

Brachytherapy

Note: For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Please refer to the CMS website at <http://www.cms.gov> for additional information.

Note: For Medicaid members/enrollees, circumstances when state Medicaid coverage provisions conflict with the coverage provisions within this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

DISCUSSION

Brachytherapy is a form of radiation treatment for cancer. An implant (for example, needle, seeds, wire, or a catheter) containing a radioactive source is placed into the tumor.¹ Brachytherapy utilizes natural or manufactured radioactive isotopes or radionuclides that may be either temporary (radioactive source is withdrawn) or permanent (inactive seeds remain in the body) to treat malignancies or certain benign conditions.¹ Treatment time may vary, according to the brachytherapy method, type of radioactive material, and cancer site. By placing the radioactive sources in or near the tumor, a higher dose of radiation is delivered to a smaller part of the body, thereby reducing the dose to surrounding healthy tissues.¹

Traditionally, brachytherapy has been employed in the treatment of gynecologic tumors and prostate cancer. Breast brachytherapy treatment delivers radiation via a balloon catheter following lumpectomy to the space left after the cancerous tumor is removed and to the tissue directly surrounding the cavity. By delivering radiation to the area directly surrounding the original tumor, radiation exposure is minimized to the rest of the breast and other organs.

Brachytherapy may be used alone as the sole treatment or as an adjunctive treatment with external beam radiation therapy (EBRT) or other modalities such as surgery or chemotherapy. Brachytherapy radiation doses may be delivered at a low dose-rate (LDR), high dose-rate (HDR).² HDR is usually performed over one to six outpatient procedures. Low dose-rate (LDR) brachytherapy uses radioactive materials inside the body.²

Electronic brachytherapy is a form of low energy, radiotherapy designed to deliver high dose-rate radiation to treat nonmelanoma skin cancer and breast cancer. This technique focuses a uniform dose of X-ray source radiation to the lesion with the aid of a shielded surface application. Due to a lack of evidence supporting the use of electronic brachytherapy, its use is considered investigational.³

DEFINITIONS

- **Brachytherapy (BT)** - Brachytherapy is a procedure that involves placing radioactive material inside the body. Brachytherapy is sometimes called internal radiation.
- **External beam radiation therapy (EBRT)** - External radiation (or external beam radiation) is the most common type of radiation therapy used for cancer treatment. A machine aims high-energy rays (or beams) from outside the body into the tumor.
- **Fractions** - A way of dividing a total dose of radiation into separate doses to be administered over a period of time.
- **Gray (Gy)** - One of the two units used to measure the amount of radiation absorbed by an object or person, known as the absorbed dose. One gray (Gy) is the international system of units (SI) equivalent of 100 rads, which is equal to an absorbed dose of 1 Joule/kilogram.
- **High dose-rate brachytherapy** - An amount of radiation that is greater than that given in typical radiation therapy. High-dose radiation is precisely directed at the tumor to avoid damaging healthy tissue and may kill more cancer

cells in fewer treatments. Also called HDR, high dose-rate brachytherapy is a form of internal radiation therapy in which radioactive material is placed directly inside or next to the tumor. It uses a higher total dose of radiation to treat a smaller area than external beam radiation therapy (EBRT) which directs high-energy X-ray beams at a tumor from outside the body.

- **Intensity-modulated radiotherapy (IMRT)** - Intensity-modulated radiation therapy (IMRT) is an advanced mode of high-precision radiotherapy that uses computer-controlled linear accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor. IMRT allows the radiation dose to conform more precisely to the three-dimensional shape of the tumor by controlling the intensity of the radiation beam in multiple small volumes. IMRT also allows higher radiation doses to be focused to regions within the tumor while minimizing the dose to surrounding normal critical structures.
- **Low dose-rate brachytherapy** - A radiation therapy treatment for cancer that involves the placement of a radioactive material directly inside the body, in or near a tumor, for a specific amount of time and then withdrawn. In LDR brachytherapy, the patient is treated with a low dose of radiation for hours at a time.
- **National Comprehensive Cancer Network® (NCCN)** - An alliance of 33 leading cancer centers devoted to patient care, research, and education. The NCCN guidelines are utilized for Radiation Therapy and Medical Oncology standards. NCCN consensus clinical standards are periodically updated and NantHealth, Inc. reviews these and updates its policies within a timely manner.
- **Palliative radiation therapy** - Treatment given to help relieve the symptoms and reduce the suffering caused by cancer or other life-threatening diseases. Palliative therapy may help a person feel more comfortable, but it does not treat or cure the disease. Palliative therapy may be given with other treatments from the time of diagnosis until the end of life.
- **Radionuclides** - Some medical radionuclides give off alpha or beta radiation (particles), and these are used for treating diseases such as cancer. They are administered as radiopharmaceuticals that target specific characteristics of tumors, such as over expression of certain receptors on cell surfaces.
- **Three-dimensional conformal radiation therapy (3D-CRT)** - A procedure that uses a computer to create a three-dimensional picture of the tumor. This allows doctors to give the highest possible dose of radiation to the tumor, while sparing the normal tissue as much as possible.

POLICY

Please see all related anatomical policies that include brachytherapy as a treatment for dosing parameters and medical necessity.

- Breast Cancer
- Gynecological Cancers
- Head and Neck Cancer
- Prostate Cancer
- Skin Cancer

REFERENCES

1. ASTRO model policies: brachytherapy. American Society for Radiation Oncology (ASTRO). <https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/BrachyModelPolicy.pdf>. Accessed May 3, 2024.
2. Brachytherapy to treat cancer. National Cancer Institute. <https://www.cancer.gov/about-cancer/treatment/types/radiation-therapy/brachytherapy>. Accessed May 3, 2024.
3. Dictionary of Cancer Terms. National Cancer Institute. <https://www.cancer.gov/publications/dictionaries/cancer-terms>. Accessed May 3, 2024.

4. Brachytherapy. ASTRO. <https://www.astro.org/daily-practice/coding/coding-guidance/coding-faqs-and-tips/brachytherapy>. Accessed May 3, 2024.

CODING [CPT®, ICD-10, HCPCS] *

*Procedure codes appearing in medical policy documents are only included as a general reference. This list may not be all-inclusive and is subject to updates. In addition, the codes listed are not a guarantee of payment.

Code	Description
C00.0 - C00.9	Malignant neoplasm of the lip
C01-C02.9	Malignant neoplasm of the tongue
C03.0-C03.9	Malignant neoplasm of the gum
C04.0-C04.9	Malignant neoplasm of floor of mouth
C06.0-C06.9	Malignant neoplasm of other and unspecified parts of mouth
C07-C08.9	Malignant neoplasm of major salivary glands
C09.0-C10.9	Malignant neoplasm of tonsil and oropharynx
C11.0-C11.9	Malignant neoplasm of nasopharynx
C13.0-C14.8	Malignant neoplasm of hypopharynx, other and ill-defined sites in the lip, oral cavity, and pharynx
C15.3 – C15.9	Malignant neoplasm esophagus
C16.0 – C16.9	Malignant neoplasm stomach
C30.0-C31.9	Malignant neoplasm of nasal cavity, middle ear, and accessory sinuses
C32.0-C32.9	Malignant neoplasm of larynx
C34.00 – C34.92	Malignant neoplasm of bronchus and lung
C43.9	Melanoma
C49.9	Sarcoma
C61	Malignant neoplasm Prostate
C73	Malignant neoplasm of thyroid gland
C76.0	Malignant neoplasm of other and ill-defined sites of head, face, and neck
C78.00 – C78.02	Secondary malignant neoplasm of lung
C2616	Brachytherapy source, nonstranded, yttrium-90, per source
C9726	Placement and removal (if performed) of applicator into breast for radiation therapy
D00.1	Carcinoma in-situ, esophagus
D02.20 – D02.22	Carcinoma in situ bronchus and lung
S2095	Transcatheter occlusion or embolization for tumor destruction, percutaneous, any method, using yttrium-90 microspheres
Z92.3	Personal history of irradiation
Z51.5	Encounter for palliative care
0394T	HDR electronic brachytherapy, skin surface application, per fraction
0395T	HDR electronic brachytherapy, interstitial or intracavitary treatment, per fraction
77295	3-dimensional volume reconstruction and dose distribution calculations in LDR or HDR brachytherapy.

Code	Description
77316	Brachytherapy isodose plan; simple (calculation[s] made from 1 to 4 sources, or remote after loading brachytherapy, 1 channel), includes basic dosimetry calculation(s)
77317	Brachytherapy isodose plan; intermediate (calculation[s] made from 5 to 10 sources, or remote after loading brachytherapy, 2-12 channels), includes basic dosimetry calculation(s)
77318	Brachytherapy isodose plan; complex (calculation[s] made from over 10 sources, or remote after loading brachytherapy, over 12 channels), includes basic dosimetry calculation(s)
77750	Infusion or instillation of radioelement solution (includes 3-month follow-up care)
77761	Intracavitary radiation source application; simple
77762	Intracavitary radiation source application; intermediate
77763	Intracavitary radiation source application; complex
77767	HDR radionuclide skin surface brachytherapy; lesion diameter up to 2.0 cm or 1 channel
77768	HDR radionuclide skin surface brachytherapy; lesion diameter over 2.0 cm and 2 or more channels, or multiple lesions
77770	HDR radionuclide interstitial or intracavitary brachytherapy; 1 channel
77771	HDR radionuclide rate interstitial or intracavitary brachytherapy; 2 to 12 channels
77772	HDR radionuclide interstitial or intracavitary brachytherapy; over 12 channels
77778	Interstitial radiation source application, complex, includes supervision, handling, loading of radiation source when performed
77790	Supervision, handling, loading of radiation source for manual- loading LDR brachytherapy

REVISION AND REVIEW HISTORY

No.	Description	Date(s)
1	Original Effective Date	5/24/2022
2	Policy Review Dates:	5/24/2022, 6/2/2022, 6/7/2022, 6/7/2023, 5/3/2024
3	Policy Revision Dates:	5/24/2022, 6/2/2022, 6/7/2022, 5/3/2024
4	Department Owner	Medical Affairs
5	NH Advisory Committee Approval Dates:	5/24/2022, 6/2/2022, 6/7/2022, 6/7/2023, 5/10/2024
6	Revision Changes:	5/3/2024 – Annual review completed, updated both ASTRO URL and changed policy version to 1.3. 6/2/2022 & 6/7/2022 Grammatical non-material changes