

**Goals and Objectives: Gastrointestinal Cancers Service/Brachytherapy  
Department of Radiation Oncology**

The gastrointestinal cancer service provides training in the diagnosis, management, treatment, and follow-up of gastrointestinal malignancies, including esophageal cancer, gastric cancer, cholangiocarcinoma, pancreatic cancer, small bowel cancer, rectal cancer, anal cancer, palliative treatment of metastatic disease, as well as the diagnosis and management of acute and long term complications of radiation therapy for gastrointestinal cancers. These clinical skills are acquired in the context of the multidisciplinary care of gastrointestinal cancer patients and require a knowledge base in the areas of pathology, radiology, gastrointestinal oncology (surgery, chemotherapy and hormonal therapy), cancer rehabilitation, pain management and palliative medicine. The brachytherapy portion of this course includes the treatment of lung tumors, cholangiocarcinomas, and recurrent cancers.

**I. Patient Care:**

1. Diagnosis, work-up, management and treatment of pre-operative and postoperative esophageal cancer, pancreatic cancer, rectal cancer:
  - a. Ability to utilize pathologic findings and CT, ultrasound or MRI findings in the treatment recommendations for post-operative GI cancer
  - b. Knowledge of the indications for surgery and chemotherapy in the treatment of GI cancer, the current regimens or drugs being used and the mechanism of action of systemic agents
  - c. Knowledge of the surgical work-up and techniques used for diagnosis, and management
  - d. Proficiency in the use of both 2D and 3D CT-based simulation and planning for radiation therapy using AP-PA, 3-field, 4-field or 6-fields; ability to assess the appropriate field arrangements indicated; ability to assess dose distributions and to prescribe radiation dose for the treatment of the region of interest; ability to contour lymph node regions
  - e. Proficiency in the set-up fields and in assessing weekly quality assurance portal films, and to make treatment adjustments as indicated
  - f. Proficiency in the assessment and treatment of acute radiation toxicities
  - g. Proficiency in the follow-up care of GI cancer patients including the assessment and treatment of late radiation effects and appropriate follow-up studies, ; Knowledge of the patterns of failure in GI cancers
  - h. Knowledge of specialized treatment techniques, including IMRT and intracavitary and interstitial brachytherapy
2. Diagnosis, work-up, management and treatment of definitive anal cancer, esophageal cancer, cholangiocarcinoma, pancreatic cancer:

In addition to the above listed proficiencies:

  - a. Ability to perform intracavitary low dose rate or high dose rate brachytherapy in some patients as indicated; ability to prescribe dose, coordinated with external beam therapy and assess treatment plans; knowledge of the clinical and physics literature pertaining to brachytherapy.

3. Diagnosis, work-up, management and treatment of metastatic gastrointestinal cancers:
  - a. Knowledge of systemic therapies for metastatic GI cancers
  - b. Ability to work-up metastases to bone, brain, lung and other sites
  - c. Proficiency in the treatment of metastases to bone, brain or CNS, including ability to design and set-up treatment fields, prescribe dose, evaluate dose plans, assess set-up and weekly quality assurance portals
  - d. Ability to manage acute toxicities of palliative radiation fields, such as steroid implementation and tapers for CNS disease, and to manage pain and fatigue
4. Diagnosis, work-up, management, and treatment of obstructing lesions of the lung
  - a. Knowledge of the available options for treatment including laser, cautery, external beam radiation, brachytherapy, and PDT
  - b. Ability to perform intracavitary low dose rate or high dose rate brachytherapy in some patients as indicated; ability to prescribe dose, coordinated with external beam therapy and assess treatment plans; knowledge of the clinical and physics literature pertaining to brachytherapy
5. Diagnosis, work-up, management and treatment for Barrett's Esophagitis
  - a. Knowledge of the medical, surgical and PDT options for treatment
  - b. Ability to perform PDT including understanding of basic laser principles, knowledge of the current literature on PDT for Barrett's Esophagus, and ability to manage acute and late toxicities of PDT.

## II. Medical Knowledge:

1. Knowledge of the pertinent peer-reviewed medical literature pertaining to the diagnosis and management of all stages of each type of GI cancer, including major randomized clinical trials and important institutional series, in the following disciplines:
  - a. radiation therapy
  - b. surgical management
  - c. systemic therapy
  - d. palliation, pain management and rehabilitation
  - e. psychosocial issues
  - f. GI cancer biology
  - g. epidemiology and genetics
2. Ability to apply this knowledge base acquired from the medical literature in the management of GI cancer patients
3. Ability to critically review the medical literature as it pertains to GI cancer management and apply new research findings to clinical practice

## III. Practice-Based Learning and Improvement:

1. Proficiency in the quality assurance process in GI cancer treatment including dosimetry, dose plan assessment and optimization, and portal film assessment
2. Ability to discuss and critique the pertinent medical literature in the conference series, including didactic conference, case conference, morbidity and mortality conference, journal club
3. Proficiency in the multidisciplinary care of GI cancer patients in cooperation with colleagues in surgery, medical oncology, pathology, diagnostic radiology, and in multidisciplinary conferences

#### IV. Interpersonal and Communication Skills:

1. Ability to clearly explain the rationale, procedures, potential side effects and follow-up care after radiation therapy for GI cancer treatment to patients and families, colleagues, peers, and ancillary personnel (nurses, therapists, dosimetrists, physicists)
2. Ability to clearly discuss the disease process of each type of GI cancer, treatment options and outcomes for the various stages to patients and families, peers and colleagues
3. Ability to assess and discuss patient's psychosocial or end of life issues
4. Ability to express empathy and caring in communications with patients and families

#### V. Professionalism:

1. Maintains a professional appearance that is neat, clean and appropriate in dress and demeanor
2. Demonstrates sensitivity to ethnic, social and psychological concerns of this patient population
3. Demonstrates ethical principles in personal behavior and in interactions with patients and colleagues
4. Fulfills commitments to patients needs in a timely manner
5. Completes documentation in a thorough and timely manner
6. Attends to clinical responsibilities punctually and efficiently
7. Demonstrates a respectful demeanor towards patients and families, peers, colleagues and staff

#### VI. Systems-Based Practice:

1. Ability to coordinate appointments with other physicians, or schedule appropriate tests as indicated with an understanding of the patient's insurance issues and geographical preferences
2. Ability to assess psychosocial needs and to refer the patient to appropriate services for social, psychological or financial assistance
3. Ability to coordinate the patient's comprehensive cancer care and other medical needs during their radiation therapy
4. Proficiency with departmental and hospital-based computer data systems and medical records databases
5. Understanding of billing and codes associated with brachytherapy and external beam radiotherapy

The above stated goals and objectives are to be reviewed by the resident prior to the start of the rotation.