Eviti Imaging: Lung Cancer

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Lung Cancer Imaging

Discussion

This imaging guideline provides a standardized framework for the use of diagnostic and surveillance imaging in the management of common adult malignancies, specifically lung cancer. The goal is to ensure timely, evidence-based imaging that supports accurate staging, treatment planning, response assessment, and post-treatment surveillance.

Guiding Principles

- Follow evidence-based practices from major guidelines (e.g., NCCN, ESMO, ACR Appropriateness Criteria)
- Ensure imaging aligns with the clinical context and stage of disease
- Minimization of unnecessary radiation exposure
- Promote timely and cost-effective imaging utilization
- Incorporate multidisciplinary collaboration in imaging decisions

Imaging Guidelines

This guideline applies to the following patients:

1. At least 18 years of age with confirmed or suspected diagnoses of lung cancer; AND
2. All phases of oncologic care, including one of the following:
   a) Initial staging
   b) Treatment response evaluation
   c) Post-treatment surveillance
   d) Detection of recurrence or progression; AND
3. All imaging modalities used in oncology care, including but not limited to the following:
   a) Computed tomography (CT) (neck, chest, abdomen, pelvis, neck, or site-specific)
   b) Magnetic resonance imaging (MRI) (including site-specific protocols such as pelvis MRI, brain MRI, liver MRI)
   c) Fluorodeoxyglucose positron emission tomography/CT (FDG-PET/CT)
   d) PET/MRI
   e) Somatostatin receptor PET/CT (SSTR-PET/CT)
   f) Nuclear medicine (e.g., bone scan, PSMA PET)
   g) Single photon emission computed tomography/CT (SPECT/CT) (e.g., octreotide SPECT/CT for neuroendocrine tumors)

Notes:

1. The concurrent utilization of multiple advanced imaging modalities—such as PET/CT and MRI—is not routinely warranted and should be considered only when each modality is expected to provide distinct and clinically relevant information that will directly impact patient management. The selection of the most appropriate imaging study should be individualized, taking into account tumor type, clinical presentation, prior imaging, and other patient-specific factors. Imaging requests will be evaluated on a case-by-case basis to ensure clinical necessity, appropriateness, and the potential to influence therapeutic decision-making.

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2. When PET imaging is clinically indicated, the appropriate radiotracer should be selected based on tumor type and clinical scenario.

Lung Cancer Imaging

1. Non-Small Cell Lung Cancer (NSCLC): Imaging for diagnosis, staging (TNM), treatment planning, and follow-up
2. Small Cell Lung Cancer (SCLC): Imaging for staging (including brain and bone), treatment response, and surveillance

Non-Small Cell Lung Cancer (NSCLC) Imaging

NSCLC accounts for approximately 85% of lung cancers and includes subtypes such as adenocarcinoma, squamous cell carcinoma, and large cell carcinoma. Imaging is essential for staging (TNM), treatment planning (surgical, radiation, or systemic therapy), and surveillance. Imaging protocols vary by disease stage and treatment intent.[1]

Non-Small Cell Lung Cancer Imaging Recommendations			
Clinical Scenario	**Recommended Modality**	**Frequency/Timing**	**Purpose/Notes**
Initial Diagnosis & Staging	CT chest + CT abdomen (include adrenals)	At diagnosis	Evaluate tumor size, nodal status, metastasis
	PET/CT	At diagnosis	Better assessment of nodal/metastatic disease; may upstage patients
	Brain MRI	At diagnosis for stage II or higher or neurologic symptoms	Brain is a common metastatic site, especially in adenocarcinoma
Treatment Response Monitoring Neoadjuvant Therapy	CT chest/abdomen ± PET/CT	Before surgery	To assess response of neoadjuvant chemotherapy prior to surgery
Post-Treatment Response After Concurrent Chemoradiotherapy	CT chest ± abdomen	Before initiation of maintenance therapy	For patients treated with radiation and/or systemic therapy

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Treatment Response Monitoring for Stage IV	CT chest/abdomen ± PET/CT; when clinically indicated due to inconclusive or inadequate findings on conventional imaging	Every 2–4 cycles of systemic therapy or every 3 months	Track response to chemotherapy, immunotherapy, or targeted agents
Suspected Recurrence or Progression	CT chest/abdomen ± brain MRI PET/CT; when clinically indicated due to inconclusive or inadequate findings on conventional imaging	As clinically indicated	Based on clinical symptoms or rising tumor markers
Known Brain Metastases	Brain MRI	Every 2–3 months initially, then per clinical judgment	Assess response or progression post-stereotactic radiosurgery or whole brain radiation therapy
Post-Operative Surveillance (Curative Resection for Stage I/II)	CT chest	Every 6 months for 2-3 years, then low-dose CT of the chest annually	Early detection of recurrence
Surveillance (All Other Clinical Scenarios)	CT chest	Every 3-6 months during first 3 years, then every 6 months for 2 additional years, then low-dose CT of the chest annually	For patients treated with radiation or systemic therapy

Small Cell Lung Cancer (SCLC) Imaging

Small cell lung cancer is an aggressive neuroendocrine carcinoma characterized by rapid growth and early metastasis. Imaging is critical for accurate staging, treatment planning, and surveillance. Because of its high metastatic potential, comprehensive initial imaging and close follow-up are essential.[2]

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Small Cell Lung Cancer Imaging Recommendations			
Clinical Scenario	Recommended Modality	Frequency/Timing	Purpose/Notes
Initial Diagnosis & Staging	CT chest + CT abdomen/pelvis	At diagnosis	Evaluate primary tumor, lymph nodes, liver, adrenals
	Brain MRI	At diagnosis	Required due to high risk of brain metastases
	Bone scan PET/CT (When clinically indicated due to inconclusive or inadequate findings on conventional imaging or limited stage)	Optional as indicated	For detecting bone metastases; PET/CT may replace CT plus bone scan in limited stage
Treatment Response Evaluation	CT chest/abdomen/pelvis ± Brain MRI (if brain metastasis or symptoms)	After 2-3 cycles of therapy, then at end of treatment	Assess tumor response or progression
Surveillance Post-Treatment	CT chest/abdomen/ pelvis	Every 3 months for 2 years, then every 6 months up to year 5	Monitor for recurrence or metastasis
	Brain MRI (if previously involved or prophylactic cranial irradiation given)	Every 3–6 months (if prior brain involvement)	Brain relapse is common even after prophylactic cranial irradiation
Suspected Recurrence or Progression	CT chest/abdomen/pelvis ± PET/CT when clinically indicated due to inconclusive or inadequate findings on conventional imaging or brain MRI	As clinically indicated	Based on symptoms or clinical suspicion

Revision and Review History

No.	Description	Date
1	Original Effective Date:	1/1/2026
2	Policy Annual Review Dates:	

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3	Department Owner:	Medical Affairs
4	NH Advisory Committee Approval Dates:	
5	Revision Changes:	

References

[1] National Comprehensive Cancer Network Guidelines: Non-Small Cell Lung Cancer. https://www.nccn.org/professionals/physician_gls/pdf/nscl.pdf. Accessed December 15, 2025.

[2] National Comprehensive Cancer Network Guidelines: Small Cell Lung Cancer. https://www.nccn.org/professionals/physician_gls/pdf/sclc.pdf. Accessed December 15, 2025.

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