

National Imaging Associates, Inc.	
<b>Clinical guidelines/considerations</b> <b><u>COLORECTAL CANCER-</u></b> <b><u>RADIATION ONCOLOGY</u></b>	<b>Date: March 2011</b> <b>Page 1 of 7</b>
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## INTRODUCTION:

Colorectal cancer, also called colon cancer or large bowel cancer includes cancerous growths in the colon, rectum and appendix. With nearly 700,000 deaths worldwide per year, it is the fifth most common form of cancer in the United States and the third leading cause of cancer-related death in the Western world. National Cancer Institute

Invasive cancers that are confined within the wall of the colon (TNM stages I and II) are curable with surgery. If untreated, they spread to regional lymph nodes (stage III), where up to 73% are curable by surgery and chemotherapy. Cancer that metastasizes to distant sites (stage IV) is usually not curable, although chemotherapy can extend survival, and in rare cases, surgery and chemotherapy together have seen patients through to a cure. Markowitz, Bertagnolli

Colorectal cancer frequently presents with no symptoms. A genetic model of carcinogenesis has been developed, starting with adenomatous polyps that progress in a stepwise process to malignancy. Screening tests can detect colorectal polyps, some of which have the potential to become cancerous. Colonoscopy, an endoscopic examination of the entire colon, allows polyp detection and enables biopsy or the removal of the polyps during the procedure. Colorectal cancer diagnosis is established by histopathological examination of the tissue obtained from biopsy of the tumor.

The method of treatment for colorectal cancer depends on whether the cancer is in the colon or the rectum and on the stage of the disease. Staging occurs after colorectal cancer has been diagnosed and it evaluates the disease location and extent. Treatment may include surgery, chemotherapy, radiation therapy, or biological therapy; it may also include some combination of these treatments. Cancers of the colon are generally treated with surgery and chemotherapy. Patients whose cancer has spread beyond the colon to other parts of the body may be given palliative radiation therapy to control symptoms of metastatic disease. Cancers of the rectum are more prone to loco-regional recurrence, and radiation therapy and chemotherapy are given either before, during or after surgery.

## **GOAL OF THE GUIDELINE:**

This guideline outlines several methods suitable for the employment of radiation therapy in conjunction with colon and rectal cancer treatment. These include the use of external radiation (three-dimensional conformal radiation therapy (3D-CRT), intra-operative radiation treatment (IORT), and rarely, internal radiation (brachytherapy). Advanced approaches such as intensity modulated radiation therapy (IMRT) and/or image guided radiation therapy (IGRT) are not indicated as standard treatment for colorectal cancer. The goal of this program is to guide diagnosis and treatment to the most efficient, comparatively effective, and diagnostic and treatment pathway

## **GENERAL CONSIDERATIONS:**

Cancer of the colon is generally treated with both surgery and chemotherapy. Chemotherapy uses drugs or targeted agents such as monoclonal antibodies to treat the cancer. Radiation therapy uses high-energy radiation, and although it is not commonly used to treat colon cancer, it may be used post-surgically to enhance local control after surgery, especially when the cancer has attached to an internal organ or the lining of the abdomen. It may also be used for palliative treatment to relieve symptoms of metastatic disease.

Surgery may be used in the treatment of all stages of rectal cancer. Preoperative radiation therapy and chemotherapy (neoadjuvant therapy) are given to shrink the tumor before surgery, resulting in improved probability for successful resection. Postoperative radiation therapy and chemotherapy (adjuvant therapy) may decrease local recurrence and improve overall survival. In addition, local recurrences that cause pain, bleeding or other symptoms are appropriately treated with radiation therapy.

## **MEDICALLY NECESSARY INDICATIONS FOR RADIATION THERAPY AND TREATMENT OPTIONS:**

- **Colon Cancer**
  - T4 tumors with penetration/perforation, intermediate/positive margins
    - Boost dose for positive margins an option
    - 3D Conformal recommended 45-50 Gy in 25-28 fractions
    - IORT can be used as boost/recurrent cancer
    - 3D Conformal Radiation Therapy delivered with concurrent 5-fluorouracil (FU)
  - Postoperative radiation therapy to the surgical bed when the cancer has attached to an internal organ or to the lining of the abdomen
  - 3D Conformal Radiation Therapy for palliative treatment to relieve symptoms of Stage IV metastatic disease

- **Rectal Cancer**
  - Stage 0 (Cancer has not spread beyond the inner layer of colon or rectum and the patient is not a surgical candidate)
    - Contact x-ray therapy, brachytherapy, or external beam radiation therapy
  - Stage I (T1-2,N0,M0)
    - Medically inoperable or positive margins
  - Stage IIA (T3, N0, M0)
    - Pre/Post Operative. Includes tumors where spread is into the outer muscle layer.
  - Stage IIB or IIC (T4,N0,M0)
    - Pre Operative – Locally unresectable
  - Stage III (T1-3, N1-2, M0)
    - Preoperative or Post Operative
  - Stage IV and Recurrent Rectal Cancer
    - Radiation therapy and chemotherapy before/after surgery
    - Radiation therapy as palliative treatment to relieve symptoms and prolong symptom free survival by controlling unresectable disease
    - Radiation therapy for metastatic cancer for symptom control and tumor growth delay to prolong symptom free interval
    - IORT for T4 or recurrent disease with positive or close margins
  
- **Rectal Cancer Dosage Guidelines**
  - 3D Conformal Radiation Therapy recommended. 45 -54Gy delivered at 1.8 - 2.0 Gy per fraction
  - Boost may be an option
  - Limit small bowel exposure to 45 Gy
  - Dosage exceeding 54 Gy may be necessary for unresectable tumors

#### **TREATMENT OPTIONS REQUIRING ADDITIONAL CLINICAL REVIEW:**

Intensity-modulated radiation therapy (IMRT) is not indicated as a standard treatment option for colorectal cancer. A peer to peer review including provider documentation of the clinical rationale will be required to determine the medical necessity for performing IMRT rather than conventional or 3D treatment planning and delivery.

Real-time intra-fraction target tracking during radiation therapy to adjust radiation doses or monitor target movement during individual radiation therapy treatment sessions is not considered standard of care. A request for intra-fraction tracking will require a peer review for medical necessity determination. Documentation from the provider must include the clinical rationale for using intra-fraction tracking rather than the placement of interstitial devices (e.g. fiducial markers) and standard image guidance such as CT guidance or stereoscopic x-ray.

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