



# MASSACHUSETTS

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## Medical Policy Endobronchial Brachytherapy

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### Policy Number: 091

BCBSA Reference Number: 8.03.11  
NCD/LCD: N/A

### Related Policies

None

### Policy

#### Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members

Endobronchial brachytherapy is **MEDICALLY NECESSARY** in the following clinical situations:

- In patients with primary endobronchial tumors who are not otherwise candidates for surgical resection or external beam radiation therapy (EBRT) due to co-morbidities or location of the tumor, or
- As a palliative therapy for airway obstruction or severe hemoptysis in patients with primary, metastatic, or recurrent endobronchial tumors.

Other applications of endobronchial brachytherapy including, but not limited to, its use as a radiation “boost” to curative external-beam radiotherapy, as a treatment for asymptomatic recurrences of non-small-cell cancer, or in the treatment of hyperplastic granulation tissue are **INVESTIGATIONAL**.

### Prior Authorization Information

#### Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

#### Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is <b>not required</b> .
Commercial PPO and Indemnity	Prior authorization is <b>not required</b> .

Medicare HMO Blue <sup>SM</sup>	Prior authorization is <b>not required</b> .
Medicare PPO Blue <sup>SM</sup>	Prior authorization is <b>not required</b> .

### CPT Codes / HCPCS Codes / ICD Codes

*Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.*

*Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.*

*The following codes are included below for informational purposes only; this is not an all-inclusive list.*

**The above medical necessity criteria MUST be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:**

### CPT Codes

CPT codes:	Code Description
31643	Bronchoscopy (rigid or flexible), including fluoroscopic guidance, when performed; with placement of catheter(s) for intracavitary radioelement application
77316	Brachytherapy isodose plan; simple (calculation[s] made from 1 to 4 sources, or remote afterloading brachytherapy, 1 channel), includes basic dosimetry calculation(s)
77317	Brachytherapy isodose plan; intermediate (calculation[s] made from 5 to 10 sources, or remote afterloading brachytherapy, 2-12 channels), includes basic dosimetry calculation(s)
77318	Brachytherapy isodose plan; complex (calculation[s] made from over 10 sources, or remote afterloading brachytherapy, over 12 channels), includes basic dosimetry calculation(s)
77761	Intracavitary radiation source application; simple
77762	Intracavitary radiation source application; intermediate
77763	Intracavitary radiation source application; complex
77770	Remote afterloading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; 2-12 channels
77771	Remote afterloading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; 2-12 channels
77772	Remote afterloading high dose rate radionuclide interstitial or intracavitary brachytherapy, includes basic dosimetry, when performed; 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

**The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT codes above if medical necessity criteria are met:**

### ICD-10 Diagnosis Codes

ICD-10-CM diagnosis codes:	Code Description
C34.00	Malignant neoplasm of unspecified main bronchus
C34.01	Malignant neoplasm of right main bronchus
C34.02	Malignant neoplasm of left main bronchus

ICD-10-CM diagnosis codes:	Code Description
C34.10	Malignant neoplasm of upper lobe, unspecified bronchus or lung
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung
C34.2	Malignant neoplasm of middle lobe, bronchus or lung
C34.30	Malignant neoplasm of lower lobe, unspecified bronchus or lung
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung
C34.80	Malignant neoplasm of overlapping sites of unspecified bronchus and lung
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung
C34.90	Malignant neoplasm of unspecified part of unspecified bronchus or lung
C34.91	Malignant neoplasm of unspecified part of right bronchus or lung
C34.92	Malignant neoplasm of unspecified part of left bronchus or lung
C78.00	Secondary malignant neoplasm of unspecified lung
C78.01	Secondary malignant neoplasm of right lung
C78.02	Secondary malignant neoplasm of left lung
D02.20	Carcinoma in situ of unspecified bronchus and lung
D02.21	Carcinoma in situ of right bronchus and lung
D02.22	Carcinoma in situ of left bronchus and lung

## Description

### Endobronchial Lesions

#### Brachytherapy

Endobronchial brachytherapy has been primarily investigated as a palliative treatment of obstructing primary or metastatic tumors, particularly in non-small-cell lung cancer. Endobronchial brachytherapy has also been used as a tool in the curative treatment for some primary bronchial and tracheal tumors. Two to 4 fractions delivered weekly is a typical schedule. Median overall survival of patients with obstructing endobronchial tumors is typically less than 9 months.

In the outpatient setting, the patient receives local anesthesia and monitored sedation. A flexible bronchoscope is passed transnasally; a separate port on the bronchoscope allows passage of the afterloading catheter to the target lesion. Once the catheter is placed, the radioisotope can be administered by the high-dose rate radiotherapy afterloading machine. Patients with potential airway compromise due to bleeding may require treatment with a rigid bronchoscope, which requires general anesthesia and frequently an overnight stay.

#### Other Treatments

Endobronchial brachytherapy is an approach to the local treatment of endobronchial lesions. Other technologies include electrocoagulation, cryosurgery, laser resection, endosurgery, and endobronchial stent placement. In some instances, the therapies may be used together, such as laser therapy for initial debulking followed by brachytherapy.

## Summary

Endobronchial brachytherapy is the delivery of radiotherapy directly to endobronchial lesions, either intraluminally or interstitially, using permanently implanted radioactive seeds or a temporary after loading implant. The technique permits targeted radiation while minimizing exposure to surrounding radiosensitive structures, such as normal lung, heart, and spinal cord.

For individuals with non-small-cell lung cancer with airway obstruction or severe hemoptysis who receive endobronchial brachytherapy as palliative treatment, the evidence includes single-arm series and

randomized controlled trials summarized in systematic reviews. Relevant outcomes are overall survival, symptoms, morbid events, and treatment-related morbidity. Overall, the randomized controlled trials were assessed as low-quality and provided no evidence that endobronchial brachytherapy improves survival. However, the single-arm studies have suggested that endobronchial brachytherapy reduces symptoms (pulmonary obstruction, hemoptysis), particularly in patients who are not candidates for external-beam radiotherapy. If symptoms persist after external-beam radiotherapy, endobronchial brachytherapy is well-accepted as short-term palliation for symptoms such as hemoptysis, cough and dyspnea, and resolution of obstructive atelectasis or pneumonitis. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals with non-small-cell lung cancer who receive endobronchial brachytherapy as primary treatment, the evidence includes single-arm series. Relevant outcomes are overall survival, symptoms, morbid events, and treatment-related morbidity. For primary treatment (ie, with intent to improve survival outcomes), the effects of endobronchial brachytherapy on survival outcomes compared with alternative therapies are not well-defined. Additional comparative data are needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals with endobronchial hyperplastic granulation tissue who receive endobronchial brachytherapy, the evidence includes case series. Relevant outcomes are symptoms, morbid events, and treatment-related morbidity. The evidence for endobronchial brachytherapy for hyperplastic granulation tissue is limited. The available case series typically include endobronchial brachytherapy as part of multimodal management, making it difficult to assess the specific contribution of brachytherapy. The evidence is insufficient to determine the effects of the technology on health outcomes.

## Policy History

Date	Action
9/2020	BCBSA National medical policy review. Description, summary and references updated. Policy statements unchanged.
9/2019	BCBSA National medical policy review. Description, summary and references updated. Policy statements unchanged.
9/2018	BCBSA National medical policy review. No changes to policy statements. New references added. Background and summary clarified.
3/2018	New references added from BCBSA National medical policy.
1/2018	Clarified coding information.
1/2017	New references added from BCBSA National medical policy.
1/2016	Clarified coding information.
8/2015	Added coding language.
1/2015	Clarified coding information.
5/2014	New references from BCBSA National medical policy. Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
4/2013	New references from BCBSA National medical policy.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
7/2011	Reviewed - Medical Policy Group – Hematology and Oncology. No changes to policy statements.
4/2011	Reviewed - Medical Policy Group – Cardiology and Pulmonology. No changes to policy statements.
9/2010	Reviewed - Medical Policy Group – Hematology and Oncology. No changes to policy statements.
3/2010	Reviewed - Medical Policy Group – Pulmonology, Allergy/Asthma/Immunology, ENT and Otolaryngology. No changes to policy statements.
6/1/2010	BCBS Association National Policy Review.

	Changes to policy statements
9/2009	Reviewed - Medical Policy Group – Hematology and Oncology. No changes to policy statements.
4/1/2009	Medical Policy #091 created, effective 4/1/2009.

## Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

## References

1. Cardona AF, Reveiz L, Ospina EG, et al. Palliative endobronchial brachytherapy for non-small cell lung cancer. *Cochrane Database Syst Rev*. Apr 16 2008; (2): CD004284. PMID 18425900
2. Ratko TA, Vats V, Brock J, et al. *Local Nonsurgical Therapies for Stage I and Symptomatic Obstructive Non- Small-Cell Lung Cancer*. Rockville, MD: Agency for Healthcare Research and Quality; 2013.
3. Reveiz L, Rueda JR, Cardona AF. Palliative endobronchial brachytherapy for non-small cell lung cancer. *Cochrane Database Syst Rev*. Dec 12 2012; 12: CD004284. PMID 23235606
4. Ung YC, Yu E, Falkson C, et al. The role of high-dose-rate brachytherapy in the palliation of symptoms in patients with non-small-cell lung cancer: a systematic review. *Brachytherapy*. Jul-Sep 2006; 5(3): 189-202. PMID 16864071
5. Mallick I, Sharma SC, Behera D, et al. Optimization of dose and fractionation of endobronchial brachytherapy with or without external radiation in the palliative management of non-small cell lung cancer: a prospective randomized study. *J Cancer Res Ther*. Jul-Sep 2006; 2(3): 119-25. PMID 17998689
6. Goldberg M, Timotin E, Farrell T, et al. A prospective analysis of high-dose-rate endobronchial brachytherapy in the palliation of obstructive symptoms in lung cancer patients: A single-institution experience. *Brachytherapy*. Sep-Oct 2015; 14(5): 655-61. PMID 25983031
7. Ozkok S, Karakoyun-Celik O, Goksel T, et al. High dose rate endobronchial brachytherapy in the management of lung cancer: response and toxicity evaluation in 158 patients. *Lung Cancer*. Dec 2008; 62(3): 326-33. PMID 18482780
8. Gejerman G, Mullokandov EA, Bagiella E, et al. Endobronchial brachytherapy and external-beam radiotherapy in patients with endobronchial obstruction and extrabronchial extension. *Brachytherapy*. 2002; 1(4): 204-10. PMID 15062168
9. Langendijk JA, Tjwa MK, de Jong JM, et al. Massive haemoptysis after radiotherapy in inoperable non-small cell lung carcinoma: is endobronchial brachytherapy really a risk factor?. *Radiother Oncol*. Nov 1998; 49(2): 175-83. PMID 10052884
10. Hennequin C, Tredaniel J, Chevret S, et al. Predictive factors for late toxicity after endobronchial brachytherapy: a multivariate analysis. *Int J Radiat Oncol Biol Phys*. Aug 01 1998; 42(1): 21-7. PMID 9747815
11. Bedwinek J, Petty A, Bruton C, et al. The use of high dose rate endobronchial brachytherapy to palliate symptomatic endobronchial recurrence of previously irradiated bronchogenic carcinoma. *Int J Radiat Oncol Biol Phys*. 1992; 22(1): 23-30. PMID 1727125
12. Dagnault A, Ebacher A, Vigneault E, et al. Retrospective study of 81 patients treated with brachytherapy for endobronchial primary tumor or metastasis. *Brachytherapy*. Jul-Sep 2010; 9(3): 243-7. PMID 20122873
13. Guarnaschelli JN, Jose BO. Palliative high-dose-rate endobronchial brachytherapy for recurrent carcinoma: the University of Louisville experience. *J Palliat Med*. Aug 2010; 13(8): 981-9. PMID 20666622
14. Hennequin C, Bleichner O, Tredaniel J, et al. Long-term results of endobronchial brachytherapy: A curative treatment?. *Int J Radiat Oncol Biol Phys*. Feb 01 2007; 67(2): 425-30. PMID 17084547

15. Perol M, Caliandro R, Pommier P, et al. Curative irradiation of limited endobronchial carcinomas with high-dose rate brachytherapy. Results of a pilot study. *Chest*. May 1997; 111(5): 1417-23. PMID 9149603
16. Raben A, Mychalczak B. Brachytherapy for non-small cell lung cancer and selected neoplasms of the chest. *Chest*. Oct 1997; 112(4 Suppl): 276S-286S. PMID 9337304
17. Aumont-le Guilcher M, Prevost B, Sunyach MP, et al. High-dose-rate brachytherapy for non-small-cell lung carcinoma: a retrospective study of 226 patients. *Int J Radiat Oncol Biol Phys*. Mar 15 2011; 79(4): 1112-6. PMID 20510543
18. Skowronek J, Piorunek T, Kanikowski M, et al. Definitive high-dose-rate endobronchial brachytherapy of bronchial stump for lung cancer after surgery. *Brachytherapy*. Nov-Dec 2013; 12(6): 560-6. PMID 23850277
19. Rochet N, Hauswald H, Stoiber EM, et al. Primary radiotherapy with endobronchial high-dose-rate brachytherapy boost for inoperable lung cancer: long-term results. *Tumori*. Mar-Apr 2013; 99(2): 183-90. PMID 23748812
20. Hosni A, Bezjak A, Rink A, et al. High Dose Rate Brachytherapy as a Treatment Option in Endobronchial Tumors. *Lung Cancer Int*. 2016; 2016: 3086148. PMID 27493804
21. Tendulkar RD, Fleming PA, Reddy CA, et al. High-dose-rate endobronchial brachytherapy for recurrent airway obstruction from hyperplastic granulation tissue. *Int J Radiat Oncol Biol Phys*. Mar 01 2008; 70(3): 701-6. PMID 17904764
22. Madu CN, Machuzak MS, Sterman DH, et al. High-dose-rate (HDR) brachytherapy for the treatment of benign obstructive endobronchial granulation tissue. *Int J Radiat Oncol Biol Phys*. Dec 01 2006; 66(5): 1450-6. PMID 16997502
23. Rahman NA, Fruchter O, Shitrit D, et al. Flexible bronchoscopic management of benign tracheal stenosis: long term follow-up of 115 patients. *J Cardiothorac Surg*. Jan 17 2010; 5: 2. PMID 20078894
24. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Non-small cell lung cancer. Version 6.2020. [https://www.nccn.org/professionals/physician\\_gls/PDF/nscl.pdf](https://www.nccn.org/professionals/physician_gls/PDF/nscl.pdf). Accessed July 6, 2020.
25. Erickson BA, Bittner NH, Chadha M, et al. The American College of Radiology and the American Brachytherapy Society practice parameter for the performance of radionuclide-based high-dose-rate brachytherapy. *Brachytherapy*. Jan 2017; 16(1): 75-84. PMID 28109634
26. Viswanathan AN, Erickson BA, Ibbott GS, et al. The American College of Radiology and the American Brachytherapy Society practice parameter for the performance of low-dose-rate brachytherapy. *Brachytherapy*. Jan 2017; 16(1): 68-74. PMID 28109633
27. Molassiotis A, Smith JA, Mazzone P, et al. Symptomatic Treatment of Cough Among Adult Patients With Lung Cancer: CHEST Guideline and Expert Panel Report. *Chest*. Apr 2017; 151(4): 861-874. PMID 28108179
28. Stewart A, Parashar B, Patel M, et al. American Brachytherapy Society consensus guidelines for thoracic brachytherapy for lung cancer. *Brachytherapy*. Jan-Feb 2016; 15(1): 1-11. PMID 26561277