written Test (Local- international exams: ASCO in-training exam, or ESMO): The ASCO-in training and ESMO exams are held yearly in Feb and August by ASCO and ESMO organizations. Trainees in the final year can test their knowledge in every subspeciality and the results could serve as a tool to evaluate the programs and looking for areas for improvement.</p> <p>It is a written exam that is held at the end of the year. There should be at least 100 MCQ questions, each of which includes 4 options to choose a single best correct answer. The questions will include both k1 type (evaluating skills of recognition and recall) and k2 type (evaluating analysis, judgment and reasoning). The exam will assess knowledge on basic principles and clinical judgment in clinical scenarios relevant to different disciplines of medical oncology. The assessment which will be covering several aspects including disease management, treatment and disease-related complications, genetics and diagnostics. For further details on promotion please refer to general bylaws and executive policy of assessment (available online: www.scfhs.org). Blueprint of the written promotion and final exams is shown in table 7 below.</p>
	Promotion "progress" exam	<p>Serial open-book exams have been introduced to encourage active learning. The exams are prepared by scholars in different subspecialties and are submitted by trainees online through google classroom with a deadline for submission (withing 2 weeks of releasing the questions). Submission is mandatory by each fellow. Marks and feedback are provided to the to the fellows.</p> <p>Structured Academic Activities: virtual learning sessions are held once or twice a week, shared by centers on zoom. A lecturer is invited to give a 1-2-hour lecture followed by group discussion or journal club presentation for critical analysis of selected papers. Attendance is mandatory for at least 75% of sessions. Around 37 lectures are selected to cover the program curriculum (appendix A).</p>
	Serial open book exams	
	Rubric for assessing Structured Academic Activities and Case Based Discussions (CBD)	

<p>Skills</p>	<p>Research Activities</p> <p>Mini-CEX: mini-Clinical Evaluation Exercise</p> <p>Logbook</p>	<p>Research: to build up investigational skills and motivate creativity and contribution to academic community</p> <ol style="list-style-type: none"> Each fellow is expected to finalize a research project by year 2. This will be one of the requirements for the certificate of completion of fellowship training. Initial proposal: the fellow will choose a research topic with a supervisor and will write an initial proposal outline. Supporting references are required. The fellows should seek approval of the ethics committee in his/her institute to proceed with the project. The fellow will meet with a supervisor at regular basis to discuss progress on his/her work. Please keep notes on your meetings (times and discussions made). The fellow must undertake the key activities of this work. However, we accept any collaborative work that improves validity of the data and strengthen research methodology. The research work should be completed for publication and presentation in the Research Day by year 2. <p>Guidance and key deadlines</p> <p>February/ year 1: Submission of initial proposal outline (title, research question, background, methodology, references)</p> <p>April/year 1:Submission of a final detailed, proposal</p> <p>June/ year 1: Evidence of ethics committee approval</p> <p>Jan/ year 2: Notes on progress at your work (Research in meeting) progress</p> <p>July/ year 2:Submission of abstracts, presentations and papers</p> <p>Sep/ year 2: Research Day</p> <p>The fellow should undertake clinical evaluation exercise in each block. The fellow will be assessed by a clinical supervisor for skills, knowledge and attitude. The encounter and discussion will be rated and recorder for review by the fellow for developmental learning plan based on the fellow's needs. The written feedback should be forwarded to the program directors.</p> <p>Logbook: this will record and track the following components (Appendix C)</p> <ol style="list-style-type: none"> procedures: expected to do annually 2 intrathecal methotrexate administration, 2 bone marrow biopsy/ transplant, 2 pleurodesis Tumor board: attendance of multidisciplinary discussion is required in every rotation with fellow presentation of assigned cases. Academic activities- attendance of at least 75% of lectures in the academic- half day
<p>Attitude</p>	<p>ITER: In-Training Evaluation Report</p>	<p>ITER: Quarterly evaluations are submitted by supervisors in each training block through ONE 45. The evaluations are recording progress of the trainees in knowledge, behavior, commitment, communication, data collection and documentation, planning and clinical judgment. The evaluations also assess the ability to supervise juniors in the team and the trainees' skills in managing emergency cases.</p>

Table 6: General principle of formative assessment

Categories	Proportion	Basic science	Diagnostic measures	Treatment approach
Hematology	9%	0	2	3
Breast cancer	15%	1	3	11
Thoracic Cancer	14%	1	2	7
Genitourinary cancer	8%	1	3	7
Gynaecological cancer	5%			5
Gastrointestinal cancer	15%	1	5	14
Head and neck, thyroid, central nervous system	6%	1	2	7
Anticancer therapies	10%	0	4	6
Other tumors	3%		2	3
Genetics and Tumor biology	8%	5		
Supportive care palliative management, and Radiotherapy	5%		2	3
Ethics and statistics	5%	4		1

Table 7: Adult medical oncology blueprint of the written promotion and final exams

*The exam distribution accepts up to +/- 3% variation from the blueprint in each section

The evaluation of each component will be based on the following equation:

percentage	< 50%	50-59.4%	60-69.4%	>70%
Description	Clear fail	Borderline fail	Borderline pass	Clear pass

To achieve unconditioned promotion, the candidate must score a minimum of “borderline pass” in all five components.

- The program director can still recommend the promotion of candidates if the above is not met in some situations:
- In case the candidate scored “borderline failure” in one or two components at maximum, and these scores should not belong to the same area of assessment (for example: both borderline failures should not belong both to skills)
- The candidate must have passed all other components and has scored a minimum of clear pass in at least two components.

3. Summative Assessment

3.1 General Principles

Summative assessment is the component of assessment that aims primarily to make informed decisions on trainees’ competency. In comparison to the formative one, summative assessment does not aim to provide constructive feedback. For further details on this section please refer to general bylaws and executive policy of assessment (available online: www.scfhs.org). In order to be eligible to set for the final exams, a trainee should be granted “Certification of Training-Completion”.

3.2 Certification of Training-Completion

In order to be eligible to set for final specialty examinations, each trainee is required to obtain "Certification of Training-Completion". Based on the training bylaws and executive policy (please refer to www.scfhs.org) trainees will be granted "Certification of Training-Completion" once the following criteria is fulfilled:

- a. Successful completion of all training rotations.
- b. Completion of training requirements (e.g., open-book tests, logbook, research, case-based discussion, journal club presentation others) as outlined and approved by the scientific committee.
- c. Clearance from SCFHS training affairs, that ensure compliance with tuitions payment and completion of universal topics.
- d. passing both the promotion and the final subspecialty clinical and written exams.

"Certification of Training-Completion" will be issued and approved by the supervisory committee or its equivalent according to SCFHS policies.

3.4 Final Specialty Examinations

Final specialty examination is the summative assessment component that grant trainees the specialty's certification. It has two elements:

- a) Final written exam: in order to be eligible for this exam, trainees are required to have "Certification of Training-Completion".

b) Final clinical/practical exam: Trainees will be required to pass the final written exam in order to be eligible to set for the final clinical/practical exam.

Blueprint Outlines: this follows the blueprint issued for the promotion exam and the SCFHS regulations.

For further details on final exams, please refer to general bylaws and executive policy of assessment (available online: www.scfhs.org).

Learning Domain	Summative Assessment Tools	Passing Score
Knowledge	- Final Written Examination	At least borderline pass in each tool in accordance with the standard setting method used by the executive administration of assessment
Skills	- Structured Oral Examinations (SOE) or/ and OSCE	4 to 6 case scenarios are prepared by the examination committee to test communication, confidence, fluency, reasoning, knowledge and the ability to collect critical information to plan work up and management of cases in different subspecialties

XII. Program and Courses Evaluation

SCFHS will apply variable measures to evaluate the implementation of this curriculum. Training outcomes of this program will undergo the quality assurance framework endorsed by the Central Training Committee at SCFHS. Trainees' assessment (both formative and summative) results will be analyzed and mapped to curriculum content. Other indicators that will be incorporated are:

- Report of the annual trainees' satisfaction survey.
- Reports from trainees' evaluation of faculty members.
- Reports from trainees' evaluation of rotations.
- Reports from the annual survey of program directors.
- Data available from program accreditations.
- Reports from direct field communications with trainees and trainers.

Goal Based Evaluation; the intended milestones achievement will be evaluated at the end of each stage to assess the progress of the curriculum delivery, and any deficiency will be addressed in the following stage utilizing the time devoted for trainee-selected topics and professional session.

In addition to subject-matter opinion, best practices from benchmarked international programs, SCFHS will apply a robust method to ensure that this curriculum will utilize all the data that will be available during the time of revising this curriculum in the future.

The scientific committee meets on regular bases to adjust the evaluation parameters (detailed in the previous section).

The scientific committee is in direct communication with the Chief fellow, fellows, and program directors to obtain views and implement changes accordingly.

XIII. Policies and Procedures

This curriculum represents the means and materials outlining learning objectives with which trainees and trainers will interact for the purpose of achieving the identified educational outcomes. Saudi Commission for Health Specialties (SCFHS) has a full set of “General Bylaws” and “Executive Policies” (published on the official SCFHS website) that regulate all processes related to training. General bylaws of training, assessment, and accreditation as well as executive policies on admission, registration, continuous assessment and promotion, examination, trainees’ representation and support, duty hours, and leaves are examples of regulations that need to be applied. Trainees, trainers, and supervisors need to apply this curriculum in compliance with the most updated bylaws and policies which can be accessed online (via the official SCFHS website).

XIV. Appendices

- A. Program Academic Half-Day
- B. The academic activities specific for a training center
- C. Logbook
- D. Glossary

Appendix A: Academic half-day program

	Topic
Introduction I	Principles of Chemotherapy (mechanisms, dosing, toxicity, supportive management)
Introduction II	Biological therapy (adverse reactions to immunotherapy)
Introduction III	Oncology emergencies: Febrile neutropenia, cord compression, SVC syndrome.
Introduction IV	Biostatistics and clinical trial Design
Introduction V	Cancer biology
Radiation therapy	Principles of radiation therapy, acute and long -term complications
Lung I	Stage I, II, III NSCLC
Lung II	Stage IV NSCLC (chemo, immunotherapy, oligometastatic)
Lung III	Personalized therapy in advanced adenocarcinoma of the lung, palliative therapy
Lung IV	Small cell lung cancer (limited and extensive stage management), thymic cancer, mesothelioma
Palliative 1	Pain management
Breast I	Early stage and locally advanced breast cancer
Breast II	HER-2 directed therapy in breast cancer, management of brain metastasis)
Breast III	metastatic breast cancer (Hormonal therapy and chemotherapy)

Breast IV	Special populations: pregnancy and older women
GI I	Treatment approach for stage II and III
GI II	Metastatic colon cancer (mismatch repair, liver metastasis)
GI II	Anoectal cancer
GI III	Oesophageal and Gastric cancer
GI IV	Pancreatic cancer
GI V	Hepatocellular and biliary cancer
	Cancer of unknown primary
Lymphoma I	Hodgkin's lymphoma
Lymphoma II	NHL- Introduction, high grade lymphoma.
Lymphoma III	Non-Hodgkin's lymphoma (low grade lymphoma)
GU I	Localized and advanced RCC (immunotherapy, targeted therapy, surgery)
GU II	Prostate cancer (risk stratification, localized, advanced prostate cancer)
GU III	Bladder cancer
GU IV	Germ Cell Tumours
GU V	Testicular cancer
Brain Tumours I	Glioma
Palliative II	Management of bone mets, GI toxicity
Sarcoma I	Non-GIST tumours (bone and musculoskeletal sarcoma)
Sarcoma II	GIST
Genetics	Hereditary cancer syndromes
Skin	Melanoma, basal cell and squamous cell carcinoma
Gynaecological cancer I	Endometrial cancer, Cervix Cancer
Gynaecological Cancer II	Ovarian cancer, Primary Serous Peritoneal Cancer, Gestational Trophoblastic disease

Head and Neck Cancer I	Early stage, locally advanced, organ preservation, HPV effect, rehabilitation plan
Head and Neck Cancer II	Recurrent disease and metastasis (oligometastatic)
Head and Neck Cancer III	Thyroid Cancer

The above table illustrates topics to be covered during the half-day activities as it spans over the course of one year (or cycle of teaching if required more than one year to cover all the topics). The academic activity may not be limited to above mentioned topics and additional topics could be included as indicated by the program directors.

Appendix B: The academic activities specific for a training center

*7: 30-8 am: Daily Morning report

Every Tuesday 7:30-8:30 am: Morbidity and mortality meetings are expected to stop temporarily during Ramadan, summer months)

Day/week	1 st week	2 nd week	3 rd week	4 th week
Sunday	12:00 pm: departmental educational activity	12:00 pm: departmental educational activity	12:00 pm: departmental educational activity	12:00 pm: departmental educational activity
Monday	10 am: GI tumor board 11: 30 Gynae tumor board 12: 30 Breast tumor board	12: 30 Breast tumor board	12: 30 Breast tumor board	12: 30 Breast tumor board
Tuesday	1-4 Academic half-day (zoom)	1-4 Academic half- day (zoom)	1-4 Academic half-day (zoom)	1-4 Academic half-day (zoom)
Wednesday	12-1 Case-based discussion for fellows	8:00 am Neuroncology tumor board 12-1 Case-based discussion for fellows	12-1 Case-based discussion for fellows	12-1 Case-based discussion for fellows
Thursday		12-1 journal cub	12-1 Thoracic oncology tumor board	

The above table illustrates an example of the academic activities specific for a training center as it spans overt the course of one year (or cycle of teaching if required more than one year to cover all the topics).

Appendix-c: the logbook

Candidate's name:

Year:

Training Centre:

Program Director:

Procedures	BM biopsy 1	BM biopsy 2	Intrathecal	Pleurodesis		
Date						
Supervisor						
Academic Activities	Journal club	Case-based discussion	Attendance to academic half-day (Monitored on zoom)			
Date						
Supervisor						
Research	Project	Mentor	Comment			
Mock Tests	GI 1	GI2	Head and Neck	Breas	Lung	Gyn
Mark						
Tumor boards						

Glossary	
Blueprint	Description correlating educational objectives with assessment contents. For example, test blueprint defines the proportion of test questions allocated to each learning domain and/or content.
Competency	Capability to function within a defined professional role that implies entrustment of a trainee by graduation of the program with the required knowledge, skills, and attitude needed to practice unsupervised.
Specialty Core Content (skills, knowledge, and professional attitude)	A specific knowledge or skill or professional attitude that is specific and integral to the given specialty.
Formative assessment	An assessment that is used to inform the trainer and learner of what has been taught and learned, respectively, for the purpose of improving learning. Typically, the results of formative assessment are communicated through feedback to the learner. Formative assessments are not intended primarily to make judgments or decisions (though it can be as a secondary gain).
Mastery	Exceeding the minimum level of competency to the proficient level of performance indicating rich experience with possession of great knowledge, skills, and attitude.
Portfolio	A collection of evidence of progression towards competency. It may include both constructed components (defined by mandatory continuous assessment tools in curriculum) and unconstructed components (selected by the learner).
Summative assessment	An assessment that describes the composite performance of the development of a learner at a particular point in time and is used to inform judgment and make decisions about the level of learning and certification.
Universal Topic	A knowledge, skills, or professional behavior that is not specific to the given specialty but universal for the general practice of a given healthcare profession.

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394-424.





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