



**OBJECTIVES FOR ROYAL COLLEGE APPROVED
SURGICAL ONCOLOGY TRAINING PROGRAMS**

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BREAST

Terminal Objectives

Form an appropriate plan of management of a patient with suspected or proven breast cancer.

Choose and execute the appropriate treatment modality.

Enabling Objectives

A. Cognitive

1. Be able to list and describe the histological subtypes of breast cancer and the different tumor markers.
2. Recognize the significance of the different prognostic factors.
3. Understand the principles of different diagnostic procedures especially mammography and breast ultrasonography and feel comfortable in their interpretations.
4. Be informed about the different types of biopsies for palpable and non palpable breast lesions.
5. Be familiar with the staging classification of ductal, lobular carcinomas and other breast malignancies such as phylloides tumors.
6. Be knowledgeable about the different screening methods for breast cancer, their benefits and their limitations.
7. Be knowledgeable about the different prevention strategies for breast cancer, their benefits and their limitations.

8. Appreciate the role of chemotherapy hormonotherapy and biological therapies in each type and stage of breast cancer.
9. Appreciate the role of existing palliative care and other support systems.
10. Know about the different types of surgical procedures including reconstructive surgery and be familiar with the respective technical details.
11. Read and know about the clinical practice guidelines.
12. Be familiar and if possible participate in prospective clinical trials of patients with or at risk for breast cancer.
13. Formulate and defend a personal practice plan for decision making regarding resectability for cure.
14. Formulate and defend a personal practice plan for decision making regarding resectability for palliation.
15. Has knowledge and compassion for the particular problems breast cancer patients and their families face.
16. Be informed about the newer education tools.

B. Technical

1. Perform a history and physical examination of a patient with a breast related complaint.
2. Request and interpret appropriate imaging studies.
3. Perform fine needle aspiration, core biopsy and if needed other diagnostic modalities such as thoracentesis or paracentesis in advanced stage breast cancer.
4. Correlate result of imaging studies with clinical and pathological findings.
5. Perform different types of mastectomies (i.e. lumpectomy, modified radical mastectomy).
6. Perform sentinel lymph node biopsy and lymph node dissection.

7. Make appropriate use of frozen section and touch prep cytologic analysis.
8. Interpret the final pathology report and recommend further therapy as appropriate.
9. Follow and assess patients after breast cancer surgery and utilize ancillary resources to provide interdisciplinary care (i.e. physiotherapy, social services, psychology).
10. Recognize and manage early and late postoperative complications.
11. Formulate and defend a personal practice plan for following patient after breast surgery.
12. Recognize and manage patients with recurrent breast cancer.
13. Refer to and interact with palliative care team members.
14. Establish a therapeutic relationship with patients and communicates well with families (i.e. provides clear and thorough explanations of diagnosis, investigations and management).
15. Establish an effective interaction with other health professionals.
16. Be able to use new technologies.

CHEMOTHERAPY

Terminal Objectives

The fellow should understand the pharmacology of major drugs used in human tumor chemotherapy and be able to use them in a rational manner.

Enabling Objectives

- A. The fellow should be able to understand and describe:
1. tumor biology, including the:
 - Kinetics of cancer cell growth, the cell cycle and growth fraction.
 - General principals of action such as:
 - a. the log kill hypothesis,
 - b. cycle specificity
 - c. phase specificity
 - d. dose intensity, and
 - e. resistance mechanisms
 2. classes of chemotherapeutic agents, including:
 - alkylating agents
 - platinum derivatives
 - antimetabolites & nucleoside analogs
 - natural products, including plant alkaloids, antibiotics and enzymes
 - hormones
 - tyrosine kinase receptor antibodies
 3. the mechanisms of action of specific agents, including:
 - specific mode of action
 - relationship of action to cell cycle, insofar as this is known

4. the pharmacology of specific agents and should know the:
 - Routes of administration and absorption (oral, intravenous, intra-arterial, intramuscular, intrathecal, intraperitoneal, etc.
 - distribution
 - biotransformation
 - excretion
 - interactions with other drugs
 - interaction with radiotherapy and hyperthermia
 - mechanisms of drug resistance and approaches to reducing tumor resistance to anticancer drugs.

5. combination chemotherapy, including:
 - the principles of combination chemotherapy
 - drug combinations in current use for gynecologic malignancy
 - the pharmacology of single agents, and the principles for the design of combination chemotherapeutic regimens, as well as the ability to construct logical drug combinations
 - the principles of specialized therapies such as high-dose chemotherapy with bone marrow transplant and intraperitoneal chemotherapy

6. the general guidelines for clinical evaluation, including:
 - the criteria for complete response, partial response, progressive disease relapse
 - the concept of Phase I, II and III drug trials
 - current evidence for favourable adjunctive use of chemotherapy with surgery and/or radiation therapy
 - the rationale for dose schedule (timing), cycle length (cystic versus maintenance) and dose intensity

1. problems with toxicity/complications, including:
 - general effects of rapidly proliferating epithelium, such as bone marrow, G.I. tract and hair follicles
 - specific major toxic effects of individual and combinations of drugs
 - the management of toxicity using:
 - a. supportive (nutritional, hematologic, prophylactic antibiotics) methods
 - b. specific (blood component therapy, specific antagonists) methods
 - The management of extravasation of chemotherapeutic agents

2. Treatment by organ site, histology and stage of agents of established value within established guidelines for specific tumors.
3. The role of growth factors in prevention of chemotherapy toxicity and in the treatment of malignancies.

Teaching Methods

1. Reference books/articles
2. Courses/lectures
3. Participation in clinical care

ENDOCRINE DISEASES

Parathyroid

Enabling Objectives

A. Cognitive

1. Describe embryology and the anatomy of the parathyroid glands.
2. Has a differential diagnosis for hypercalcemia, including metastatic disease, primary, secondary and tertiary hyperparathyroidism.
3. Knows the work-up for each of the differential diagnosis for hypercalcemia and how to distinguish between them.
4. Understands normal the calcium homeostasis in a normal physiological state and in a stress physiological state.
5. Understands and knows the biochemical abnormalities associated with hyperparathyroidism, including the natural history of untreated hyperparathyroidism and its affect on the skeletal system, renal system and cognitive system.
6. Able to describe an appropriate investigation for a patient with hypercalcemia and has a systematic and rational order of testing.
7. Knows the NIH consensus conference criteria for the surgical indications of hyperparathyroidism.
8. Able to describe the treatment of hypercalcemia crisis.
9. Knows the available current preoperative localization studies and understands the sensitivity and specificity for each of the

following: ultrasound, CT, MRI, système selective venous sampling.

10. Able to describe when each of the appropriate tests are indicated.
11. Able to describe the surgical management of primary and tertiary hyperparathyroidism.
12. Understands the natural history of parathyroid carcinoma and treatment options.
13. Able to describe the management of complications associated with parathyroid surgery, such as hypocalcemia, persistent hypercalcemia, and recurrent lorenchal nerve injury.
14. Able to describe the work-up and investigations for persistent or recurrent hyperparathyroidism.

B. Psychomotor

1. Able to perform a parathyroid exploration and identify the following:
 - **Middle thyroid vein**
 - Inferior thyroid artery
2. The five steps to the palpation of the superior parathyroid gland
3. The steps to identify the inferior parathyroid gland and thymus
4. Able to appropriately biopsy parathyroid tissue without vascularization
5. Able to transplant parathyroid tissue
6. Able to cryopreserved parathyroid tissue
7. Able to interpret inter-operative PTH.

C. Attitudinal

1. Know of the controversy of parathyroid surgery in primary hyperparathyroidism by understanding the natural history of the asymptomatic patient.
2. Is aware of the difficulty with parathyroid surgery in inexperienced hands.

3. Understands the change in parathyroid surgery from a formal 4-gland exploration to minimal invasive parathyroidectomy and the pitfalls of this move.

Thyroid

Enabling Objectives

A. Cognitive

1. Able to describe the anatomy and embryology of the thyroid gland, its relationship to the parathyroid glands and the recurrent laryngeal nerve.
2. Knows the physiology of thyroid and thyroid hormone in a normal physiological state and in a stressed state.
3. Able to understand the work-up of hypothyroidism, hyperthyroidism.
4. Able to interpret the thyroid indices in making the diagnosis of Grave's disease, Hashimoto's thyroiditis, hyperthyroidism, hypothyroidism, and euthyroid sick syndrome.
5. Able to describe the appropriate work-up and evaluation of patients with thyroid disease such as Grave's disease, multinodular goiter/retrosternal goiter, thyroid nodule, thyroid cancer and thyroiditis.
6. Able to disclassify thyroid neoplasms, including well differentiated thyroid cancer, papillary, follicular, hürthle cell, medullary, anaplastic, lymphoma and metastatic carcinoma.
7. Understands the prognosis, the difficulty for the pathologists in distinguishing between the above and the natural history of each of the above neoplasm.
8. Able to describe the surgical management for:
 - Multinodular goiter retrosternal extension
 - Hyperthyroidism, Grave's disease, including the preoperative blockade and postoperative management
 - Surgical management of a thyroid nodule

- The surgical management of well differentiated thyroid cancer
 - The surgical management of medullary thyroid cancer
 - The surgical management of anaplastic thyroid lymphomas.
9. Knows how to diagnose and manage complications from thyroid surgery, including:
- airway obstruction
 - recurrent laryngeal nerve palsy
 - hypocalcemia
 - thyroid storm
 - postoperative bleed.
10. Knows how to properly implement patients with thyroid hormone that have benign disease, malignant disease and understands the principal and the rational for agamont therapy in thyroid cancer.

B. Psychomotor

1. Appropriate history and physical examination for a work-up of a thyroid nodule, including signs and symptoms of hyperthyroidism, assessment of the nodule area.
2. Perform a fine needle aspiration of the thyroid nodule or lymph nodes within the neck.
3. Able to do a direct clarinoscopy with a fiberoptic scope.
4. Able to perform appropriate thyroid surgery, including identification of the recurrent laryngeal nerve, preservation of all parathyroid tissue, recognition and biopsy of parathyroid tissue.
5. Can perform a total thyroid lobectomy and a total thyroidectomy with minimal complications.
6. Can perform a modified neck dissection and central lymph node compartment dissection.

C. Attitudinal

1. Understands the dilemma of total vs lobectomy in low risk well differentiated thyroid cancer patients.

2. Understands the advantages and disadvantages of aggressive surgical intervention for low risk well differentiated thyroid patients vs minimal approach.
3. Understands the other means of treating such conditions as hyperthyroidism and large retrosternal goiters in the appropriate patient.

GENETICS

Terminal Objectives

The fellow should demonstrate an understanding of oncogenes, tumor suppressor genes, DNA repair genes, and oncogenesis and be familiar with the influence of genetics on the clinical practice of oncology.

Enabling Objectives

- A. The fellow should understand and be able to understand and describe:
 1. the molecular genetics of neoplasia, including:
 - proto-oncogenes
 - anti-oncogenes
 2. the mechanisms of action of oncogenes, such as:
 - transduction
 - point mutation
 - insertion mutation
 - amplification
 - translocation
 3. tumor suppressor genes, such as:
 - the retinoblastoma gene
 - the p53 gene
 4. the nature and extent of chromosome changes in cancer, including:
 - numerical vs. structural changes
 - specific vs. nonspecific changes
 - inherited vs. acquired changes
 5. the role of oncogenes, including the:
 - properties of oncogenes
 - mechanisms of action of oncogenes

- specific families of oncogenes
 - relationship between growth factors and oncogenes
6. the basic principals of clinical cancer genetics and be able to relate the information to the practice of gynecologic oncology.
 7. the cardinal principles of cancer genetics with respect to:
 - age
 - bilaterality
 - multiple primary cancers
 8. cancer family syndromes, including:
 - site-specific ovarian cancers
 - breast/ovarian family syndromes
 - the lynch II syndrome

Teaching Methods

1. Throughout rotations
2. Special lectures (Dr. W. Foulkes)
3. Reference books

HEAD AND NECK MALIGNANCY

Performance Objective

Candidate will be able to diagnose, stage, treat and follow a patient with head and neck malignancy.

Enabling Objectives

With regards to Head and Neck malignancy the candidate will demonstrate the following skills:

A. Cognitive

1. Describe the anatomy and physiology of the vital structures of the head and neck.
2. List the common malignancies that arise from mucosal surfaces of the aerodigestive tract, their presentation and natural history including squamous cell carcinoma and minor salivary gland on tumors.
3. List the differential diagnosis of a salivary gland mass with understanding of the natural history of each.
4. Describe the approach to the "unknown primary".

B. Psychomotor

1. Perform a skilled history examination of head and neck patients including examination of the aerodigestive tract mucosal surfaces in the clinic setting.

2. Perform endoscopy of the nasopharynx, larynx, esophagus, and bronchial tube.
3. Perform a skilled excision of parotid, sub-mandibular glands.
4. Perform a skilled radical or modified neck dissection.
5. Perform a tracheostomy.
6. Perform an excision of an early cancer of the oral cavity.

C. Attitudinal

1. Participate in a tumor board conference and outline a multidisciplinary plan of treatment for head and neck cancer.
2. Counsel a pre-operative patient regarding psychological effects of disfigurement associated with head and neck surgery.

HEPATOBILLARY

Basic Science and Anatomy

Terminal Objectives

Demonstrate knowledge of the anatomy, physiology and pathophysiology of the liver, biliary tract and pancreas.

Enabling Objectives:

1. Describe the anatomy of the liver, biliary system and pancreas including commonly-found variations.
2. Describe the physiology and function of liver, biliary system, and pancreas to include:
 - glucose metabolism
 - protein synthesis
 - coagulation
 - drug metabolism
 - reticuloendothelial system
 - function of bile in fat metabolism
3. Explain the formation of bile, its composition, its function in digestion and its metabolism.
4. Describe the pathophysiology of gallstone formation.
5. Describe the anatomy of the pancreas, including regional vascular anatomy.
6. Discuss the physiology of the pancreas, including:
 - endocrine and exocrine function and
 - Hormonal regulation.

- Endocrine-islet cells
- Alpha (Glucagon)
- Beta (Insulin)
- Delta (Somatostatin)
- Non-Beta (pancreatic polypeptide)
- Exocrine-acinar cells
- Lipase
- Amylase
- Hormonal regulation
- Secretin-bicarbonate secretion
- Cholecystokinin-enzyme secretion

Knowledge: General Clinical

Terminal Objectives

Demonstrate the ability to manage disease of the liver, biliary tract and pancreas amenable including the role for surgical and nonsurgical interventions.

Enabling Objectives

1. Perform history and physical examination specifically focused on liver and biliary system. Select and interpret appropriate laboratory and radiologic evaluations in the work up of the jaundiced patient.
2. Perform history and physical examination focused on the pancreas. Select and interpret appropriate laboratory and radiologic examinations in evaluation of pancreatic disease, including:
 - Perform detailed evaluation of patients with liver and biliary disease and plan appropriate management and operative approach.
 - Perform detailed evaluation of patients with pancreatic disease and plan appropriate medical or surgical management.
 - Coordinate overall care of patients with hepatobiliary disease including:
 - a. initial evaluation
 - b. appropriate diagnostic studies
 - c. indicated consultations
 - Coordinate overall care of patients with complex pancreatic disease, including initial evaluation, appropriate diagnostic studies, operative intervention and postop care.

Knowledge: Specific Clinical Problems

1. Outline the work-up and differential diagnosis of the jaundiced patient.
2. Discuss the pathophysiology and treatment of the following:
 - mass lesions of the liver (benign and malignant tumors of the liver; metastatic lesions of the liver).

Pancreatic Neoplasms

1. Explain the pathophysiology of carcinoma of the pancreas to include:
 - Typical history and presentation
 - Diagnostic evaluation using:
 - a. Computed axial tomography
 - b. Ultrasound and endoscopic ultrasound
 - c. ERCP
 - d. Percutaneous transhepatic cholangiography (PTC)
 - e. Arteriography
 - f. MRI
 - g. Laparoscopy/laparotomy
 - Indications for:
 - a. Operative versus nonoperative biliary drainage
 - b. Percutaneous versus endoscopic stenting
 - c. Resection
 - d. Concomitant gastrojejunostomy with operative biliary bypass
 - e. Discuss presentation, evaluation and management of pancreatic pseudocysts with attention to:
 - i. complications of pseudocysts (hemorrhage, infection, rupture)
 - ii. timing of drainage
 - iii. percutaneous versus surgical drainage
 - iv. choice of internal drainage procedure
 - v. explain the diagnosis and management of pancreatic ascites.

Pancreas

1. Describe the diagnosis, evaluation and surgical management of the following islet cell tumors of the pancreas:
 - gastrinoma (Zollinger-Ellison Syndrome)
 - Glucagonoma
 - Somatostatinoma
 - Insulinoma
 - VIPoma (Verner-Morrison Syndrome, WDHA Syndrome)
2. Describe the diagnosis and management of pancreas divisum.
3. Detail the appropriate surgical management of any selected disorder of the liver or biliary tract.
4. Analyze the technical details of each surgical procedure and options that may be available with pros and cons of each.
5. Summarize the common complications associated with surgical management of liver and biliary tract disease.
6. Summarize the principles of perioperative management of liver and biliary tract disease.
7. Outline the appropriate surgical management of disorders of the pancreas to include:
 - pancreatoduodenectomy (Whipple Procedure)
 - distal pancreatectomy
 - total pancreatectomy
 - subtotal (distal 95%) pancreatectomy
 - longitudinal pancreaticojejunostomy (Puestow Procedure)
 - internal drainage of pseudocysts (cystogastrostomy, cystoduodenostomy, Roux-en-Y cystojejunostomy)
 - explain the technical details of the above procedures, including the options available and the pros and cons of each.
 - Describe the common complications associated with surgical management of diseases of the pancreas.
 - Summarize the principles of perioperative management of diseases of the pancreas.
8. Assist in the perioperative management of patients undergoing hepatobiliary surgery.
9. Assist in perioperative management of patients undergoing pancreatic surgery.

10. Perform uncomplicated hepatobiliary surgery under supervision, such as cholecystectomy, both laproscopic and open, with operative cholangiography.
11. Assist in more advanced hepatobiliary operations.
12. Perform minor pancreatic procedures under supervision such as external drainage of pseudocyst or internal drainage via cystgastrostomy.
13. Perform, under supervision, increasingly complex hepatobiliary surgery:
 - laparoscopic cholecystectomy with cholangiography
 - common bile duct exploration with choledochoscopy
 - biliary drainage procedure, such as:
 - a. choledochoduodenostomy
 - b. Roux-en-Y and loop choledochojejunostomy
 - c. Cholecystojejunostomy
 - d. Sphincteroplasty
 - e. Drainage of liver abscess
 - f. Peritoneovenous shunts
 - g. Complicated cholecystectomy – acute, gangrenous
 - h. Simple liver resection
14. Perform increasingly complex pancreatic surgery, such as:
 - internal drainage of pseudocysts with Roux-en-Y cystjejunostomy
 - longitudinal pancreaticojejunostomy (Puestow Procedure)
 - distal pancreatectomy
 - biliary bypass for carcinoma
15. Participate in complex hepatic and biliary surgery including the performance of procedures appropriate for the individual skills and ability:
 - anatomic liver resection
 - portovenous decompression procedures
 - complicated procedures on extrahepatic bile ducts for:
 - a. cholangiocarcinoma
 - b. choledochal cyst
16. Supervise and instruct junior house staff in minor hepato-biliary procedures.
17. Perform complex pancreatic procedures such as:
 - pancreatic resection (i.e., Whipple resection, total or subtotal pancreatectomy)

- operative debridement and drainage of pancreatic abscess or infected necrosis
- local resection for ampullary tumors.

18. Supervise and instruct junior house staff in minor pancreatic procedures.

MEDICAL EXPERT

Carcinogenesis, Invasion and Metastasis

Terminal Objectives

The fellow should understand the current theories of carcinogenesis, including the effects of environment, family history and viral factors.

The fellow should understand the basic principles of invasion and metastasis.

Enabling Objectives

- A. The fellow should understand and be able to describe:
 1. Hormones, including the effect of:
 - antenatal estrogens on vaginal and cervical malignancies
 - exogenous estrogen administration
 - tamoxifen therapy
 - aromatase inhibitors
 2. Radiation, including the:
 - increased risk of sarcomas and other malignancies in previously radiated tissues
 - risks of diagnostic radiation procedures.
 3. Chemotherapeutic agents, including the:
 - risk of myelodysplastic disorders, including leukemia after exposure to alkylating agents and other chemotherapies
 - risks of the fetus of maternal chemotherapy.
 - All major side-effects associated with different classes of chemotherapy agents.

4. The relationship of herpes, papillomavirus infections and other viruses.
5. Environmental contaminants such as the relationship of talc and asbestos to ovarian and other malignancies, and smoking to lower genital tract cancer.
6. Genetic mutations (e.g., BRCA1, etc.) and their relationship to various cancers.
7. Known familial patterns in breast, endometrial, ovarian and colon cancer.
8. The basic biology of neoplastic cells, including:
 - Structure (nuclei, cytoplasm and membranes).
 - Enzymology and metabolism.
9. The cell cycle, including the following phases.
 - G1
 - S
 - G2
 - M
 - G0
10. The patterns of spread of solid cancers.
11. The principles of tumor invasion and metastasis, including:
 - Tumor initiation
 - Uncontrolled proliferation
 - Angiogenesis
 - Invasion of local tissues, lymphatics and blood vessels
 - Colony formation of distant sites
 - Tumor cell migration

Teaching Methods

1. Through the respective rotations
2. Special basic science lectures
3. Books

MELANOMA

Terminal Objective

The candidate will be able to diagnose, stage, treat and follow a patient with Melanoma.

Enabling Objectives

- A. With regards to melanoma the candidate will:
1. Explain the gross and histological appearance.
 2. List the pathological sub-types and their characteristics.
 3. Report the routes of spread.
 4. Report Clarks, Breslows and the TMN staging systems. What is the prognostic significance of each?
 5. Outline the appropriate pre-operative work-up.
 6. Explain and perform the appropriate surgical treatment for the primary, including width of margins.
 7. Specify the indications for and perform sentinel node biopsy.
 8. Specify the indications for nodal basin dissection.
 9. Describe and perform axillary and ileo-inguinal node dissection.
 10. Describe the current role of chemotherapy, radiation therapy, immunotherapy and limb perfusion.
 11. Outline a follow-up plan.

12. Specify the pattern for metastasis and develop the appropriate management.

NEURO-ENDOCRINE

Adrenal

Enabling Objectives

A. Cognitive

1. Understands the anatomy and embryology of the adrenal glands, including the cortex and the medulla.
2. Able to define a differential diagnosis or an incidentally discovered adrenal lesion, including appropriate screening and testing following the history and physical examination.
3. Able to recognize the clinical endocrinopathies of Cushing's disease, pheochromocytoma, renal portocarcinoma and Conn's syndrome.
4. Able to appropriately investigate a patient with Cushing's syndrome, including interpretation of a urinary cortisol.
5. Understands low and high dose dexamethasone suppression test and their sensitivity and specificity.
6. Understands the appropriate use of an ACTH test.
7. Able to define and recognize the differences in evaluation of differential diagnosis of Cushing's syndrome.
8. Able to describe the appropriate investigations, including aldosterone / renin ratios, selective venous sampling for those patients with Conn's syndrome.
9. Able to describe the appropriate investigations in the differential of an adrenal cortico-carcinoma.

10. Able to define the appropriate evaluations in preoperative assessment of a patient with a pheochromocytoma. This would include the preoperative blockade of such patients in the intraoperative and postoperative management.
11. Understands the surgical management of Cushing's disease, Conn's syndrome, pheochromocytoma and adrenal corticocarcinoma, and metastatic lesions to the adrenal gland.
12. Able to develop an algorithm for the work-up for an incidentalomas ranging from 1 to 6 cm in sized.
13. Understands and knows the management of complications arising from adrenal surgery, including changes in the endocrinopathy, bleeding, and pancreatitis.

B. Psychomotor

1. Able to perform an adrenalectomy both on the left and on the right side through an open approach as well as a laparoscopic adrenalectomy. Doing so must be able to identify the important structures including the adrenal vein, adrenal hilum, the IVC and the pancreas.

C. Attitudinal

1. Is aware of the prognosis adrenal corticocarcinomas and the high incidences of recurrence in these patients and dealing with their disease.
2. Recognizes the drawn out long term management of patients that present with Cushing's disease.
3. Recognized the use of fine needle aspiration in the work-up of an adrenal lesion and its counter indication in most patients.

Carcinoid

Enabling Objectives

A. Cognitive

1. Able to describe the location of all potential carcinoid tumors, including, foregut, hindgut and midgut.
2. Able to give the natural history of a bronchial carcinoid.
3. Able to describe the three types of gastric carcinoids and their prognosis and different presentations.
4. Able to describe the duodenal and pancreatic carcinoids and their clinical manifestations.
5. Able to describe the clinical manifestations of small bowel carcinoids and their natural history and long term prognosis with lymph node metastases and liver metastases.
6. Able to describe the natural history of appendiceal carcinoid.
7. Understands the surgical interventions of appendiceal carcinoid depending on its size and when to perform a hemicolectomy.
8. Understands the natural history of colonic and rectal carcinoids.
9. The diagnosis and management of carcinoids syndrome, including carcinoid cardiovascular disease as well as the manifestations, the peripheral cutaneous manifestations.
10. Understands the pathophysiology of carcinoid syndrome and the most likely tumors to create such a syndrome.
11. Understands the mechanism of action of octreotide and its effect on carcinoid and carcinoid syndrome.
12. Able to describe the current work-up and investigation for a carcinoid patient, including octreotide, MIBG, MRI, urinary 5-HIAA and chromogranin A.
13. Able to describe the sensitivity and specificity of all the above.

14. Knows the management of carcinoid and carcinoid syndrome and is able to manage the complications following such surgery such as carcinoid crisis.

B. Psychomotor

1. Able to perform a small and large bowel resection of carcinoid tumors.
2. Can assist in the resection and radiofrequency of ablation of carcinoids within the liver.

C. Attitudinal

1. Is aware of longterm sequela of carcinoid syndrome and the palliative care required for these patients, including their cardiac, as well cutaneous manifestations.

Neuroendocrine Tumors

Enabling Objectives

A. Cognitive

1. Able to classify neuroendocrine tumors, islet cell tumors such as gastrinomas, insulinomas, somatostatinomas and glucagonomas.
2. Able to describe the endocrinopathy associated with each of the above islet cell tumors, including their incidence with hereditary endocrine neoplasia.
3. Able to describe the natural history of gastrinomas, insulinomas.
4. Able to describe the work-up of a neuroendocrine tumor if a specific investigations for each of the above endocrinopathy, including secretin stimulation tests, selective venous sampling.
5. Able to describe the incidence of metastatic disease with each of the above, neuroendocrine tumors.

6. Knows the sensitivity and specificity of MRI, CT, endo-ultrasound, octreotide scan for each neuroendocrine tumor.

B. Psychomotor

1. Understands the principals of surgical exploration for a insulinoma, including the preoperative investigations and the bi-manual palpation of the entire pancreas.
2. Understands the approach and surgical exploration for a sporadic gastrinoma, including a bi-manual palpation of the pancreas, duodenotomy, lymph node biopsy.

C. Attitudinal

1. Is aware of the controversy of the gastrinoma in the face of MEN1 patients'.
2. Is aware of the difficulty in preoperative localization of small neuroendocrine tumors and the necessity for surgical exploration without any preoperative investigation.

PALLIATIVE CARE

Introduction

Symptom control in the cancer population is still very poor - over 40% of patients dying of cancer have pain that is inadequately controlled. Palliative care settings offer excellent opportunities for the resident to face difficult clinical, communication and ethical issues in ward and outpatient settings.

Description of Program

The Palliative Care rotation involves training in the McGill University Health Centre (MUHC), at Montreal General Hospital (MGH) site. The Palliative Care Service provides care via interdisciplinary teams of nurses, physicians, psychologist, occupational therapist, music therapist, pastoral worker, bereavement counselors, volunteers, and attached anesthetist and psychiatrist consultants.

The resident will work on a specialized inpatient unit. He or she will get the opportunity to be an integral member of the consultation team at the Montreal General site, as well as working in outpatient clinics and in the Day Hospital.

The Palliative Care Service holds regular rounds during which all members of the multidisciplinary team meet. In addition, the Palliative Care McGill network holds monthly rounds in which management topics are reviewed in a more formal manner. There are weekly symptom management rounds and journal club.

Enabling Objectives

A. General

1. The resident will be able to:
 - understand the core concepts, principles, skills and attitudes of palliative care. This involves a holistic, person and family-centered approach.
 - understand the importance of self-reflective skills and ongoing awareness of one's own personal issues and concerns in the area of death and dying.
 - use evidence-based decision-making in caring for dying patients and their families.
 - understand the MD role when life-prolonging treatment becomes futile.
 - effectively use other team members to optimize the care of dying patients
 - demonstrate an ongoing commitment to the patient and family from the time of first consultation until the patient dies
 - understand the various levels of palliative care expertise available, to know one's limits and to be able to effectively consult if required.

B. Symptom Control

General Symptom Control Objectives

1. The resident will be able to:
 - understand the general principles of drug treatment in the chronically ill population with compromised metabolic function.
 - understand the role of palliative surgery, radiotherapy, chemotherapy, and hormone therapy.

Specific Symptoms

1. Pain
 - obtain a pain history and to identify specific pain syndromes, including more complex syndromes, and correlate the presence of pain with specific anatomic and pathophysiologic abnormalities.

- understand responsiveness or resistance to opioids, and the use of different opioids, co-analgesics, and various routes of delivery
 - understand the use of non-drug treatments
 - understand the indications for nerve blocks and other anaesthetic interventions
2. The resident will be able to manage:
- anorexia/cachexia
 - nausea and vomiting
 - constipation
 - bowel obstruction
 - mouth care and disorders
 - dyspnea and cough
 - ascites
 - depression and anxiety
 - delirium and confusion
 - genitourinary problems
 - j) lymphedema
 - tumour-related skin lesions

Emergencies

1. The resident will learn to manage emergencies in palliative care, including:
- spinal cord compression
 - hypercalcemia
 - massive hemorrhage
 - superior vena cava syndrome
 - acute severe dyspnea
 - overwhelming pain/ "pain crisis"

C. Psychosocial Aspects of Care

1. The resident will learn:
- to assess the patient's and family's expectations and styles of coping.
 - to better communicate with the patient and family, including:
 - a. active listening
 - b. dealing with difficult questions and treatment decisions
 - c. eliciting and dealing with fears
 - d. breaking bad news
 - dealing with anger, despair, and the conspiracy of silence
 - to give ongoing education to the patient and family

- to recognize the patient's and family's cultural and religious views regarding death and dying.
- to recognize emotional stress in oneself and to learn to decrease one's stress by having insight into one's own limitations and by seeking appropriate support from the health care team.
- to be aware of high-risk situations which may lead to complicated grief in family members, and which should be referred for appropriate care
- to demonstrate effective communication skills when dealing with other team members

D. Ethics

The resident will be able to:

1. understand ethical issues relevant to the care of the terminally ill, and will learn a general framework for ethical decision-making.
2. better manage complex ethical problems in this setting, including:
 - issues of control, autonomy, competency
 - DNR and advance directives
 - requests for terminal sedation and euthanasia
 - cases where a treatment is futile
3. demonstrate integrity, honesty and compassion in the care of patients and families.
4. act as an effective advocate for the rights of the patient and family when ethical issues arise

E. Organization of Services

The resident will learn:

1. how palliative care services are delivered in various settings including: Consultation Service, inpatient units, outpatient clinics and Day Hospital
2. about the resources required to support patients in their homes in the last months and weeks of life.

PATHOLOGY

For each organ system, other than central nervous system, blood, male and female genitourinary, the resident will:

1. Describe the molecular, cellular and tissue changes which occur in the development and spread (local regional, systemic) of cancer.
2. Describe the criteria for submission of surgical specimens, when cancer is suspected.
3. Describe the role and limitations of cytology and frozen section in the diagnosis and management of cancer.
4. Recognize the histologic features which allow tumor typing and grading at a basic level.
5. Describe the elements of pathologic grading and staging of cancers.
6. List the pathologic features, other than those used for grading and staging, that influence patient management – surgery, radiotherapy, chemotherapy, hormonal, other.
7. Recognize the level of certainty/uncertainty associated with ‘ambiguous terms’ used by pathologists.
8. List the pathologic ‘diagnoses’ where there is likely to be a lack of diagnostic agreement.
9. Describe the role of electron microscopy in cancer diagnosis.
10. Describe the role of serum, urine, and tissue markers in cancer diagnosis and management.
11. Describe the role of genetic markers in the development and management of cancer.

12. Describe the role of sentinel lymph node biopsy, the process for handling, and the significance of the pathologic findings in sentinel nodes.
13. List the benign and malignant tumors, tumors of uncertain malignant potential, borderline lesions, pseudotumors and infiltrative/non-neoplastic processes, as applicable.
14. List the methods used for identification of molecular and genetic marker of cancer.
15. Describe the value of tumor banking.

PHARMACOLOGY

Terminal Objectives

The fellow should know the following pharmacologic characteristics of the commonly used agents in each of the subsequent sections.

- Absorption
- Distribution
- Biotransformation
- Excretion
- Time course of drug effect (pharmacokinetics)

Enabling Objectives

A. **Nutrition** – The fellow should understand the pharmacology of:

1. the use of total parenteral nutrition (TPN), including the:
 - indications
 - routes of administration
 - composition of solutions to be used
 - vitamin and mineral supplements
 - complications of TPN and venous access sites associated with:
 - a. renal insufficiency, and
 - b. hepatic insufficiency
2. gastrointestinal alimentation, including the:
 - indications
 - composition of preparations available
 - complications

B. **Pharmacology of Wound Healing** – The fellow should have a general knowledge of the role of:

1. vitamins
 2. trace metals

 3. growth factors
 4. chemotherapy
 5. radiation therapy
- C. **Hematinics:** As applied to treatment of tumor-related and treatment-related anemias – The fellow must understand the use, effects and side effects of these agents.
- D. **Antimicrobial Agents** – The fellow should know:
1. the principals of “prophylactic” antibiotic therapy
 2. the mechanism of action of major antibiotic agents
 3. the major toxicity of these agents
 4. how to select appropriate therapeutic agents or combination of agents
- E. **Analgesics and Hypnotics** – The fellow should have general knowledge of the:
1. choice of drugs in the face of significant hepatic or renal disease
 2. identification and management of overdoses
 3. control over severe pain
 4. control of chronic pain (WHO guidelines)
 5. use of adjuvants in control of pain
 6. conversion from IV to oral medication in pain control
- F. **Anesthetic Agents** – The fellow should have general knowledge of the:
1. inhalant agents, including the:
 - metabolism
 - effects of renal and hepatic impairment
 - toxicities
 - cardiovascular effects

2. Agents used for regional, topical and local analgesia, as well as the:
 - toxicities
 - metabolism
 - effects of renal and hepatic impairment
 - hypersensitivities
 - cardiovascular and neurologic effects
- G. **Anticoagulants** – The fellow should know the:
1. Mechanism (s) of action of short acting (heparin) and long acting (Coumadin) anticoagulants
 2. Indications for and complications of heparin and of Coumadin therapy
 3. Indications for and complications of prophylactic (“minidose”) heparin
 4. Indications for and complications of low molecular heparin
- H. **Cardiovascular Drugs** – The fellow should know the indications and use of:
1. Cardiotonic drugs in the management of cardiac decompensation and cardiac arrhythmias
 2. Diuretics in the management of cardiac decompensation and hypertensive disorders
 3. Vasoactive drugs in the management of septic shock and hypertension
 4. Calcium channel antagonists in the management of cardiovascular disorders
- I. **Miscellaneous** – The fellow should have general knowledge of the indications and uses of:
1. Histamine (H₂) receptor antagonists
 2. Anti-depressants
 3. Anticonvulsants
 4. Insulin and oral hypoglycemics

5. Antiemetics
6. Steroids
7. Drugs that modify gastrointestinal function

Teaching Methods:

1. Lectures by pharmacist.
2. Elective in oncologic pharmacy work.

RADIATION ONCOLOGY

Terminal objectives

1. To form a management plan for neoplasia that includes the appropriate use of radical, adjuvant and palliative radiotherapy.
2. To appropriately advise patients and colleagues of the role of multidisciplinary assessment and care in the management of neoplasia.
3. To recognise and appropriately advise patients about the acute and late toxicity of radical and adjuvant radiotherapy, and of the interaction between surgical and radiation-related morbidity.

Enabling objectives

A. Cognitive

1. Describe the importance of the role of multidisciplinary assessment and care in the management of head and neck, thyroid, breast, soft-tissue and gastro-intestinal malignancies, and participate in multidisciplinary tumour boards.
2. To describe the role of radiotherapy in the management of head and neck, thyroid, breast, soft-tissue and gastro-intestinal malignancies, through self-learning, attendance at tumor boards, radiation oncology clinics and radiation planning sessions, surgical oncology clinics and didactic sessions.
3. To understand the relative merits of the timing of radiotherapy adjuvant to surgery for rectal cancer and soft tissue sarcoma, through self-learning, attendance at tumor boards, radiation oncology clinics and radiation planning sessions, surgical oncology clinics and didactic sessions.

4. To know the differences between radical, adjuvant and palliative radiotherapy through self-learning, attendance at tumor boards, radiation oncology clinics and radiation planning sessions, surgical oncology clinics and didactic sessions.
5. To understand the concept of fractionation for radiotherapy by means of self-learning, and attendance at radiation oncology clinics and radiation planning sessions, and didactic sessions.
6. To know the steps in patient assessment and planning of a course of radical or adjuvant radiotherapy through attendance at radiation oncology clinics and radiation planning sessions.
7. To know the differences between acute and late radiation related toxicity, and the effects of adjuvant radiation on wound healing through self-learning, and attendance at radiation oncology clinics, surgical oncology clinics and didactic sessions.
8. To know the role of radiotherapy in the management of cancer related emergencies such as spinal cord compression, SVC obstruction and uncontrolled hemorrhage, through self-learning, attendance at tumor boards, radiation oncology clinics and radiation planning sessions, surgical oncology clinics and didactic sessions.

B. Technical

16. To recognize and manage acute and late radiation reactions consequent to radiotherapy to the head and neck, breast, abdomen and pelvis through self-learning, and attendance at radiation oncology clinics and surgical oncology clinics.

SARCOMA

Desmoid Tumors

Enabling objectives

With regard to Desmoid Tumors, the candidate will demonstrate the following skills:

A. Cognitive

1. Define benign proliferative disorders of the soft tissues, distinguishing between scar keloid, desmoid, and fibrosarcoma.
2. Classify benign disorders of the soft tissue tumors.
3. Describe the pathology of these disorders.
4. Describe the presentations of these lesions discussing their natural history, work-up, and treatment.
5. Describe the adjuvant treatments and their mechanism of action.
6. Discuss the management of recurrent benign tumors.
7. Describe the management of intra-abdominal desmoids including surgery, drugs, and hormones.
8. Discuss the indications for amputation.

B. Psychomotor

1. Do a complete history and physical examination of the patient with desmoid tumour.

2. Detail a complete evaluation plan and treatment for a patient with an extremity, trunk or intra-abdominal desmoid.
3. Plan and assist in operative procedure based on an accepted plan of treatment.
4. Detail a plan for follow-up and participate in such a plan.
5. Detail a plan with an interdisciplinary team to manage a recurrence.

C. Attitudinal

1. Appreciate the patient perspective of a cancer-like growth with its attendant morbidity of surgery, radiotherapy, and/or chemotherapy.
2. Understand the psychological struggles with recurrence and body disfigurement associated with these tumours.

Retroperitoneal Sarcoma

Enabling Objectives

With regards to Retroperitoneal Sarcoma, the candidate will demonstrate the following skills:

A. Cognitive

1. Classify the sarcomas that occur in the retroperitoneum.
2. Describe the clinical presentation of the patient with a retroperitoneal sarcoma.
3. Describe a diagnostic approach with a patient with a retroperitoneal mass including clinical exam, radiological exam, and other diagnostic measures.
4. Describe the natural history of retroperitoneal sarcomas with various modalities of treatment including surgery only, surgery plus radiotherapy, radiotherapy only.
5. Describe the natural course of recurrence of this disease and strategies for management.

6. Describe the role of adjuvant radiotherapy and chemotherapy.
7. Describe the approaches for palliation of this disease with surgery and other therapeutic modalities.
8. Discuss the management of metastatic disease to the liver.

B. Psychomotor

1. Participate in the history and physical of a patient with retroperitoneal sarcoma.
1. Outline a treatment plan including diagnosis, discussion with patients, getting consent, and participate in a plan which may include radiotherapy, pre- or post-operatively, as well as a surgical resection.
2. Examine a number of patients who have had this disease in follow-up clinics.

C. Attitudinal

1. Become aware of the difficulties in long-term local control of this disease.
2. Be able to discuss the potential for recurrence and palliative support for patients with this disease.
3. Be able to identify the issues around transperitoneal biopsy and the spread of this disease secondary to surgical manoeuvres.

STATISTICS AND EXPERIMENTAL DESIGN

Terminal Objective

The fellow should demonstrate sufficient knowledge of epidemiology and statistical methods to design and interpret research.

Enabling Objectives

- A. The fellow should be able to describe and interpret principles of epidemiology with regard to:
 1. descriptive epidemiology including:
 - disease incidence/prevalence
 - adjustment of disease rates
 2. causality of disease including:
 - criteria for judging causality
 - quantitative assessment (relative risk, odds ratio)
 3. disease or risk factor screening including:
 - criteria for establishing a screening program
 - quantitative assessments (sensitivity/specificity, receiver-operator characteristics curve)
 4. study design including:
 - experimental (e.g., randomized clinical trials)
 - observational (e.g., prospective cohort, retrospective cohort, case-control)
 5. appropriate conduct of study including:
 - calculation of power
 - case selection
 - control selection

- randomization
 - human subject rights
 - avoidance of bias
 - avoidance of confounding variables
- B. The fellow should be able to explain:
1. descriptive statistics including
 - measures of central tendency
 - measures of dispersion
 2. statistical estimates of variability (confidence interval)
 3. inference (hypothesis testing) including
 - confidence intervals
 - non-parametric testing (e.g., rank sign test)
 - multiple sample tests (e.g., analysis of variance), and
 - differences in proportions (e.g., multiple regression and logistic regression)
- C. The fellow should know when to seek statistical consultation for research planning.
- D. The fellow should know the importance, use and limitations of computers in storage and analysis of data.

Teaching Methods

1. One-to-four week course in Epidemiology/Biostatistics.
2. Discussions at special journal clubs (every 3rd Thursday).
3. Participation in clinical research.

STOMACH

Terminal Objectives

1. Form an appropriate plan of management for a patient with suspected or proven gastric malignancy.
2. Choose and execute the appropriate gastric resection.

Enabling Objectives

A. Cognitive

1. Be able to list and describe the histological subtypes of gastric malignancy and know the factors predisposing to each.
2. Recognize the prognostic significance of each histological subtype.
3. Be familiar with the staging classification of gastric lymphoma, adenocarcinoma and mesenchymal tumours, in particular GIST.
4. Appreciate the role of chemotherapy and radiation therapy in patients with each histological subtype of tumour.
5. Read and know the results of the Intergroup 0116 trial of adjuvant chemoradiation for completely resected gastric adenocarcinoma.
6. Understand the mechanism of action of STI-571, observe patient response to the drug clinically and radiologically, and follow the literature regarding its evolving role.
7. Recognize the indications for neoadjuvant therapy.
8. Formulate and defend a personal practice plan for decision making regarding resectability for cure.

9. Formulate and defend a personal practice plan for decision making regarding resectability for palliation.
10. Read the randomized control trials of total vs subtotal gastrectomy and of D1 vs D2 dissection for adenocarcinoma.
11. Be familiar with the technical details of a D0, a D1 and a D2 dissection.
12. Review and be familiar with the Muriyama scale for assessing risk of residual disease.

B. Technical

1. Perform diagnostic upper GI endoscopy with biopsy.
2. Order and interpret appropriate imaging studies.
3. Perform staging laparoscopy.
4. Perform staging laparotomy.
5. Assess resectability intraoperatively.
6. Correlate results of imaging studies with intraoperative findings.
7. Perform a D0, a D1 gastrectomy; illustrate steps of a D2 gastrectomy.
8. Make appropriate use of frozen section analysis.
9. Interpret the final pathology report and recommend further therapy as appropriate.
10. Follow and assess patients after gastrectomy as inpatients on the ward and as outpatients in the clinic.
11. Recognize and manage early and late postoperative complications after subtotal and total gastrectomy.
12. Formulate and defend a personal practice plan for following patients after gastrectomy for each histological subtype of tumour.
13. Recognize and manage patients with recurrent gastric cancer.
14. Refer to and interact with palliative care team members.

TUMOR IMMUNOLOGY

Terminal Objectives

The fellow should know the essential components of the immune system.

Enabling Objectives

- A. **Definitions** – The fellow must be able to define:
4. antigen and antibody
 5. and describe the origin and function of “B cells”
 6. five (5) classes of antibodies and describe their manufacture and function
 7. and describe the origin and function of “T cells”, and the three (3) major subsets of “T cells”
 8. and list cytokines which may have medical application (e.g., TNF, interleukins, interferon, etc.) and complement and describe its origin, function and underlying mechanism (s) of action.
- B. **Immune Responses** – The fellow must be able to define:
1. the mechanism of antibody production following exposure to antigen
 2. and describe the mechanisms of cytotoxic lymphocytes following exposure to foreign tissue antigens or other antigenic substances
 3. and list the function (s) of the major cytokines as effector mechanisms, alone and in combination.
 4. the mechanism (s) of immediate and delayed hypersensitivity.
 5. and differentiate between humoral-mediated response and cell-mediated response.

6. and describe mechanisms of cell-mediated cytotoxicity.
 7. and give examples of immunosuppression, enhancement and tolerance.
 8. and describe the effect of nutritional depletion on the immune system and the methods to monitor this effect.
- C. **Tumor Immunology** – The fellow should know the current data cited as evidence that the immune system is involved with neoplastic processes and must be able to:
1. distinguish between:
 - tumor-specific transplantation antigen (TSTA).
 - Tumor-associated antigens (TAA).
 - Human leukocyte antigen (HLA).
 2. describe:
 - the theory of immunologic surveillance and loss of rejection.
 - the occurrence of neoplasms in immunodeficient and immunosuppressed individuals.
 - the specific antigenicity found in tumors induced by chemical carcinogens.
 - the convers antigenicity found in tumors induced by viral carcinogens.
 - the immunologic evidence for viral oncogenesis.
 - the significance of carcinoembryonic antigen (CEA), alpha-fetoprotein (AFP) and human chorionic gonadotropin (hCG) in patients with malignancies.
 - evidence for tumor associated antigens in gynecologic malignancies.
 - the use of serum tumor markers, e.g., CA-125, CA 19-9, CEA and TA-4, in gynecologic cancer.
- D. **Immunotherapy** – The fellow must be able to define and describe:
- the three methods of cellular immunotherapy (i.e., active specific, active nonspecific and passive) and describe the principle (s) for their use.
 - the medical uses of cytokines
 - how monoclonal antibodies are generated and how they are applied to cancer biology for diagnosis and therapy.

Teaching Methods

1. Reference books/articles
2. Courses/lectures
3. Participation in clinical care (immunotherapy)

CANMED ROLES

COMMUNICATOR

Terminal Objectives

The candidate will be proficient in obtaining a thorough and relevant history by conducting a successful physician-patient encounter:

- opening the encounter
- gathering information
- eliciting and understanding the patient's perspective
- sharing information
- reaching agreement on the problem and plans
- closing the encounter
- developing a diagnostic plan and treatment plan (shared decision making with patient)
- educating the patient about the diagnosis and treatment plan
- obtaining informed consent for surgical procedures and treatments
- discussing the results of the tests/procedures
- communicating with patients and family
- communicating with members of the health care team
- communicating with referring physician
- breaking bad news
- obtaining DNR status
- dealing with difficult surgeon-patient/family encounters
- presentations at teaching and patient care rounds
- Do all of the above despite ethno-cultural background different from the physician's own.

CANMED ROLES

COLLABORATOR

Terminal Objectives

Residents **must** be given opportunities to develop effective collaborative skills:

- to work effectively with all members of the multi-disciplinary patient care team
- to consult with other physicians and health care professionals to provide optimal care of patients
- in conflict resolution.

Enabling Objectives

The resident will:

- Demonstrate the ability and willingness to work effectively with other professionals.
- Demonstrate interpersonal skills facilitating communication and cooperation with other health professionals.
- Deal with unprofessional behavior in colleagues in an effective manner to ensure optimum care of patients.
- Resolve conflicts with colleagues over practice or ethical issues in a professional and effective manner.

CANMED ROLES

MANAGER

Terminal Objectives

Residents **must** be given opportunities to develop skills in management and administration as applied to their specialty or subspecialty such as efficient practice and records management and the ethical use of health care resources.

The program **must** provide residents with opportunities to gain an understanding of the principles and practice of quality assurance/improvement. Opportunities *should* be provided for residents to participate actively in such programs in their hospital departments.

Enabling Objectives

The resident will:

- Practice evidence based medicine and be capable of analysis of data for outcome measures.
- Acquire skills in critical evaluation of the surgical literature, including an understanding of the design of prospective and retrospective clinical studies.
- Have knowledge and understanding of clinical trials in surgical therapies.
- Maintain a record or participation in morbidity and mortality conferences, clinical research conferences, and programs of continuing self-education.
- Allocate finite health care resources wisely in relation to patient care and cost effectiveness.

CANMED ROLES

HEALTH ADVOCATE

Terminal Objectives

Residents *should* be prepared for their role as a health care advocate in their specialty or subspecialty. They *should* learn to advocate both for their patients and for the community in which they practice.

During their training, residents *should* learn about disease prevention and public health and environmental issues as is appropriate to the specialty or subspecialty. They *should* be prepared to support initiatives in these areas.

Residents *should* be aware of the organizations that support safe standards for the welfare of patients and society.

Residents *should* be encouraged to participate in projects to improve standards of health care for both individuals and the community.

Enabling Objectives

The resident will:

Participate in committee meetings and retreats related to the development and delivery of the cancer program.

Be competent in the areas of epidemiology of disease, and effective health measures that influence health behaviour such as smoking prevention.

Be conversant with the Canada Health Act and be aware of other health systems and their advantages and disadvantages.

Be knowledgeable about the literature on for profit and not for profit care in terms of costs and outcomes.

Be conversant with both medical and non medical bodies that establish and uphold standards of care.

Be knowledgeable and to meet with members of health advocacy groups such as Road to Recovery, Cancersurmount, and the Canadian Cancer Society.

CANMED ROLES

SCHOLAR

Terminal Objectives

Residents **must** be given opportunities to develop effective teaching skills by teaching junior colleagues and students, as well as through conference presentations, clinical and scientific reports, and patient education.

The academic program **must** provide the opportunity for residents to learn biostatistics and the critical appraisal of research methodology and medical literature.

All programs **must** promote development of skills in self- assessment and self- directed life- long learning.

A satisfactory level of research and scholarly activity **must** be maintained among the faculty identified with the program as evidenced by activities such as:

- research grants to staff and other research expenditures;
- publication by staff in peer-reviewed journals;
- involvement by staff and residents in current research projects.

There **must** be a faculty member with the responsibility to facilitate the involvement of residents in research and other scholarly work. Residents *should* be encouraged to participate in clinical research during the course of the residency program. Clinical research is defined as research involving human subjects or experimental studies of direct clinical relevance. Acceptable clinical research projects may include:

- analysis of a contemporary clinical problem, using acceptable statistical methods as required, the results of which are reported at local or national meetings and are eligible for publication in scientific journals; or
- supervised participation in an ongoing project in experimental medicine

The program *should* provide opportunities for residents to attend conferences outside their own university.

Enabling Objectives

The resident will:

- Maintain a personal library and reference system.
- Know how to access resources related to a patient problem from all available sources.
- Present a topic with pertinent review of literature at a conference.
- Utilize continuing professional development for self study and assessment.
- Be honest and show integrity in performing and reporting scientific inquiry.
- Engage in education of colleagues and the public.

CANMED ROLES

PROFESSIONAL

Terminal Objectives

The program **must** ensure that each resident develops the knowledge skills and attitudes to:

- deliver the highest quality care with integrity, honesty, and compassion;
- exhibit appropriate professional and interpersonal behaviours;
- practice medicine in an ethically responsible manner.

The program **must** ensure that the residents gain an understanding of the basic principles and practice of biomedical ethics as it relates to the specific specialty or subspecialty.

The program *should* provide residents with knowledge of relevant legislation and regulations to guide practice in the specialty or subspecialty.

Residents **must** be guided to develop an appropriate balance between personal and professional life to promote their own physical and mental health and well being as an essential to effective life long practice.

Enabling Objectives

The resident will:

- Always show concern for the patient's well being, delivering care with integrity, honesty and compassion

- Be emphatic particularly when delivering bad news, obtaining informed consent, performing advance care planning or withdrawing life-sustaining treatment, seeking organ donation, and seeking consent for postmortem examination.
- Be aware of the limits of his/her knowledge and skills and seek appropriate assistance.
- Understand and apply the concept of graded responsibility of clinical practice, including being able to delegate as well as accept responsibility, and demonstrate leadership by supporting subordinates who act on their behalf.
- Be receptive to constructive criticism of performance by supervisors, peers, and paramedical personnel.
- Be able to recognize his/her own deficiencies in training and/or education and communication concerns to the Program Director.
- Assess appropriate assistance for substance abuse.
- Be diligent in meeting obligations (academic, clinical, and personal) and accepting the consequences of one's actions or lack thereof.

The resident can apply the ethical and legal principles relating to:

- Confidentiality and access to health records
- Record keeping
- Informed consent
- Obtaining permission for autopsy.
- Autonomy
- Paternalism
- Beneficence
- Non-maleficence
- Withholding resuscitative measures
- Organ and tissue donation
- Brain death
- Professional misconduct