National Imaging Associates, Inc.*	
Clinical guideline: **BRACHYTHERAPY** **(Low Dose Radiation (LDR),** **High Dose Radiation (HDR),** **Selective Internal Radiation Therapy (SIRT, Electronic Brachytherapy)**	**Original Date: November 2013**
CPT Codes: **LDR: 77761, 77762, 77763, 77778, 77789** **HDR: 77767, 77768, 77770, 77771, 77772** **Electronic Brachytherapy: 0394T, 0395T**	**Last Revised Date: January 2022**
Guideline Number: NIA_CG_224 - 1	**Implementation Date: January 2023**

Most requests for radiation therapy are addressed by NIA treatment site clinical guidelines. However, there may be requests that are not. For such requests, determinations will be made on a case-by-case basis utilizing the following guidelines (when applicable) but not limited to: National Comprehensive Cancer Network (NCCN), American Society for Radiation Oncology ASTRO (i.e., Model Policies; Evidence-Based Consensus Statement), ACR Appropriateness Criteria, American Society of Clinical Oncology (ASCO) and/or peer reviewed literature.

This guideline applies to other cancers not addressed by NIA treatment site clinical guidelines LDR (low dose rate brachytherapy) and HDR (high dose rate brachytherapy) must be requested separately and are not interchangeable.

Refer to applicable treatment site-specific guidelines for the management of primary malignancies. Applicable site-specific guidelines may include all or some of the sites below, depending on the specific program.

- Anal Cancer
- Bone Metastases
- Breast Cancer
- Cervical Cancer
- CNS Cancer
- Colon Cancer
- Rectal Cancer
- Endometrial Cancer
- Gastric Cancers
- Head and Neck Cancer
- Lung – Non-Small Cell
- Lung - Small Cell Lung Cancer
- Lymphoma - Hodgkin's Lymphoma
- Lymphoma – Non-Hodgkin's Lymphoma
- Pancreas Cancer
- Prostate Cancers

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For metastasis to the brain, regardless of primary site, refer to the NIA clinical guideline for Central Nervous System (CNS). For metastasis to bone, refer to the NIA clinical guideline for Bone Metastases. For all other metastases, refer to the NIA clinical guideline for Metastatic Disease.

TREATMENT OPTIONS REQUIRING PHYSICIAN REVIEW

- Brachytherapy for sites beyond those listed above may be approvable with submission of supportive documentation.[1]

- Intracavitary balloon catheter brain brachytherapy for malignant gliomas or metastasis to the brain is considered *investigational.*

- Selective Internal Radiation Therapy (SIRT), also known as radioembolization with microsphere brachytherapy device (RMBD) and transarterial radioembolization, uses microscopic radioactive spheres to deliver radiation to the tumor site. Treatment is delivered through catheter injection of radioactive Yttrium-90 (90Y) microspheres into the hepatic artery. Indications for SIRT include:
    - Unresectable metastatic liver tumors – **see "Metastatic Disease Guideline**"
    - Unresectable metastatic liver tumors from primary colorectal cancer see **"Metastatic Disease Guideline"**
    - Unresectable primary hepatocellular carcinoma[2]
    - Unresectable neuroendocrine tumors

- Absolute Contraindication[3]
    - Fulminant liver failure (absolute)

- Considerations/Relative Contraindications[3]:
    - The tumor burden should be liver dominant, not necessarily exclusive to the liver
    - Patients should also have a performance status that will allow them to benefit from such therapy
    - A life expectancy of at least 3 months
    - Excessive tumor burden in the liver with greater than 50% to 70% of the parenchyma replaced by tumor
    - Total bilirubin greater than 2 mg/dL (in the absence of obstructive cause), which indicates severe liver function impairment. Nonobstructive bilirubin elevations may indicate that liver metastases have caused liver impairment to the degree that risks outweigh benefits for this therapy. In contrast, patients with HCC and elevated bilirubin may be treated with radioembolization if a segmental or subsegmental infusion can be performed
    - Prior radiation therapy to the liver or upper abdomen that included a significant volume of the liver

- The use of electronic brachytherapy for basal cell and squamous cell cancers of the skin (of non-melanomatous skin cancers) and benign skin conditions are considered investigational and experimental at this time.

- Coronary Artery Brachytherapy[4-6]
    - Intravascular Brachytherapy for coronary arteries is medically necessary when used as an adjunct to percutaneous coronary intervention for treatment of in-stent restenosis in a native coronary artery bare-metal stent or for drug-eluting stent
    - All other uses of brachytherapy for coronary arteries are considered investigational

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POLICY HISTORY

Date	Summary
January 2022	• Added absolute contraindication of fulminant liver failure • Added section on Considerations/Relative Contraindications, stating: o The tumor burden should be liver dominant, not necessarily exclusive to the liver o Patients should also have a performance status that will allow them to benefit from such therapy o A life expectancy of at least 3 months o Excessive tumor burden in the liver with greater than 50% to 70% of the parenchyma replaced by tumor o Total bilirubin greater than 2 mg/dL (in the absence of obstructive cause), which indicates severe liver function impairment. Nonobstructive bilirubin elevations may indicate that liver metastases have caused liver impairment to the degree that risks outweigh benefits for this therapy. In contrast, patients with HCC and elevated bilirubin may be treated with radioembolization if a segmental or subsegmental infusion can be performed o Prior radiation therapy to the liver or upper abdomen that included a significant volume of the liver
February 2021	Added • Coronary Artery Brachytherapy (Negi,2016; Ohri N, et.al 2016; Oliver, et al 2008) o Intravascular Brachytherapy for coronary arteries is medically necessary when used as an adjunct to percutaneous coronary intervention for treatment of in-stent restenosis in a native coronary artery bare-metal stent or for drug-eluting stent

	○ All other uses of brachytherapy for coronary arteries is considered investigational • Added References
February 2020	Updated references
February 2019	Added and updated references

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ADDITIONAL RESOURCES

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Reviewed / Approved by NIA Clinical Guideline Committee

GENERAL INFORMATION

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.