Objectives of Training in the Subspecialty of General Surgical Oncology

This document applies to those who begin training on or after July 1st, 2009.

DEFINITION

General Surgical Oncology is that branch of surgery concerned with the study, diagnosis and management of cancer. Within the multidisciplinary and interprofessional cancer care team belong General Surgical Oncologists with special training, interest and expertise in oncology who also have the skills to be teachers and leaders in the field of cancer treatment.

GOALS

Upon completion of training, a resident is expected to be a competent subspecialist in General Surgical Oncology capable of assuming a consultant’s role in the subspecialty. The resident must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in the basic medical sciences and research.

Only candidates certified by the Royal College of Physicians and Surgeons of Canada in General Surgery may be eligible for certification in General Surgical Oncology.

Residents must demonstrate the requisite knowledge, skills, and attitudes for effective patient-centred care and service to a diverse population. In all aspects of specialist practice, the graduate must be able to address ethical issues and issues of gender, sexual orientation, age, culture, and ethnicity in a professional manner.

GENERAL SURGICAL ONCOLOGY COMPETENCIES

At the completion of training, the resident will have acquired the following competencies and will function effectively as a:

Medical Expert

Definition:

As Medical Experts, General Surgical Oncologists integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centred care. Medical Expert is the central physician Role in the CanMEDS
Key and Enabling Competencies: General Surgical Oncologists are able to...

1. Function effectively as General Surgical Oncology consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centred medical care
   1.1. Perform a consultation, including the presentation of well-documented assessments and recommendations in written and/or verbal form in response to a request from another health care professional
   1.2. Demonstrate effective use of all CanMEDS competencies relevant to General Surgical Oncology
   1.3. Identify and appropriately respond to relevant ethical issues arising in patient care
   1.4. Demonstrate the ability to prioritize professional duties when faced with multiple patients and problems
   1.5. Demonstrate compassionate and patient-centred care
   1.6. Recognize and respond to the ethical dimensions in medical decision-making
   1.7. Demonstrate medical expertise in situations other than patient care, such as providing expert legal testimony or advising governments, as needed

2. Establish and maintain clinical knowledge, skills and attitudes appropriate to General Surgical Oncology
   2.1. Apply knowledge of the clinical, socio-behavioural, and fundamental biomedical sciences relevant to General Surgical Oncology, including knowledge of the principles of oncology and knowledge specific to the anatomical sites and specific neoplastic processes considered to fall within the purview of General Surgical Oncology, including but not limited to tumour biology, carcinogenesis, tumour markers, tumour pathology, and cancer immunology
      2.1.1. Cancer epidemiology, prevention, screening and early diagnosis of cancer
      2.1.2. Surgically curative and palliative techniques
      2.1.3. Natural history of gastro-intestinal (GI) cancer, breast cancer, endocrine cancers, sarcomas, and melanomas
      2.1.4. Paraneoplastic syndromes and their management
      2.1.5. Oncologic emergencies such as superior vena cava syndrome and hypercalcemia
      2.1.6. Decision-making processes regarding the staging of cancer in individual patients of all ages at time of diagnosis and during the course of a treatment program
      2.1.7. Principles of systemic and regional therapy, and of clinical pharmacology as applied to cancer chemotherapy:
         2.1.7.1. Cell biology
         2.1.7.2. Mechanisms of action, pharmacology and toxicity of chemotherapeutic agents

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2.1.7.3. Biologic response modifiers

2.1.8. Principles of radiobiology and radiation physics, therapeutic methods and radioactive sources and the possible complications of radiotherapy

2.1.8.1. External beam directed therapy, brachytherapy and radio-isotope therapy

2.1.8.2. Management, including surgery, of early and late radiation induced complications

2.1.8.3. Diagnosis and management of metastatic disease

2.1.9. Pathologic features of different types of cancer

2.1.10. Specific diagnostic procedures that are available for precise tumour diagnosis

2.1.11. PRINCIPLES OF SURGICAL ONCOLOGY OF THE BREAST

A. Imaging

2.1.11.1. Techniques of diagnostic mammography, including the BI-RADS nomenclature, recommendations for additional views, and mammographic characteristics of benign and malignant disease

2.1.11.2. Indications for and possible future applications of ultrasound and magnetic resonance imaging (MRI) in the management of malignant and benign breast disease

2.1.11.3. Complexities, advantages and disadvantages of breast screening trials in women of different age groups

B. Pathogenesis/Genetics

2.1.11.4. Patients at high risk for developing breast cancer, including risk factors such as pathologic, familial, genetic, and previous cancer inducing therapies (i.e. childhood radiation)

2.1.11.5. Estimations of risk by contemporary models and risk reduction by screening, medication, and surgery

2.1.11.6. Indications, usefulness, costs, complications and privacy issues of genetic testing

2.1.11.7. Pathology findings as they influence risk

C. Pathology

2.1.11.8. Benign and malignant breast disease

2.1.11.9. Optimal techniques for marking, processing and assessing the pathology specimen

2.1.11.10. Special pathology issues pertinent to the treatment of breast cancer
2.1.11.11. Immunohistochemical stains, cytology, and tumor markers and other indicators of prognosis and their relevance to treatment
2.1.11.12. Clinical and pathological staging

D. Medical Oncology
2.1.11.13. Indications and contraindications for adjuvant systemic chemotherapy and hormonal therapies
2.1.11.14. Mechanism of action; risks, benefits and indications of existing and developing targeted therapies
2.1.11.15. Commonly prescribed chemotherapy and hormonal agents, including their associated acute and chronic toxicities
2.1.11.16. Indications, techniques and interdisciplinary coordination required for neo-adjuvant chemotherapy

E. Radiation Oncology
2.1.11.17. Radiation therapy to the breast including: simulation, treatment planning, treatment delivery, and acute and chronic effects of therapy
2.1.11.18. Indications and contraindications of post breast conservation radiation therapy in both ductal carcinoma in situ and invasive carcinomas, post mastectomy radiation therapy, the management of chest wall recurrences
2.1.11.19. Common Ductal Carcinoma In Situ (DCIS) scoring systems and issues pertaining to the use of radiation therapy for DCIS
2.1.11.20. Indications for and techniques of palliative radiation procedures for locoregional relapse as well as metastatic foci
2.1.11.21. Indications for inclusion or exclusion of supraclavicular or internal mammary fields
2.1.11.22. Evolving technologies of more localized radiation techniques

F. Diagnostic Procedures and Resective Surgery
2.1.11.23. Indications and contraindications for common in-office procedures,
   2.1.11.23.1. Cyst aspiration
   2.1.11.23.2. Fine needle aspiration
   2.1.11.23.3. Percutaneous core biopsy with and without image guidance
   2.1.11.23.4. Punch biopsy of skin
2.1.11.24. Indications for techniques to achieve best surgical outcome, minimize trauma, and optimize cosmetic outcome for cancer operations for all major breast procedures

2.1.11.24.1. Breast biopsy
2.1.11.24.2. Wire localization biopsy
2.1.11.24.3. Duct excision
2.1.11.24.4. Lumpectomy
2.1.11.24.5. Simple mastectomy
2.1.11.24.6. Modified radical mastectomy with or without reconstruction
2.1.11.24.7. Axillary lymph node dissection
2.1.11.24.8. Sentinel lymph node mapping

2.1.11.25. Management of arm lymphedema as a complication of breast cancer treatment
2.1.11.26. Principles of surgical technologies such as percutaneous ablation, core vacuum resection, focused ultrasound, ductal lavage and ductoscopy

G. Plastic and Reconstructive Surgery

2.1.11.27. Role of reconstruction including tissue expander, implant, and flap reconstruction techniques for immediate and delayed reconstruction in the setting of post mastectomy reconstructive surgery
2.1.11.28. General breast plastic surgery procedures such as augmentation and reduction and how they relate to total management of benign and malignant breast disease
2.1.11.29. Interrelationship of adjuvant therapies on planning and timing of plastic and reconstructive surgery

H. Psycho-Oncology

2.1.11.30. Complementary therapies/integrated care
2.1.11.31. Indications for referral to a psycho-oncology specialist

2.1.12. PRINCIPLES OF SURGICAL ONCOLOGY OF THE COLON, RECTUM AND ANUS (including adenocarcinoma, squamous cell carcinoma and rare neoplasms such as GIST, neuroendocrine neoplasm, melanoma)

A. Assessment

2.1.12.1. Diagnosis and pre-operative work-up of primary colorectal and anal masses

2.1.12.1.1. Indications for imaging techniques
2.1.12.1.2. Indications for endoscopic evaluation and biopsy
2.1.12.1.3. Indications for histologic review of pathology specimens

2.1.12.1.4. Differentiation of benign and malignant lesions and the implications of unusual histologic diagnoses (e.g. carcinoid, GIST, melanoma, lymphoma)

2.1.12.2. Work-up and evaluation of recurrent and/or metastatic colorectal and anal neoplasms

2.1.12.2.1. Endoscopic procedures necessary for the investigation and follow-up of colorectal or anal neoplasms

2.1.12.2.2. Utility and limitations of different imaging techniques

2.1.12.2.3. The complementary role of various radiological tests in assessing recurrent tumours

2.1.12.2.4. Strategies to reduce or avoid complications following extended resections for recurrent disease

2.1.12.2.5. Implications of percutaneous biopsy

B. Pathology

2.1.12.3. Tumour pathology, immunohistochemistry and molecular markers

2.1.12.4. Tumour biology

2.1.12.5. American Joint Commission on Cancer (AJCC) TNM staging system for colorectal and anal cancer

2.1.12.6. Stage-dependence of prognosis following treatment, patterns of recurrence and treatment options for recurrence

C. Medical and Radiation Oncology

2.1.12.7. Multi-disciplinary options that complement surgical approaches including:

2.1.12.7.1. Neoadjuvant and adjuvant chemotherapy and radiation

2.1.12.7.2. Principles of therapy in the palliative setting

2.1.12.7.3. Importance of surgical input and leadership in multidisciplinary case conferences

2.1.12.7.4. Management of complications related to chemotherapy and radiation

2.1.12.8. Multi-disciplinary options other than resection, including chemotherapy, radiation, and re-irradiation for recurrent cancer

2.1.12.9. Definitive chemoradiation therapy of anal cancer
D. Surgical Techniques

2.1.12.10. Indications for surgical treatment of colorectal and anal cancers and when neoadjuvant therapy is appropriate

2.1.12.11. Criteria for resectability

2.1.12.12. Functional implications of various colorectal resections and importance of strategies available to derive the best result functionally and psychologically

2.1.12.13. Surgical technique of colorectal resection with special focus on:
   2.1.12.13.1. Total Mesorectal Excision (TME) and importance of both radial and distal margins
   2.1.12.13.2. Transanal excision
   2.1.12.13.3. Multivisceral resection including pelvic exenteration (± sacrectomy)
   2.1.12.13.4. Implications of adequate lymph node dissection
   2.1.12.13.5. Implications of circumferential margin status
   2.1.12.13.6. Indications for surgical treatment for persistent anal cancer
   2.1.12.13.7. Indications for resection of recurrent and/or metastatic colorectal and anal neoplasms

   2.1.12.14.1. Anatomical considerations
   2.1.12.14.2. Implications of margin status in different tumours
   2.1.12.14.3. Consideration for extended resection including sacrectomy and vascular resection and reconstruction for locally advanced or recurrent rectal cancer

2.1.12.15. Management of complex complications following extended resections for recurrent disease

2.1.12.16. Prognosis following treatment, patterns of recurrence and treatment options for re-recurrence
   2.1.12.16.1. Palliation with stents, placed by endoscopy or interventional radiology

2.1.12.17. Importance and implications of patient psychological evaluation in formulating a decision about management of recurrent disease

2.1.13. PRINCIPLES OF SURGICAL ONCOLOGY OF THE STOMACH

A. Assessment
   2.1.13.1. Relevant modalities for diagnosis, staging, re-assessment during and
following treatment and long-term follow-up of gastric adenocarcinoma, including endoscopic ultrasound

B. Pathology/Pathogenesis
2.1.13.2. Gastric adenocarcinoma biology, etiology, predisposing hereditary syndromes, pathological subtypes, location within the stomach and significance thereof
2.1.13.3. Differential diagnosis including in particular lymphoma, with knowledge of the pathology, staging, management and outcomes for gastric lymphoma, and the limited role of surgical resection in this disease
2.1.13.4. Epidemiologic trends in gastric carcinoma and role of H. Pylori on a global scale
2.1.13.5. AJCC TNM staging system for gastric adenocarcinoma and its limitations, particularly with respect to lymph node evaluation

C. Medical Oncology
2.1.13.6. Principles of systemic therapy in the neoadjuvant, adjuvant and palliative settings
   2.1.13.6.1. Cell biology, molecular oncology
   2.1.13.6.2. Different classes of chemotherapeutic agents and their mechanisms of action
   2.1.13.6.3. Pharmacology of specific agents, and their toxicities and management

D. Radiation Oncology
2.1.13.7. Principles of radiobiology and radiation physics, therapeutic methods and radioactive sources and the possible complications of radiotherapy for gastric cancer
2.1.13.8. Methods of tumour localization, and the way in which the surgeon can assist in the identification of primary tumour location for adjuvant treatment planning
2.1.13.9. Role of radiotherapy in palliation of bleeding and pain
2.1.13.10. Recognition and management of early and late radiation induced complications

E. Surgery
2.1.13.11. Principles of curative and palliative surgical techniques for gastric adenocarcinoma and the indications for prophylactic gastrectomy
2.1.13.12. Results of major prospective clinical trials in gastric adenocarcinoma, in particular with respect to extent of lymphadenectomy and adjuvant therapy
2.1.13.13. Oncologic emergencies that can arise in conjunction with gastric tumours such as massive hemorrhage, obstruction, and perforated viscus

2.1.14. PRINCIPLES OF SURGICAL ONCOLOGY OF THE SOFT TISSUES

A. Assessment

2.1.14.1. Relevant investigational modalities for diagnosis, staging, re-assessment during and following treatment and long-term follow-up of RPS and GIST, including endoscopic ultrasound (EUS) and EUS-directed biopsy of GIST

2.1.14.2. Paraneoplastic syndromes that may arise in conjunction with sarcomas, their investigation and management

B. Pathology/Pathogenesis

2.1.14.3. Sarcoma biology, etiology, predisposing hereditary syndromes, characteristic chromosomal translocations and amplifications, tumour pathology and immunohistochemistry; prognostic significance of specific c-kit mutations in GIST

2.1.14.4. Comparative incidence, epidemiology, and prognosis of extremity, trunk, retroperitoneal and visceral sarcomas

2.1.14.5. Specific histologic subtypes of sarcoma and the implications this has on presentation, management, and prognosis

2.1.14.6. AJCC TNM staging system for sarcomas and its limitations

2.1.14.7. Paraneoplastic syndromes that may arise in conjunction with sarcomas, and their management

C. Medical/Radiation Oncology

2.1.14.8. Principles of systemic therapy in the neoadjuvant, adjuvant and palliative settings, including:


2.1.14.8.2. Different classes of chemotherapeutic agents and their mechanisms of action

2.1.14.8.3. Pharmacology of specific agents, and their toxicities and management


2.1.14.9. Oncologic emergencies that can arise in conjunction with primary or metastatic sarcomas, such as acute vena cava obstruction, renal failure, thromboembolic events
2.1.14.10. Principles of radiobiology and radiation physics, therapeutic methods and radioactive sources and the possible complications of radiotherapy, including:

2.1.14.10.1. Methods of tumour localization, and the way in which the surgeon can assist in the identification of gross and microscopic residual disease for treatment planning

2.1.14.10.2. External beam directed therapy including Intensity Modulated RadioTherapy; brachytherapy; radio-isotope therapy

2.1.14.10.3. Management of early and late radiation induced complications and the role of surgery in their management

2.1.14.11. Results of major prospective clinical trials (extremity, retroperitoneal, GIST)

D. Surgery


2.1.14.13. Results of major prospective clinical trials (extremity, retroperitoneal, GIST)

2.1.14.14. Oncologic emergencies that can arise in conjunction with RPS or GIST such as bleeding, perforated viscus

2.1.15. PRINCIPLES OF MELANOMA ASSESSMENT AND MANAGEMENT

A. Assessment

2.1.15.1. Clinical features of the common benign and malignant pigmented skin conditions

2.1.15.2. Indications and contraindications for common in-office procedures, including excisional biopsy of skin lesions fine needle aspiration of palpable lymph node, and interpretation of results

B. Pathology

2.1.15.3. Benign and malignant pathological aspects of melanoma and other skin lesions

2.1.15.4. Special pathology issues pertinent to the treatment of melanoma

2.1.15.5. Staging of melanoma clinically and pathologically

C. Medical Oncology

2.1.15.6. Indications and contraindications for adjuvant systemic therapy for melanoma

2.1.15.7. Indications and contraindications for systemic therapy for metastatic melanoma
D. Radiation Oncology
2.1.15.8. Indications for and techniques of radiation procedures for adjuvant therapy, locoregional relapse as well as metastatic foci

E. Surgery
2.1.15.9. Techniques to optimize cosmetic outcome, minimize surgical trauma, and achieve best oncologic outcome for cancer operations for all skin excisions including but not limited to wide local excision, local advancement flaps, rotation flaps, skin grafts; sentinel node mapping; axillary dissection; inguinal node dissection; limb perfusion
2.1.15.10. Risk, avoidance and management of arm and leg lymphedema as a side effect of melanoma treatment
2.1.15.11. Indications for, techniques of, and outcome of resection of primary and regional disease, locoregional relapse as well as metastatic foci

2.1.16. PRINCIPLES OF PERITONEAL-BASED MALIGNANCY ASSESSMENT AND MANAGEMENT

A. Assessment
2.1.16.1. Endoscopic procedures necessary for the investigation of patients with possible peritoneal based malignancies
2.1.16.2. Relevant modalities for diagnosis, staging, re-assessment during and following treatment and long-term follow-up of peritoneal based malignancies including laparoscopy and role of tumour markers

B. Pathology/Pathogenesis
2.1.16.3. Categories and pathological subtypes of peritoneal based malignancies including pseudomyxoma peritonei (PMP), peritoneal carcinomatosis and peritoneal mesothelioma including specific immunohistochemical stains and role of electron microscopy
2.1.16.4. Classification systems for extent of peritoneal disease
2.1.16.5. Epidemiology, presentation and prognosis of peritoneal based malignancies including environmental risk factors; relationship of peritoneal and pleural mesothelioma

C. Medical Oncology
2.1.16.6. Comparative results of systemic therapy for peritoneal based malignancies
D. Surgery

2.1.16.7. Principles of surgical techniques for peritonectomy and administration of intraperitoneal chemotherapy

2.1.16.8. Classification systems for extent of residual disease

2.1.16.9. Short and long term complications of peritonectomy and administration of intraperitoneal chemotherapy

2.1.16.10. Results of peritonectomy without and with administration of intraperitoneal chemotherapy according to large published series

2.1.16.11. Other ablative techniques such as electrocoagulation and argon beam therapy

2.1.16.12. Long-term complications of PMP and its treatment

2.1.17. PRINCIPLES OF SURGICAL ONCOLOGY OF THE EXOCRINE PANCREAS

A. Assessment

2.1.17.1. Work-up and evaluation of benign and malignant pancreatic masses and jaundice

   2.1.17.1.1. Utility and limitations of different imaging techniques in differentiating malignant lesions

   2.1.17.1.2. Appropriate times to biopsy

B. Pathology/Pathogenesis

2.1.17.2. Pancreas adenocarcinoma biology, etiology, predisposing hereditary syndromes

2.1.17.3. AJCC TNM staging system for pancreatic adenocarcinoma and its limitations

2.1.17.4. Pathological subtypes and significance thereof; use of immunohistochemistry

C. Medical/Radiation Oncology

2.1.17.5. Principles of systemic therapy in the adjuvant and palliative settings

2.1.17.6. Appropriate referral for pain and jaundice

2.1.17.7. Multi-disciplinary options other than resection, including chemotherapy, radiation, and palliation

2.1.17.8. Data for options of increasing resectability, such as neoadjuvant chemoradiation

D. Surgery

2.1.17.9. Indications for resection of pancreatic adenocarcinoma
2.1.17.10. Principles of curative and palliative surgical techniques for pancreas adenocarcinoma

2.1.17.10.1. Criteria for resectability
   2.1.17.10.1.1. Vascular assessment
   2.1.17.10.1.2. Nodal or distant metastatic disease

2.1.17.10.2. Implications of margins
2.1.17.10.3. Anatomical considerations and anomalies
2.1.17.10.4. Indications for palliative bypass
2.1.17.10.5. Prognosis following resection, patterns of recurrence and treatment options for recurrence
2.1.17.10.6. Oncologic emergencies that can arise in conjunction with pancreas tumours such as massive obstructive jaundice and cholangitis

2.1.18. PRINCIPLES OF SURGICAL ONCOLOGY OF THE LIVER AND BILIARY TREE (PRIMARY TUMOURS WITH A FOCUS ON CHOLANGIOCARCINOMA AND HEPATOCELLULAR CARCINOMA), INCLUDING:

A. Assessment
2.1.18.1. Work-up and evaluation of liver masses, including the differentiation of benign and malignant tumours
   2.1.18.1.1. Complementarity and limitations of imaging techniques
   2.1.18.1.2. Appropriate times to biopsy a hepatocellular carcinoma
   2.1.18.1.3. Liver function assessment by Child’s-Pugh and IndoCyanineGreen clearance and the limitations of these tests

2.1.18.2. Work-up and evaluation of primary biliary tumours and jaundice
   2.1.18.2.1. Utility and limitations of different imaging techniques
   2.1.18.2.2. Implications of a percutaneous or Endoscopic Retrograde Cholangio Pancreaticogram-guided biopsy

B. Pathology/Pathogenesis
2.1.18.3. Tumor biology, etiology, tumour pathology and immunohistochemistry
2.1.18.4. AJCC TNM staging system for hepatoma, its limitations, and alternative staging systems
2.1.18.5. AJCC TNM staging system for biliary tumours, its limitations, and alternative staging systems (e.g. Jarnagin’s staging for Klatskin tumours)
C. Medical/Radiation Oncology

2.1.18.6. Multi-disciplinary options other than resection for hepatoma, including Trans Arterial Chemo Embolization, transplantation, chemotherapy, radiation, and ablation

2.1.18.6.1. Principles of systemic therapy in the adjuvant and palliative settings vis-à-vis tumor differentiation and vascular invasion

2.1.18.6.2. Trials for emerging therapies

2.1.18.7. Oncologic emergencies that can arise in conjunction with HCC, such as rupture, and the management of this

2.1.18.8. Multi-disciplinary options other than resection for biliary tumours, including TACE, chemotherapy, radiation, and ablation

2.1.18.8.1. Palliation with stents, placed by endoscopy or interventional radiology

2.1.18.8.2. Trials for emerging therapies

2.1.18.9. Oncologic emergencies that can arise in conjunction with biliary tumours, including obstructive jaundice and cholangitis, and the management of these

D. Surgery

2.1.18.10. Indications for resection of benign and malignant liver masses

2.1.18.11. Criteria for respectability of primary liver tumours

2.1.18.11.1. Implications of margins in different tumours

2.1.18.11.2. Anatomical considerations

2.1.18.11.3. Options for increasing resectability, such as portal vein embolization

2.1.18.12. Surgical technique of liver resection

2.1.18.12.1. Vascular occlusion options and the limitations of each

2.1.18.12.2. Anatomical vs. non-anatomical resection

2.1.18.12.3. Parenchymal division

2.1.18.12.4. Anatomical considerations and variations

2.1.18.13. Prognosis following treatment of hepatoma, patterns of recurrence and treatment options for recurrence

2.1.18.14. Indications for resection of malignant biliary tumours and potentially malignant lesions, such as choledochal cysts
2.1.18.15. Criteria for resectability of biliary tumours
   2.1.18.15.1. Implications of margins in different tumors, consideration for right hepatectomy for gallbladder and proximal bile duct tumours
   2.1.18.15.2. Anatomical considerations
   2.1.18.15.3. Biliary tree lymphadenectomy indications

2.1.18.16. Indications for pre-operative biliary drainage

2.1.19. PRINCIPLES OF SURGICAL ONCOLOGY OF LIVER METASTASES (SECONDARY TUMOURS) INCLUDING:

A. Assessment
   2.1.19.1. Work-up and evaluation of secondary liver tumours, including colorectal metastases to the liver
      2.1.19.1.1. Utility and limitations of different imaging techniques
      2.1.19.1.2. Appropriate times to biopsy
      2.1.19.1.3. Liver function assessment by Child’s-Pugh and ICG clearance and the limitations of these tests

B. Pathology
   2.1.19.2. Tumour biology, etiology, tumour pathology and immunohistochemistry

C. Medical/Radiation Oncology
   2.1.19.3. Multi-disciplinary options other than resection, including TACE, chemotherapy, radiation, and ablation
   2.1.19.4. Principles of systemic therapy in the adjuvant and palliative settings
   2.1.19.5. Results of recent trials regarding treatment of colorectal metastases with chemotherapy and subsequent resection
   2.1.19.6. Role of ablative techniques such as radiofrequency ablation, focused radiation therapy in controlling disease and palliation of symptoms

D. Surgery
   2.1.19.7. Indications for resection of liver metastases for
      2.1.19.7.1. Colorectal metastases
         2.1.19.7.1.1. Appropriate patient selection
         2.1.19.7.1.2. Important prognostic criteria (Fong and others)
         2.1.19.7.1.3. Importance of a multidisciplinary approach with regards to timing of chemotherapy and surgery
2.1.19.7.1.4. Types of recurrence following liver resection and the indications for another surgical intervention

2.1.19.7.2. Non-colorectal metastases
   2.1.19.7.2.1. Importance of disease-free interval in patient selection
   2.1.19.7.2.2. Role of debulking in neuroendocrine tumors

2.1.19.8. Criteria for resectability
   2.1.19.8.1. Implications of margins
   2.1.19.8.2. Anatomical considerations
   2.1.19.8.3. Options for increasing resectability, such as portal vein embolization

2.1.19.9. Prognosis following treatment, patterns of recurrence and treatment options for recurrence

2.1.20. PRINCIPLES OF SURGICAL ONCOLOGY OF THE ENDOCRINE GLANDS

A. Adrenal Gland
   2.1.20.1. Anatomy and embryology of the adrenal glands, including the cortex and the medulla
   2.1.20.2. Differential diagnosis and investigation of an incidentally discovered adrenal lesion
   2.1.20.3. Clinical endocrinopathies of Cushing’s disease, pheochromocytoma, adrenocortocarcinoma and Conn’s syndrome
   2.1.20.4. Appropriate investigations for differential diagnosis of a patient with Cushing’s syndrome, including interpretation of a urinary cortisol level
   2.1.20.5. Low and high dose dexamethasone suppression tests and their sensitivity and specificity
   2.1.20.6. Appropriate use of an ACTH test
   2.1.20.7. Appropriate investigations, including aldosterone / renin ratios and selective venous sampling for those patients with Conn’s syndrome
   2.1.20.8. Appropriate evaluations in preoperative assessment of a patient with a pheochromocytoma, including the perioperative blockade of such patients
   2.1.20.9. Surgical management of Cushing’s disease, Conn’s syndrome, pheochromocytoma, adrenal corticocarcinoma, and metastatic lesions to the adrenal gland
   2.1.20.10. Management of complications arising from adrenal surgery, including changes in the endocrinopathy, bleeding, and pancreatitis
2.1.20.11. Selection criteria for laparoscopic versus open operative approaches to adrenal glands
2.1.20.12. Prognosis of adrenal corticocarcinomas and the management of recurrent disease
2.1.20.13. Use of steroid replacement therapy
2.1.20.14. Role of fine needle aspiration in the work-up of an adrenal lesion

B. Neuroendocrine Tumours of the Gastrointestinal Tract
2.1.20.15. Potential locations of carcinoid/neuroendocrine tumors
2.1.20.16. Natural history and prognosis of the carcinoid/neuroendocrine tumours as a function of their anatomic site of origin
2.1.20.17. Surgical interventions for carcinoid tumours depending on criteria such as size, location, nodal disease
2.1.20.18. Diagnosis and management of carcinoid syndrome, including cardiovascular, respiratory, and cutaneous manifestations
2.1.20.19. Pathophysiology of carcinoid syndrome and the most likely tumors to create such a syndrome
2.1.20.20. Endocrinopathies associated with islet cell tumors, including their incidence in hereditary endocrine neoplasia
2.1.20.21. Work-up of a neuroendocrine or carcinoid tumor, including specific investigations for each endocrinopathy or metabolic syndrome, including secretin stimulation tests, selective venous sampling, octreotide, MIBG, MRI, urinary 5-HIAA and chromogranin A and the sensitivity and specificity of all the above
2.1.20.22. Sensitivity and specificity of MRI, CT, endo-ultrasound, octreotide scan for each neuroendocrine tumor
2.1.20.23. Mechanism of action of octreotide and its effect on carcinoid tumours and carcinoid syndrome
2.1.20.24. Surgical approaches including the use of intraoperative ultrasound; intraoperative approach to non-localized functioning neuroendocrine tumours, approach to gastrinoma in MEN1
2.1.20.25. Pharmacologic and surgical management of metastatic /unresectable disease

2.1.21. PRINCIPLES OF SURGICAL ONCOLOGY OF THE SMALL INTESTINE

A. Adenocarcinoma
2.1.21.1. Endoscopy for the investigation, diagnosis and follow-up of gastric adenocarcinomas
2.1.21.2. Biology, etiology, predisposing hereditary syndromes, and risk factors
2.1.21.3. Screening concepts for populations at risk and diagnostic interventions

2.1.21.4. Relevant investigational modalities for diagnosis, staging, reassessment during and following treatment and long-term follow-up

2.1.21.5. Classification of premalignant conditions (Speigelman’s) and management issues

2.1.21.6. AJCC TNM staging system and its limitations

2.1.21.7. Principles of curative and palliative surgical techniques

2.1.21.8. Management of unresectable disease and oncologic emergencies (perforation, obstruction and malnutrition)

2.1.21.9. Principles of systemic therapy in the adjuvant and palliative settings, including:
   2.1.21.9.1. Cell biology, molecular oncology
   2.1.21.9.2. Different classes of chemotherapeutic agents and their mechanism of action
   2.1.21.9.3. Pharmacology of specific agents and their toxicities and management

B. Neuroendocrine

2.1.21.10. Small bowel neuroendocrine tumour biology, etiology, predisposing hereditary syndromes, and risk factors. Characteristics by embryologic site of origin

2.1.21.11. Relevant investigational modalities for diagnosis, staging, reassessment during and following treatment and long-term follow-up including biochemical assessment and use of radio-labeled scans

2.1.21.12. AJCC TNM staging system and its limitations

2.1.21.13. Principles of curative and palliative surgical techniques


2.1.21.15. Principles of systemic therapy in the neoadjuvant, adjuvant and palliative settings, including
   2.1.21.15.1. Cell biology, molecular oncology
   2.1.21.15.2. Different classes of chemotherapeutic agents and their mechanism of action
   2.1.21.15.3. Pharmacology of specific agents and their toxicities and management
   2.1.21.15.4. Use of chemo-embolization for metastatic disease
   2.1.21.15.5. Use of octreotide for malignant disease
2.1.21.16. Principles of radiobiology and radiation physics, therapeutic methods and radioactive sources and the possible complications of radiotherapy

2.1.21.16.1. Methods of tumor localization

2.1.21.16.2. External beam directed therapy, brachytherapy and radioisotope therapy

2.1.21.16.3. Management of early and late radiation induced complications and the role of surgery in their management

C. Lymphoma

2.1.21.17. Classification system, diagnostic considerations including biopsy principles, staging

2.1.21.18. Role of radiotherapy and chemotherapy in management

2.1.21.19. Role of surgery in diagnosis, staging, therapy, management of complications of therapy

2.2. Describe the CanMEDS framework of competencies relevant to the General Surgical Oncologist

2.3. Apply lifelong learning skills of the Scholar Role to implement a personal program to keep up-to-date, and enhance areas of professional competence

2.4. Contribute to the enhancement of quality care and patient safety in their practice, integrating the available best evidence and best practices

3. Perform a complete and appropriate assessment of a patient

3.1. Identify and explore issues to be addressed in a patient encounter effectively, including the patient’s context and preferences

3.2. Elicit a history, including family history of familial syndromes, that is relevant, concise and accurate to context and preferences, for the purposes of prevention and health promotion, diagnosis and/or management

3.3. Perform a focused physical examination that is relevant and accurate to General Surgical Oncology, for the purposes of prevention and health promotion, diagnosis and/or management

3.4. Select medically appropriate investigative methods in a resource-effective and ethical manner

3.4.1. Interpret special radiological examinations, ultrasound, computed tomography (CT) scans and magnetic resonance imaging (MRI) examinations where indicated and available including the limitations of such diagnostic techniques

3.4.2. Interpret current diagnostic examinations utilizing radioactive isotopes
3.5. Demonstrate effective clinical problem solving and judgment to address patient problems, including interpreting available data and integrating information to generate differential diagnoses and management plans as appropriate to the specific site and type of tumour

3.5.1. Breast

3.5.1.1. Perform a breast specific patient assessment and consultation effectively, including breast history, physical examination and appropriate ancillary tests in order to derive a differential diagnosis, diagnostic plan and subsequently a treatment algorithm

3.5.1.2. Evaluate and manage common benign and malignant breast conditions

3.5.1.3. Assess the indications and contraindications for, and demonstrate proficiency in the interpretation of the results of common in-office procedures, including cyst aspiration, fine needle aspiration, percutaneous core biopsy with and without image guidance, punch biopsy of skin

3.5.1.4. Assess the indications for techniques to optimize cosmetic outcome, minimize surgical trauma, and achieve best oncologic outcome for cancer operations for all major breast procedures, including but not limited to breast biopsy, wire localization biopsy, duct excision, lumpectomy, simple mastectomy, modified radical mastectomy with or without reconstruction, axillary lymph node dissection, and sentinel lymph node mapping

3.5.1.5. Assess the indications and contraindications for adjuvant systemic chemotherapy and hormonal therapies

3.5.1.6. Assess the indications and contraindications of post breast conservation radiation therapy in both ductal carcinoma in situ and invasive carcinomas, post mastectomy radiation therapy, the management of chest wall recurrences and the inclusion or exclusion or supraclavicular or internal mammary fields

3.5.2. Colorectal and Anal

3.5.2.1. Perform a specific history (including bowel, bladder and sexual function) and physical examination and order appropriate tests to derive a diagnosis and treatment plan

3.5.2.2. Interpret the results of diagnostic tests and imaging and to integrate it with the initial patient assessment in order to derive a diagnosis and treatment plan

3.5.3. Gastric Adenocarcinoma

3.5.3.1. Select diagnostic techniques and procedures used for the assessment of gastric adenocarcinoma, including the proper staging of such patients and the ability to formulate an appropriate treatment plan
3.5.3.2. Interpret radiological/radio-isotope examinations including body imaging techniques, where indicated with the realization of the limitations of such diagnostic techniques and integration with biopsy results

3.5.3.3. Select appropriate access techniques for fluid, nutrition, and for the provision of systemic cancer therapy

3.5.3.4. Assess systemically ill patient with cancer including comorbidities, fluid and electrolyte imbalances, multisystem organ failure and nutritional problems

3.5.3.5. Assess patients undergoing radiotherapy and/or chemotherapy for gastric adenocarcinoma in the outpatient or inpatient setting, with recognition of complications, their level of severity, and potential impact on surgical care

3.5.4. Sarcoma, Lymphoma and Germ Cell Tumours

3.5.4.1. Select diagnostic techniques and procedures to evaluate patients with possible soft tissue sarcoma, GIST, germ cell tumours, or intra-abdominal lymphoma, including the proper staging of such patients, and the ability to formulate an appropriate treatment plan

3.5.4.2. Interpret radiological/radio-isotope examinations where indicated with the realization of the limitations of such diagnostic techniques and integration with biopsy results in the context of multidisciplinary tumour boards and conferences

3.5.4.3. Select appropriate vascular/enteral access techniques for fluid, nutrition management and for the provision of systemic cancer therapy

3.5.4.4. Assess systemically ill patient with cancer. This includes skills in assessing fluid and electrolyte imbalances, multi-system organ failure and nutritional problems

3.5.4.5. Assess patients undergoing radiotherapy and/or chemotherapy for sarcoma in the outpatient or inpatient setting, with recognition of complications, their level of severity, and impact on surgical management

3.5.5. Melanoma

3.5.5.1. Skin/Melanoma Assessment

3.5.5.1.1. Perform a melanoma specific patient assessment and consultation including melanoma history, physical examination and appropriate ancillary tests in order to derive a differential diagnosis, diagnostic plan and subsequently a treatment algorithm

3.5.5.1.2. Manage common benign and malignant pigmented skin conditions
3.5.5.1.3. Assess the indications and contraindications for, and demonstrate proficiency in the interpretation of the results of common in-office procedures, including excisional biopsy of skin lesions, fine needle aspiration of palpable lymph node.

3.5.5.1.4. Assess the indications for techniques to optimize cosmetic outcome, minimize surgical trauma, and achieve best oncologic outcome for cancer operations for all skin excisions including but not limited to wide local excision, local advancement flaps, rotation flaps, skin grafts, sentinel node mapping, axillary dissection and inguinal node dissection.

3.5.5.1.5. Assess the indications and contraindications for adjuvant systemic therapy for melanoma.

3.5.6. Peritoneal Based Malignancies

3.5.6.1. Select diagnostic techniques and procedures used for the assessment of peritoneal based malignancies, including the proper staging of such patients and the ability to formulate an appropriate treatment plan.

3.5.6.2. Select patients for peritonectomy and/or administration of intraperitoneal chemotherapy, including presentation and discussion at multidisciplinary GI tumour board.

3.5.6.3. Interpret radiological and nuclear examinations, with the realization of the limitations of such diagnostic techniques and integration with biopsy results.

3.5.6.4. Assess the systemically ill patient with cancer including skills in assessing fluid and electrolyte imbalances, multisystem organ failure and nutritional problems.

3.5.7. Pancreatic Malignancies

3.5.7.1. Select patients for primary or palliative surgery for pancreas adenocarcinoma, including presentation and discussion at multidisciplinary GI tumour board.

3.5.7.2. Select diagnostic techniques and procedures used for the assessment of pancreas adenocarcinoma, including the proper staging of such patients and the ability to formulate an appropriate treatment plan.

3.5.7.3. Interpret radiological examinations including computed tomography (CT) scans and magnetic resonance imaging (MRI/MRCP) examination where indicated, including the limitations of such diagnostic techniques and integration with biopsy results in the context of multidisciplinary tumour boards and conferences.

3.5.7.4. Select appropriate vascular access techniques for fluid management and for the provision of systemic cancer therapy.

3.5.7.5. Assess the critically ill patient with cancer including skills in assessing fluid and electrolyte imbalances, multisystem organ failure and nutritional problems.
3.5.8. Hepatobiliary Malignancies

3.5.8.1. Select patients for primary surgery or combined modality therapy, including presentation and discussion at multidisciplinary tumour board

3.5.8.2. Select diagnostic techniques and procedures used for the assessment of hepatobiliary tumors, including the proper staging of such patients and the ability to formulate an appropriate treatment plan

3.5.8.3. Interpret radiological examinations including ultrasound, computed tomography (CT) scans and magnetic resonance imaging (MRI) examinations where indicated with the realization of the limitations of such diagnostic techniques and integration with biopsy

3.5.8.4. Interpret current diagnostic examinations utilizing radioactive isotopes including PET scans and integration with results of other imaging modalities

3.5.8.5. Assess the critically ill patient with cancer including skills in assessing fluid and electrolyte imbalances, multisystem organ failure and nutritional problems. It is especially important in this group of patients who may have primary liver failure with secondary insults of obstruction and resection

3.5.9. Small Bowel Malignancy

3.5.9.1. Assess risk for and presence of short gut and nutrition challenges as well as fistula and wound complications with small bowel procedures

3.5.9.2. Select diagnostic techniques and procedures for the assessment of primary and metastatic disease

3.5.9.3. Interpret the relevant radiologic examinations including ultrasound, CT, MRI, endoscopic ultrasound and radiolabelled scans as necessary (MIBG, octreotide etc.) including the realization of the limitations and need for multidiscipline tumor boards and conferences

3.5.9.4. Manage issues pertaining to patients with metastatic or unresectable disease including options for palliation and end of life care

4. Use preventive and therapeutic interventions effectively

4.1. Implement a management plan in collaboration with a patient and their family

4.2. Demonstrate appropriate and timely application of preventive and therapeutic interventions relevant to the surgical oncologist’s practice

4.2.1. Breast Surgical Oncology

4.2.1.1. Identify patients at high risk for developing breast cancer, including risk factors such as pathologic, familial, genetic, and previous cancer inducing therapies (i.e. childhood radiation)

4.2.1.2. Interpret the various pathologic findings as they influence risk
4.2.1.3. Evaluate and manage arm lymphedema as a side effect of breast cancer treatment
4.2.1.4. Stage breast cancer clinically and pathologically
4.2.1.5. Recognize patients at psychosocial high risk and identify resources for referral
4.2.1.6. Demonstrate awareness of existing local support groups
4.2.1.7. Apply complementary therapies/integrated care
4.2.1.8. Refer for techniques of palliative radiation procedures for locoregional relapse as well as metastatic foci

4.2.2. Colorectal and Anal Cancer
4.2.2.1. Classify patients into average and high risk for colorectal cancer
4.2.2.2. Apply appropriate screening options with the patient as well as inform their family, as appropriate
4.2.2.3. Recommend appropriate follow up based on the results of screening to the patient
4.2.2.4. Select patients for primary surgery or combined modality therapy
4.2.2.5. Select patients for initial defunctioning surgery
4.2.2.6. Select patients for neoadjuvant chemoradiation for rectal cancer
4.2.2.7. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, and taking into account patient-based risk factors and preferences
4.2.2.8. Plan and design of operations for the palliation of symptoms and complications in incurable patients, with recognition of limitation and predicted outcomes
4.2.2.9. Refer for or provide appropriate interventions available for palliation such as stenting and bypass surgery
4.2.2.10. Formulate a follow-up regimen after completion of therapy for primary or recurrent cancer

4.2.3. Gastric Adenocarcinoma
4.2.3.1. Select patients for primary surgery or neoadjuvant therapy for gastric adenocarcinoma, including presentation and discussion at multidisciplinary GI tumour board
4.2.3.2. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, particularly in the case of linnitis plastica, ge junction tumours, and taking into account patient-based risk factors

4.2.4. Sarcoma
4.2.4.1. Select patients for primary surgery or combined modality therapy
4.2.4.2. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, and taking into account patient-based risk factors

4.2.5. Melanoma

4.2.5.1. Identify patients at high risk for developing melanoma, including risk factors such as familial, genetic, and previous environmental exposure

4.2.5.2. Manage arm and leg lymphedema as a complication of melanoma treatment

4.2.5.3. Stage melanoma clinically and pathologically

4.2.6. Peritoneal Based Malignancies

4.2.6.1. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, and taking into account patient-based risk factors

4.2.6.2. Obtain appropriate informed consent for intraperitoneal chemo and/or cyto-reduction therapy realizing the risks, complications, and long term outcomes

4.2.7. Pancreatic Malignancies

4.2.7.1. Perform proper staging based on patient assessment and results of diagnostic tests to investigate pancreatic masses, and formulate an appropriate treatment plan

4.2.7.2. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, taking into account patient-based risk factors

4.2.7.3. Select patients who would benefit from palliative surgery or other interventions to palliate symptoms

4.2.8. Hepatobiliary Malignancies

4.2.8.1. Perform proper staging based on patient assessment and results of diagnostic tests to investigate hepatobiliary tumors, and formulate an appropriate treatment plan

4.2.8.2. Develop an individualized treatment plan despite uncertainties in diagnosis and staging, taking into account patient-based risk factors

4.2.9. Endocrine Tumours

4.2.9.1. Identify patients at risk for familial endocrinopathies and recommend appropriate interventions for the individual and their family members
4.2.10. Small Bowel Malignancy

4.2.10.1. Implement an effective management plan in collaboration with the patient and their family

4.2.10.2. Identify those patients most at risk for disease spread and occult metastatic disease

4.2.10.3. Participate in the direct care of patients undergoing radiotherapy, chemotherapy or chemoembolization in both the outpatient and inpatient setting, applying knowledge and understanding of the post-procedure complications and symptomatic side effects to their management

4.2.10.4. Identify those at risk for malnutrition and planning strategies to maintain adequate caloric intake

4.2.10.5. Identify the patient population to benefit from palliative octreotide

4.3. Ensure appropriate informed consent is obtained for therapies

4.4. Ensure patients receive appropriate and timely end-of-life care, including pain management

5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic

5.1. Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to the practice of General Surgical Oncology

General:

5.1.1. Perform general diagnostic techniques and procedures used for the assessment of breast cancer, gastrointestinal tract cancers, soft tissue sarcomas and lymphomas, including the proper staging of such patients and the ability to formulate an appropriate treatment plan

5.1.2. Perform endoscopy for the follow-up of cancers involving the GI tract

5.1.3. Perform focal diagnostic procedures including fine needle aspiration for cytology, core biopsy for pathology, paracentesis, and thoracentesis

5.1.4. Diagnose rare cancers based on the knowledge of natural history of a wide range of cancers

5.1.5. Obtain appropriate vascular access for the provision of systemic cancer therapy

Site Specific:

5.1.6. Breast Surgical Oncology

5.1.6.1. Perform and interpret of the results of common in-office procedures, including cyst aspiration, fine needle aspiration, percutaneous core biopsy with and without image guidance, punch biopsy of skin
5.1.6.2. Select image-guided breast intervention procedures, including but not limited to, ductograms, image-guided (i.e. ultrasound, stereotactic, MRI and others) fine needle aspiration, and core biopsies

5.1.6.3. Evaluate the immunohistochemical stains, cytology, and tumor markers and other indicators of prognosis and their relevance to treatment

5.1.7. Colorectal and Anal Cancer

5.1.7.1. Determine the level of rectal cancer using rigid sigmoidoscopy and documentation of distance from anal verge

5.1.7.2. Perform examination under anesthesia to assess local extent of anal and rectal malignancies

5.1.8. Gastric Adenocarcinoma

5.1.8.1. Perform diagnostic and staging procedures such as laparoscopic exploration and biopsy, paracentesis and thoracentesis

5.1.8.2. Identify and biopsy common nodal and systemic sites of metastases

5.1.9. Sarcoma and Gastrointestinal Stromal Tumour

5.1.9.1. Perform endoscopy for the investigation and follow-up of GIST and sarcomas of the GI tract

5.1.9.2. Perform diagnostic procedures such as fine needle aspiration for cytology, core biopsy for pathology, paracentesis, and thoracentesis

5.1.10. Melanoma

5.1.10.1. Perform and interpret the results of common in-office procedures, including excisional biopsy of skin lesions, fine needle aspiration of palpable lymph nodes

5.1.10.2. Evaluate the benign and malignant pathological aspects of melanoma and other skin lesions

5.1.10.3. Identify special pathology issues pertinent to the treatment of melanoma

5.1.11. Peritoneal Based Malignancies

5.1.11.1. Perform diagnostic procedures such paracentesis and thoracentesis, and laparoscopic assessment, aspiration, and biopsy

5.1.12. Pancreatic Malignancies

5.1.12.1. Perform upper GI endoscopic procedures during the evaluation of pancreas adenocarcinomas, in particular to assess for gastric outlet obstruction
5.1.12.2. Perform diagnostic and staging procedures such as laparoscopic exploration and biopsy, paracentesis and thoracentesis

5.1.13. Hepatobiliary Malignancies
   5.1.13.1. Perform diagnostic or therapeutic paracentesis

5.1.14. Small Bowel Malignancy
   5.1.14.1. Perform the endoscopic procedures necessary for the diagnosis and surveillance of small bowel tumors

5.2. Demonstrate effective, appropriate, and timely performance of therapeutic procedures relevant to the practice of General Surgical Oncology

General:
5.2.1. Perform the standard operations required by patients with general surgical cancers and participating, as appropriate, in more specialized multidisciplinary management of hepatobiliary, and pelvic surgery as outlined in the site specific objectives below

5.2.2. Select patients for adjuvant therapy combined with surgical procedures and knowledge in administering the same

5.2.3. Collaborate in the performance of operative techniques that may include areas covered by genitourinary surgery and thoracic surgery including pelvic exenteration, complicated nephrectomy, diaphragmatic and chest wall surgery

5.2.4. Perform operations for the palliation of symptoms and complications in patients with advanced cancer

Site Specific:
5.2.5. Breast Surgical Oncology
   5.2.5.1. Perform proficiently, techniques to optimize cosmetic outcome, minimize surgical trauma, and achieve best oncologic outcome for cancer operations for all major breast procedures, including but not limited to breast biopsy, wire localization biopsy, duct excision, lumpectomy, simple mastectomy, modified radical mastectomy with or without reconstruction, axillary lymph node dissection, and sentinel lymph node mapping

5.2.6. Colorectal and Anal Cancer
   5.2.6.1. Perform TME for primary rectal cancer
   5.2.6.2. Perform resection and anastomoses in complex colorectal, anal and pelvic cases including low anterior resection, abdominoperineal resection, transanal excision, pelvic exenteration
5.2.6.3. Perform operations for the palliation of symptoms and complications in incurable patients including stoma creation and entero-enteral bypass

5.2.6.4. Demonstrate good intra-operative decision making in the circumstance of unexpected findings including but not limited to carcinomatosis and advancing localized disease

5.2.6.5. Respond quickly and efficiently in emergency situations including but not limited to bleeding, perforation, technical misadventure

5.2.7. Gastric Adenocarcinoma

5.2.7.1. Perform resection of gastric adenocarcinoma including multivisceral resection, and including use of intra-operative frozen section with margin revision

5.2.7.2. Perform lymphadenectomy to D1 or D2 level

5.2.7.3. Perform resection of the omentum en bloc with gastrectomy, and in addition may include transthoracic exposure with resection and reconstruction of the diaphragm

5.2.7.4. Perform operations for the palliation of symptoms and complications in advanced gastric cancer patients including salpingoophorectomy, gastrojejunostomy, G tube placement, J tube placement

5.2.8. Sarcoma

5.2.8.1. Perform resection of retroperitoneal sarcoma including multivisceral resection

5.2.8.2. Perform resection of GIST

5.2.8.3. Perform resection of truncal sarcomas (desmoid), including the options and principles of reconstruction

5.2.8.4. Participate in operative techniques that include areas covered by genitourinary surgery, thoracic surgery, and orthopedic surgery, including pelvic exenteration, nephrectomy, compartment resection and limb sparing surgery, diaphragmatic and chest wall surgery

5.2.8.5. Perform operations for the palliation of symptoms and complications in advanced sarcoma patients

5.2.9. Melanoma

5.2.9.1. Demonstrate techniques to optimize cosmetic outcome, minimize surgical trauma, and achieve best oncologic outcome for cancer operations for all skin excisions including but not limited to wide local excision, local advancement flaps, rotation flaps, skin grafts, sentinel node mapping, axillary dissection and inguinal node dissection. The resident must demonstrate proficiency in the performance of these procedures
5.2.10. Peritoneal Based Malignancies
   5.2.10.1. Participate in resection of peritoneal based malignancy including visceral resection as appropriate and distal gastrectomy, subtotal colectomy, splenectomy, TAH/BSO
   5.2.10.2. Perform operations for the palliation of symptoms and complications in advanced peritoneal based malignancies

5.2.11. Pancreatic Malignancies
   5.2.11.1. Perform resection of pancreas adenocarcinoma including total pancreatectomy, pancreaticoduodenectomy, distal pancreatectomy, and multivisceral resection, and including use of intraoperative frozen section with margin revision
   5.2.11.2. Perform palliative procedures including gastrojejunostomy and biliary bypasses

5.2.12. Hepatobiliary Malignancies
   5.2.12.1. Perform resection and anastomoses of the liver and biliary tree
   5.2.12.2. Perform operations for the palliation of symptoms and complications in obstructed patients

5.2.13. Small Bowel Malignancy
   5.2.13.1. Perform resection of small bowel and contiguous organs in complex multivisceral resections
   5.2.13.2. Perform surgical procedures for the palliation of unresectable or incurable disease

5.3. Ensure appropriate informed consent is obtained for procedures described in objectives 5.1 and 5.2
5.4. Document and disseminate information related to procedures performed and their outcomes
5.5. Ensure adequate follow-up is arranged for procedures performed

6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise
   6.1. Demonstrate insight into their own limits of expertise
   6.2. Demonstrate effective, appropriate, and timely consultation of another health professional as needed for optimal patient care
   6.3. Refer to multidisciplinary conference rounds appropriately
       6.3.1. Demonstrate proficiency in the interdisciplinary management of recurrent and metastatic disease including palliative care
6.4. Arrange appropriate follow-up care services for a patient and their family

Communicator

Definition:

As Communicators, General Surgical Oncologists effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.

Key and Enabling Competencies: General Surgical Oncologists are able to...

1. Develop rapport, trust, and ethical therapeutic relationships with General Surgical Oncology patients and families
   1.1. Recognize that being a good communicator is a core clinical skill for General Surgical Oncologists, and that effective physician-patient communication can foster patient satisfaction, physician satisfaction, adherence and improved clinical outcomes
   1.2. Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
   1.3. Respect patient confidentiality, privacy and autonomy
   1.4. Listen effectively
   1.5. Be aware of and responsive to nonverbal cues
   1.6. Facilitate a structured clinical encounter effectively

2. Accurately elicit and synthesize relevant information and perspectives of General Surgical Oncology patients and families, colleagues, and other professionals
   2.1. Gather information about a disease and also about a patient’s beliefs, concerns, expectations and illness experience
   2.2. Seek out and synthesize relevant information from other sources, such as a patient’s family, caregivers and other professionals
   2.3. Obtain and synthesize relevant history from patients/ families/ communities of varying social, ethnic and religious background

3. Convey relevant information and explanations accurately to General Surgical Oncology patients and families, colleagues and other professionals
   3.1. Deliver information to a patient and family, colleagues and other professionals in a humane manner and in such a way that it is understandable, encourages discussion and participation in decision-making
   3.2. Explain and discuss all aspects of a patient’s treatment and care with them in lay terms
3.3. Communicate the treatment algorithm to the patient including all aspects of the plan including surgery, chemotherapy and radiation as well as the schedule for these treatments

3.4. Communicate the oncologic and functional outcomes as well as complications associated with the appropriate surgical resection options

3.5. Advise patients regarding estimations of risk by contemporary models and risk reduction by screening, medication, and surgery

3.6. Advise patients regarding indications, usefulness, costs, complications and privacy issues of genetic testing

3.7. Show an appreciation of the special psychological, social and functional problems that the patient and family must face when coping with cancer and its treatment

3.8. Plan and communicate an appropriate follow up plan with the patient

3.9. Display compassion and the ability to support the morale of the patient throughout the course of the disease

4. Develop a common understanding of issues, problems and plans with General Surgical Oncology patients, families, and other professionals to develop a shared plan of care

4.1. Identify and explore problems to be addressed from a patient encounter effectively, including the patient’s context, responses, concerns, and preferences

4.2. Respect diversity and difference, including but not limited to the impact of gender, religion and cultural beliefs, and respect the different needs of patients and their families with regard to decision-making, illness and treatment

4.3. Exhibit a sensitive and culturally appropriate style of communicating with patients and their families

4.4. Encourage discussion, questions, and interaction in the encounter

4.5. Engage patients, families, and relevant health professionals in shared decision-making to develop a plan of care

4.5.1. Provide patients and families the available palliative care support and options towards the end of the disease process

4.5.2. Engage patients undergoing radiotherapy and/or chemotherapy for cancer in the outpatient or inpatient setting

4.6. Address challenging communication issues effectively, such as obtaining informed consent, delivering bad news, and addressing anger, confusion and misunderstanding

4.7. Evaluate clinic patients’ and family members ability to engage in discussions regarding surgical resection options, outcomes and complications

4.8. Evaluate patients in clinic including assessment of the level at which the individual patient and family will engage in discussions regarding surgical resection options, outcomes and complications
5. **Convey effective oral and written information about a medical encounter**

5.1. Maintain clear, accurate, and appropriate records (e.g., written or electronic) of clinical encounters and plans

5.2. Present verbal reports of clinical encounters and plans

5.3. Choose appropriate information to discuss with patients/families and the other members of the health care team

5.4. Present medical information to the public or media about a medical issue, as needed

**Collaborator**

*Definition:*

As *Collaborators*, General Surgical Oncologists effectively work within a health care team to achieve optimal patient care.

**Key and Enabling Competencies: General Surgical Oncologists are able to...**

1. **Participate effectively and appropriately in an interprofessional health care team**

1.1. Work with others to assess, plan, provide and integrate care for individual patients (or groups of patients)

1.1.1. Work effectively with general surgeons, other subspecialty surgical oncologists, radiation oncologists, medical oncologists, pathologists, basic scientist, translational and clinical researchers, oncology nurses, other medical specialists and other relevant health care workers

1.1.2. Interact with the radiation oncologist in the treatment planning of patients with different types of cancer, utilization of tumour localization, and the way in which the surgeon can assist in the identification of gross and microscopic residual disease for treatment planning

1.1.3. Participate in planning the interdisciplinary management of recurrent and metastatic disease including palliative care

1.1.4. Demonstrate awareness of the importance of medical and radiation oncology in a multi-disciplinary approach to pancreas cancer including recent trial results regarding chemotherapy and radiation

1.1.5. Demonstrate proficiency in interdisciplinary evaluation and pre-surgical treatment planning with multiple disciplines, including but not limited to radiology, plastic and reconstructive surgery, medical oncology, radiation oncology, and pathology

1.1.6. Collaborate with physicians and teams from other subspecialties in planning and executing combined modality therapy, in particular intraperitoneal chemotherapy following cytoreductive surgery
1.1.7. Collaborate with physicians and teams from other subspecialties in planning and executing combined modality therapy (including physicians who prescribe radiotherapy, chemotherapy, immunotherapy or endocrine therapy)

1.1.8. Interact with endocrinologist and nephrologists in the evaluation and preoperative and postoperative management of patients with hypercalcemia

1.1.9. Collaborate with physicians and teams from other subspecialties in planning and executing combined modality therapy (including physicians who prescribe radiotherapy or chemotherapy)

1.1.10. Demonstrate involvement in the direct care of patients undergoing radiotherapy and/or chemotherapy for gastric adenocarcinoma in the outpatient or inpatient setting

1.1.11. Demonstrate involvement in the direct care of patients undergoing radiotherapy and/or systemic for sarcoma in the outpatient or inpatient setting

2. Participate effectively in interprofessional and multidisciplinary teams

2.1. Describe and demonstrate respect for the roles and responsibilities of other professionals relative to those of the General Surgical Oncologist

2.2. Describe the important role played by allied health professionals in providing optimal patient care

2.3. Respect, consider and accept the opinions of other team members

2.4. Enter into interdependent relationships with other professions for the provision of quality care

2.5. Describe the principles of team dynamics

2.6. Respect team ethics, including confidentiality, resource allocation and professionalism

2.7. Demonstrate leadership in a health care team, as appropriate

2.8. Function effectively at formal scheduled multi- and inter-disciplinary group meetings (tumour boards, site group conferences, interdisciplinary work rounds)

2.9. Access ancillary resources necessary to provide interdisciplinary care to manage the problems of the patient with cancer

2.9.1. Refer patients and families to available palliative care options towards the end of the disease process

2.9.2. Demonstrate skills in the utilization of ancillary resources necessary to provide interdisciplinary care to manage the problems of the patient with cancer
3. **Work with other health professionals effectively to prevent, negotiate, and resolve interprofessional conflict**

3.1. Demonstrate a respectful attitude towards colleagues and members of an interprofessional team

3.2. Work with other professionals to prevent conflicts and develop strategies to solve inter-professional conflicts

3.3. Demonstrate an appreciation for the need to resolve conflict amongst team members in a fair, respectful and positive manner

3.4. Employ collaborative negotiation to resolve conflicts

3.5. Respect differences and address misunderstandings and limitations in other professionals

3.6. Recognize one’s own differences, misunderstanding and limitations that may contribute to interprofessional tension

3.7. Reflect on interprofessional team function

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**Manager**

**Definition:**

As Managers, General Surgical Oncologists are integral participants in health care organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the health care system.

**Key and Enabling Competencies: General Surgical Oncologists are able to...**

1. **Participate in activities that contribute to the effectiveness of their health care organizations and systems**

1.1. Work collaboratively with others in their organizations to provide effective and efficient cancer care

1.2. Participate in systemic quality process evaluation and improvement, such as patient safety initiatives

1.3. Work with clinicians and non-clinicians to assess, plan, provide and review other tasks, such as research problems, educational work, program review or administrative responsibilities

1.4. Describe the function, structure, financing, and operation of the regional and provincial health systems and facilities as it relates to the specialty of General Surgical Oncology including the roles of physicians practicing in related specialties

1.5. Describe principles of health care financing, including physician remuneration, budgeting and organizational funding as they relate to General Surgical Oncology

1.6. Describe population-based approaches to cancer prevention, screening and early detection and their implications for surgical oncology practice
1.7. Access and utilize health care resources necessary to provide care to cancer patients in a spectrum of settings including ambulatory care, acute tertiary care hospitals, rehabilitation centres, palliative care centres, home palliative care, academic cancer centres, community cancer centres and general hospitals

2. **Manage their practice and career effectively**
   2.1. Set priorities and manage time to balance patient care, learning needs, practice requirements, outside activities and personal life
   2.2. Manage a surgical practice including finances and human resources
   2.3. Implement processes to ensure personal practice improvement
   2.4. Utilize information technology to optimize patient care, facilitate life-long learning and dissemination of research findings

3. **Allocate finite health care resources appropriately**
   3.1. Recognize the importance of just allocation of health care resources, balancing effectiveness, efficiency and access with optimal patient care
   3.2. Apply evidence and management processes for cost-appropriate care

4. **Serve in administration and leadership roles, as appropriate**
   4.1. Work effectively as a member of a cancer disease site group to accomplish tasks whether in the role of a team leader or team member
   4.2. Chair or participate effectively in committees and meetings
   4.3. Lead or implement change in health care
   4.4. Plan relevant elements of health care delivery (e.g., work schedules)

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**Health Advocate**

**Definition:**

As Health Advocates, General Surgical Oncologists responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.

**Key and Enabling Competencies: General Surgical Oncologists are able to...**

1. **Respond to individual patient health needs and issues as part of patient care**
   1.1. Identify the health needs of an individual surgical oncology patient
   1.1.1. Demonstrate awareness of cultural diversity and the different needs for patients and their families with regard to illness and treatment
1.1.2. Demonstrate awareness of the changing needs for social support systems for patients and their families throughout diagnosis, treatment, and transition to surveillance, and relapse

1.2. Identify the important determinants of health affecting individual patients

1.3. Identify opportunities for advocacy, health promotion and disease prevention with individuals to whom they provide care

1.4. Assess the patient’s ability to access various services in the health and social systems

2. Respond to the health needs of the communities that they serve

2.1. Describe the practice communities that they serve

2.2. Identify opportunities for advocacy, health promotion and disease prevention in the communities that they serve, and respond appropriately

2.3. Appreciate the possibility of competing interests between the communities served and other populations

3. Identify the determinants of health for the populations that they serve

3.1. Identify the determinants of health of the populations, including barriers to access to care and resources

3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

3.3. Demonstrate an understanding of current policies that affect cancer risk or treatment, either positively or negatively (e.g. policies regarding communicable diseases, tobacco, substance abuse)

3.4. Demonstrate an understanding of how to apply available knowledge about prevention to "at risk" groups within General Surgical Oncology practice

4. Promote the health of individual patients, communities, and populations

4.1. Describe an approach to implementing a change in a determinant of health of the populations they serve

4.2. Describe how public policy impacts on the health of the populations served

4.3. Identify points of influence in the health care system and its structure

4.4. Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity and idealism

4.5. Appreciate the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper

4.6. Describe the role of the medical profession in advocating collectively for health and patient safety
4.7. Describe, in broad terms, the key issues currently under debate regarding changes in the regional, provincial and national health care systems relevant to General Surgical Oncology, (e.g. cancer surgery waiting time policies, privatization of health care insurance and delivery)

Scholar

Definition:

As Scholars, General Surgical Oncologists demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.

Key and Enabling Competencies: General Surgical Oncologists are able to...

1. Maintain and enhance professional activities through ongoing learning
   1.1. Describe the principles of maintenance of competence
   1.2. Describe the principles and strategies for implementing a personal knowledge management system
   1.3. Recognize and reflect on learning issues in practice
   1.4. Conduct a personal practice audit
   1.5. Pose an appropriate learning question
   1.6. Access and interpret the relevant evidence
   1.7. Integrate new learning into practice
   1.8. Evaluate the impact of any change in practice
   1.9. Document their learning process

2. Critically evaluate medical information and its sources, and apply this appropriately to practice decisions
   2.1. Describe the importance of evidence based medicine in General Surgical Oncology practice
   2.2. Describe the principles of critical appraisal
   2.3. Critically appraise retrieved evidence in order to address a clinical question
   2.4. Critically appraise various sources of medical information, including the internet, "expert opinion", publications in the popular press
   2.5. Integrate critical appraisal conclusions into clinical care

3. Facilitate the learning of patients, families, students, residents, other health professionals, the public and others, as appropriate
   3.1. Describe principles of learning relevant to medical education
3.2. Identify collaboratively the learning needs and desired learning outcomes of others
3.3. Select effective teaching strategies and content to facilitate others’ learning
3.4. Demonstrate an effective lecture or presentation
3.5. Assess and reflect on a teaching encounter
3.6. Provide effective feedback
3.7. Describe the principles of ethics with respect to teaching

4. **Contribute to the development, dissemination, and translation of new knowledge and practices in General Surgical Oncology**

4.1. Describe the principles of research and scholarly inquiry in order to:

4.1.1. Identify basic, translational, epidemiologic and/or clinical research techniques in the field of oncology, such as molecular biology, biologic response modifiers, transplantation immunology, molecular epidemiology

4.1.2. Describe the value and methodology of prospective, randomized clinical trials, and be able to analyze the results and apply them to the clinical situation

4.1.3. Describe the limitations of chart reviews

4.1.4. Identify the principles and recent achievements in the field of surgical education research

4.1.5. Describe the principles of medical ethics as applied to surgical oncology

4.2. Describe the principles of research ethics

4.3. Demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis

4.4. Demonstrate an appreciation of the importance and challenges of multicentre research and collaboration with basic scientists

4.5. Pose a scholarly question

4.6. Conduct a systematic search for evidence

4.7. Select and apply appropriate methods to address the question

4.8. Demonstrate awareness of the methods of prospective clinical trials and where feasible, participate in such trials

4.9. Demonstrate an understanding of how to assess new surgical techniques/procedures

4.10. Demonstrate an understanding of how to assess new systemic and targeted therapies

4.11. Disseminate the findings of a completed research project
4.12. Participate in a scholarly research, quality assurance, or educational project relevant to General Surgical Oncology, demonstrating primary responsibility for at least one of the following elements of the project:

4.12.1. Development of the hypothesis, which must include a comprehensive literature review
4.12.2. Development of the protocol for the scholarly project
4.12.3. Preparation of a grant application
4.12.4. Development of the research ethics proposal
4.12.5. Interpretation and synthesis of the results

**Professional**

**Definition:**

As *Professionals*, General Surgical Oncologists are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.

**Key and Enabling Competencies: General Surgical Oncologists are able to...**

1. **Demonstrate a commitment to their patients, profession, and society through ethical practice**
   
   1.1. Deliver the highest quality care with integrity, honesty, compassion, commitment, and respect
   
   1.1.1. Be punctual
   
   1.1.2. Accept consultant-level responsibility for obligations on the ward, in clinic, in case conferences and in other professional activities
   
   1.1.3. Sign over responsibly to others and accept signed over responsibilities appropriately

   1.2. Foster a caring, cooperative, compassionate attitude to patients, their families and close friends

   1.3. Discuss the concept of altruism and its implications for practice

   1.4. Demonstrate a commitment to maintenance of competence

   1.5. Recognize, analyse and attempt to resolve in General Surgical Oncology practice ethical issues such as truth-telling, consent, advanced directives, confidentiality, end-of-life care, conflict of interest, resource allocation, research ethics

   1.5.1. Identify the criteria by which to consult an ethicist or make a referral to the ethics committee
1.6. Recognize bias based on gender, age, sexuality, religion, race, education or social status and attempt to eradicate it in oneself and others

1.7. Declare potential personal conflicts of interest

1.8. Maintain appropriate boundaries with patients and family members

2. **Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation**
   
   2.1. Demonstrate knowledge and an understanding of the professional, legal and ethical codes of practice
      
      2.1.1. Recognize the principles and limits of patient confidentiality as defined by professional practice standards and the law

   2.2. Fulfil the regulatory and legal obligations required of current General Surgical Oncology practice

   2.3. Demonstrate accountability to professional regulatory bodies

   2.4. Participate in peer review

   2.5. Recognize and identify methods to deal with unprofessional behaviours in clinical practice, taking into account local and provincial regulations
      
      2.5.1. Recognize and respond to incidents of intimidation and harassment

3. **Demonstrate a commitment to physician health and sustainable practice**
   
   3.1. Strive consciously to balance personal and professional roles and responsibilities

   3.2. Delegate responsibilities appropriately

   3.3. Strive to heighten personal and professional awareness and insight

   3.4. Recognize other professionals in need and respond appropriately
      
      3.4.1. Recognize signs of burnout in oneself and colleagues, and access sources of advice and support

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