

National Imaging Associates, Inc.*	
Clinical Guideline: NON-SMALL CELL LUNG CANCER	Original Date: March 2011
Radiation Oncology	Last Revised Date: January 2022
Guideline Number: NIA_CG_122	Implementation Date: January 2023

INDICATIONS FOR RADIATION THERAPY

Three-dimensional conformal radiation therapy (3D-CRT) is considered medically necessary for the following clinical indications¹:

- Post-Operative Radiation Therapy¹:
 - Positive Nodes (N 1-3); **OR**
 - Positive or close margins

Dosage Guidelines¹:

 - Extracapsular nodal extension or positive margins: 54-60Gy up to 33 fractions
 - Gross Residual Tumor 60-70Gy up to 39 fractions
 - Negative margins: 50-54Gy up to 30 fractions

- Pre-Operative Radiation Therapy¹:
 - T3-4, N0-N1 **or**
 - Resectable Superior Sulcus Tumors **or**
 - N2 disease (Stage IIIA, T 1-3, N2)

Dosage Guidelines¹:

 - 45-54Gy up to 30 fractions

- Inoperable – Definitive¹:
 - Stage I disease (T1-2a, N0, M0)
 - Stage II and Stage III disease (T2b-T4, N0, M0 or T1-4, N1-3, M0)

or

 - Surgery Refused

Dosage Guidelines¹:

 - 60-70Gy up to 39 fractions

- Palliative Radiation Therapy is considered medically necessary for Stage IV (M1) disease to relieve pain, airway or endobronchial obstruction, and other symptoms¹

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Unless otherwise indicated, standard radiation fractionation consists of 1.8Gy to 2.0Gy per day. For hypofractionated palliative radiation, standard radiation fractionation consists of 2.5-3Gy.

Stereotactic Body Radiation Therapy (SBRT) is considered medically necessary for patients with inoperable Stage I or II disease or patients who refuse to have surgery or for a previously irradiated field¹

Dosage Guidelines:

- Delivered at 5 fractions or less

Endobronchial Brachytherapy is considered medically necessary for the following clinical indications¹:

- Patients with primary tumors who are not otherwise candidates for surgical resection or external-beam radiation therapy due to co-morbidities or location of the tumor
- Palliative therapy for airway obstruction or severe hemoptysis in patients with primary, metastatic, or recurrent tumors.

IMRT – Stage IIIB (any N3, or T3/4N2)²

- IMRT is approvable for definitive treatment of stage IIIB (any N3, or T3/4N2) NSCLC. A comparative plan is not required.

TREATMENT OPTIONS REQUIRING PHYSICIAN REVIEW

Intensity Modulated Radiation Therapy (IMRT)

IMRT is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for non-small cell lung cancer. IMRT may be appropriate for limited circumstances in which radiation therapy is indicated and 3D conformal radiation therapy (3D-CRT) techniques cannot adequately deliver the radiation prescription without exceeding normal tissue radiation tolerance, the delivery is anticipated to contribute to potential late toxicity or tumor volume dose heterogeneity is such that unacceptable hot or cold spots are created. If IMRT is utilized, techniques to account for respiratory motion should be performed.

Clinical rationale and documentation for performing IMRT rather than 2D/3D-CRT treatment planning and delivery will need to:

- Demonstrate how 2D-3D-CRT isodose planning cannot produce a satisfactory treatment plan (as stated above) via the use of a patient-specific dose volume histograms and isodose plans.
- Provide tissue constraints for both the target and affected critical structures.

Proton Beam Radiation Therapy (PBT)

Proton Beam is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for non-small cell lung cancer.

Stereotactic Body Radiation Therapy

Stereotactic Body Radiation Therapy (SBRT) is not considered a standard form of treatment for NSCLC except for inoperable Stage I and II disease or for treatment of previously irradiated field. Other requests for SBRT will require a peer review to make a medical necessity determination. Documentation from the radiation oncologist must include the clinical rationale for performing SBRT rather than 3-D conformal treatment.³

THE FOLLOWING APPLIES TO CMS (MEDICARE) MEMBERS ONLY:

For Proton Beam Radiation, refer to Local Coverage Determination (LCD), if applicable.

BACKGROUND

Lung cancer is the leading cause of cancer-related deaths of both men and women in the United States. The World Health Organization divides lung cancer into two types: non-small cell lung cancer (NSCLC) as discussed in this guideline and small cell lung cancer (SCLC). The most common lung cancer, NSCLC, includes various histologies: squamous carcinoma, adenocarcinoma, and large cell carcinoma. Surgery alone has been the standard treatment for patients with resectable NSCLC for many years. However, patients with completely resected disease have disappointing survival rates. In some cases, relapse occurs at distant sites which suggest that NSCLC may be a systemic disease when diagnosed. Chemotherapy and radiation therapy are now treatment considerations in both the preoperative and postoperative settings.

Prognosis and treatment of NSCLC are based on the staging of the cancer which documents the extent of cancer growth and spread. The initial goal of staging is to determine if the tumor is surgically resectable. Some patients with resectable disease may be cured by surgery while others, due to contraindications to surgery, may be candidates for radiation therapy for curative intent or for local control.

This guideline outlines several methods suitable for the delivery of radiation therapy to treat lung cancer. These include the use of external beam radiation therapy such as: three-dimensional conformal radiation therapy (3D-CRT), endobronchial brachytherapy, postoperative radiation therapy (PORT) and stereotactic body radiation (SBRT). Endobronchial brachytherapy and SBRT are aggressive approaches justified, in part, for non-resectable tumors. While these advances in treatment offer a range of regimens, the goal of this guideline is to guide diagnosis and treatment to the most efficient, comparatively effective, diagnostic and treatment pathway. Except for medically inoperable tumors and extreme palliative circumstances, radiation treatment is performed, in most cases, in conjunction with surgical intervention.

POLICY HISTORY

Date	Summary
January 2022	<ul style="list-style-type: none"> • Within Palliative Radiation Therapy, added “For hypofractionated palliative radiation, standard radiation fractionation consists of 2.5-3Gy.” • Added IMRT – Stage IIIB (any N3, or T3/4N2)
February 2021	<p>Previous Guideline: Stereotactic Body Radiation Therapy (SBRT) is considered medically necessary for patients with inoperable Stage I or II disease or patients who refuse to have surgery (NCCN 2019)</p> <p>Updated Guideline to include medical necessity for “<i>previously irradiated field</i>”: Stereotactic Body Radiation Therapy (SBRT) is considered medically necessary for patients with inoperable Stage I or II disease or patients who refuse to have surgery or <i>for a previously irradiated field (NCCN, 2021).</i></p> <ul style="list-style-type: none"> • Updated References
February 2020	No Changes
February 2019	Added and updated references

REFERENCES

1. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Non-Small Cell Lung Cancer Version 7.2021. National Comprehensive Cancer Network (NCCN). Updated October 29, 2021. Accessed December 6, 2021. https://www.nccn.org/professionals/physician_gls/pdf/nscl.pdf
2. Chun SG, Hu C, Choy H, et al. Impact of Intensity-Modulated Radiation Therapy Technique for Locally Advanced Non-Small-Cell Lung Cancer: A Secondary Analysis of the NRG Oncology RTOG 0617 Randomized Clinical Trial. *J Clin Oncol*. Jan 2017;35(1):56-62. doi:10.1200/jco.2016.69.1378
3. American Society for Radiation Oncology. Model Policies: Stereotactic Body Radiation Therapy. American Society for Radiation Oncology (ASTRO). Updated June 2020. Accessed December 7, 2021. <https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/ASTROSBRTModelPolicy.pdf>

ADDITIONAL RESOURCES

1. American Society for Radiation Oncology. Model Policies: Proton Beam Therapy. Updated June 2017. Accessed December 8, 2021. https://www.astro.org/uploadedFiles/MAIN_SITE/Daily_Practice/Reimbursement/Model_Policies/Content_Pieces/ASTROPBTModelPolicy.pdf
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8. Jackson A, Marks LB, Bentzen SM, et al. The lessons of QUANTEC: recommendations for reporting and gathering data on dose-volume dependencies of treatment outcome. *Int J Radiat Oncol Biol Phys*. Mar 1 2010;76(3 Suppl):S155-60. doi:10.1016/j.ijrobp.2009.08.074

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.

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