

Appropriate Use Criteria for Initial Diagnosis and Staging of Lung Cancer  
Evidence Table

Article	Publication type	Grade (oxford*)	Findings	Rule (simple)	Notes
<b>Initial Diagnosis NSCLC</b>					
Silvestri GA.; Gonzalez AV.; Jantz MA.; Margolis ML.; Gould MK.; Tanoue LT.; Harris LJ.; Detterbeck FC. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest May 2013;143(5 Suppl):e211S-e250S	Meta-analysis	1a	Brain and abdominal imaging should be dictated by these findings: <b>Symptoms elicited in history</b> Constitutional-weight loss greater than 10 pounds Musculoskeletal-focal skeletal pain Neurologic-headaches, syncope, seizures, extremity weakness, recent change in mental status <b>Signs found on physical exam</b> Lymphadenopathy (greater than 1 cm) Hoarseness, superior vena cava syndrome Bone tenderness Hepatomegaly (greater than 13 cm span) Focal neurologic signs, papilledema Soft tissue mass Routine laboratory tests Hematocrit, less than 40% in males Hematocrit, less than 35% in females Elevated alkaline phosphatase, GGT, SGOT	NSCLC: Head CT and A/P CT indicated in setting of signs and symptoms	
Chest. 2013 May;143(5 Suppl):e211S-e250S. doi: 10.1378/chest.12-2355. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Silvestri GA1, Gonzalez AV2, Jantz MA3, Margolis ML4, Gould MK5, Tanoue LT6, Harris LJ7, Detterbeck FC8.	Clinical practice guideline	1b	"2.1.1. For patients with either a known or suspected lung cancer who are eligible for treatment, a CT scan of the chest with contrast is recommended" - include liver & adrenals if no PET/CT available	Chest CT appropriate for suspected NSCLC	
Executive Summary of the SEPAR Recommendations for the Diagnosis and Treatment of Non-small Cell Lung Cancer Arch Bronconeumol. 2016;52(7):378-388	Clinical practice guideline/Systematic review	1c	"CT is the gold standard test for the diagnosis and staging of LC, and is mandatory if lesions suspected to be malignant are observed on radiography." If the nodule was diagnosed by radiography, a CT should be performed to improve characterization of the lesion <sup>26,27</sup> (Grade 1C).	Chest CT is appropriate if cancer suspected on radiograph	
Ravenel JG. Evidence-based imaging in lung cancer: a systematic review. Journal of thoracic imaging Sep 2012;27(5):315-24	Systematic review	1c	CT and PET for staging; MRI only with superior sulcus tumors	Chest CT is appropriate if cancer suspected on radiograph	
NCCN Clinical Practice Guidelines in Oncology NSCLC JCCN 11; 2013- Added	Consensus/CPG	5	Chest CT through adrenals	Chest CT appropriate for suspected NSCLC	
Silvestri GA, Tanoue LT, Margolis ML, Barker J, Detterbeck F; American College of Chest Physicians. The noninvasive staging of non-small cell lung cancer: the guidelines. Chest. 2003 Jan;123(1 Suppl):147S-156S.	Clinical practice guideline	5	"A CT scan of the chest should be performed in nearly all cases of lung cancer unless the patient is so debilitated that no further evaluation or treatment is planned."	Chest CT is appropriate if cancer suspected on radiograph	"It is widely accepted that the chest radiograph is in general an insensitive measure of mediastinal lymphadenopathy". RECOMMENDATION: For pts with known or suspected lung cancer eligible for treatment, CT of the chest should be performed. Level of evidence: fair, benefit, substantial; grade of evidence: B
<b>Initial Diagnosis SCLC</b>					
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of non-small-cell lung cancer (NSCLC). Ann Oncol. 2001 Aug;12(8):1049-50.	Clinical practice guideline	5	Complete history and physical examination, chest X-ray and CT-scan of the chest and upper abdomen.	Chest and upper abdomen CT appropriate in all patients with known or suspected lung cancer	
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of small-cell lung cancer (SCLC). Ann Oncol. 2001 Aug;12(8):1051-2.	Clinical practice guideline	5	In addition to a complete history and physical examination, staging procedures should at least include the following: chest X-ray, complete blood count, liver and renal function tests, LDH, sodium, and a CT-scan of chest and upper abdomen.	SCLC: Chest and upper abdomen CT appropriate in all patients with known or suspected lung cancer	V,D
<b>Brain Imaging</b>					
Chest. 2013 May;143(5 Suppl):e211S-e250S. doi: 10.1378/chest.12-2355. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Silvestri GA1, Gonzalez AV2, Jantz MA3, Margolis ML4, Gould MK5, Tanoue LT6, Harris LJ7, Detterbeck FC8.	Clinical practice guideline	1b	"2.1.3. In patients with either a known or suspected lung cancer who have an abnormal clinical evaluation and no suspicious extrathoracic abnormalities on chest CT, additional imaging for metastases is recommended (Grade 1B). Remark: Site specific symptoms warrant directed evaluation of that site with the most appropriate study."	Brain imaging for focal neurologic signs or other symptoms of brain pathology	
Chest. 2013 May;143(5 Suppl):e211S-e250S. doi: 10.1378/chest.12-2355. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Silvestri GA1, Gonzalez AV2, Jantz MA3, Margolis ML4, Gould MK5, Tanoue LT6, Harris LJ7, Detterbeck FC8.	Clinical practice guideline	2c	"3.4.1. In patients with clinical stage III or IV NSCLC it is suggested that routine imaging of the brain with head MRI (or CT if MRI is not available) should be performed, even if they have a negative clinical evaluation (Grade 2C)."	Brain imaging in stage III or IV disease in absence of signs or symptoms	
Silvestri GA, Tanoue LT, Margolis ML, Barker J, Detterbeck F; American College of Chest Physicians. The noninvasive staging of non-small cell lung cancer: the guidelines. Chest. 2003 Jan;123(1 Suppl):147S-156S.	Clinical practice guideline	5	In most studies, the yield of CT scanning/MRI of the brain in NSCLC patients with negative clinical examination results is 0 to 10%; <sup>58-64</sup> possibly rendering the test cost-ineffective. <sup>62</sup>	Brain imaging may be appropriate but only if clinical findings	
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of non-small-cell lung cancer (NSCLC). Ann Oncol. 2001 Aug;12(8):1049-50.	Clinical practice guideline	5	Neurologic history and examination (with a CT scan and/or MRI of the brain if abnormal results).	Brain imaging may be appropriate but only if clinical findings	
NCCN Clinical Practice Guidelines in Oncology SCLC JCCN 11; 2013 - Added	Consensus	5	Small cell lung cancer staging includes brain MRI > brain CT and PET CT	Brain imaging and PET CT appropriate for staging SCLC	
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of small-cell lung cancer (SCLC). Ann Oncol. 2001 Aug;12(8):1051-2.	Clinical practice guideline	5	Additional tests to define limited disease in patients with symptoms or abnormal physical examination suggesting metastasis are: a bone scintigraphy, a CT-scan of the brain, and a bone marrow biopsy. Once any one of these tests is positive, extensive disease has been confirmed and there is no need to proceed with the rest of the tests [V, E>].'	Brain imaging may be appropriate in SCLC but only if clinical findings	V,D
Simon GR, Wagner H; American College of Chest Physicians. Small cell lung cancer. Chest. 2003 Jan;123(1 Suppl):259S-271S. Review. PubMed PMID: 12527584. - Added	Consensus - nonsystematic review	5	In all patients, the routine staging of SCLC should include medical history and physical examination, complete blood counts, comprehensive chemistry panels, CT scans of the chest and abdomen, a CT scan or MRI of the brain, and a bone scan. Level of evidence, good; benefit, substantial; grade of recommendation, A	Brain imaging and PET CT appropriate for staging SCLC	

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<b>Spine Imaging</b>					
Simoff MJ, Lally B, Slade MG, Goldberg WG, Lee P, Michaud GC, Wahidi MM, Chawla M. Symptom management in patients with lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest. 2013 May;143(5 Suppl):e455S-e497S.	Clinical practice guideline	1c	"Palliation of Spinal Cord Compression 8.4.1. In patients with lung cancer that have new onset of back pain, sagittal T1-weighted MRI of the entire spine is recommended (Grade 1C)." T1-weighted MRI with or without gadolinium of the entire spine should be done initially in patients with known lung cancer with the new onset of back pain or focal neurologic deficit.	MRI of entire spine with and without in lung cancer patients with back pain or neurologic deficit	"Palliation of Spinal Cord Compression "SCC ...untreated, is usually one of relentless and progressive pain, paralysis, sensory loss, and sphincter dysfunction. At presentation, 90% of patients have pain (local and/or radicular), and up to 50% of patients may be unable to walk and have sensory and/or bladder/bowel dysfunction. 162,163 Patients with paralysis either at presentation or after treatment have a much shorter life expectancy than ambulatory patients....the deterioration is devastating for patients and their families and is difficult to manage medically.167-169 Clinical features: Any or all of the following: pain (local or radicular), weakness, sensory disturbance, and/or evidence of sphincter dysfunction. "The consequences of cord compression are so severe that sagittal T1-weighted MRI with or without gadolinium of the entire spine should be done initially in patients with known lung cancer with the new onset of back pain or focal neurologic deficit. "
Chest. 2013 May;143(5 Suppl):e2115S-e250S. doi: 10.1378/chest.12-2355. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Silvestri GA1, Gonzalez AV2, Jantz MA3, Margolis ML4, Gould MK5, Tanoue LT6, Harris LJ7, Detterbeck FC8.	Clinical practice guideline	1b	"2.1.3. In patients with either a known or suspected lung cancer who have an abnormal clinical evaluation and no suspicious extrathoracic abnormalities on chest CT, additional imaging for metastases is recommended (Grade 1B). Remark: Site specific symptoms warrant directed evaluation of that site with the most appropriate study."	Spine imaging for pain or neurologic abnormality in NSCLC	
<b>Bone Imaging</b>					
Chest. 2013 May;143(5 Suppl):e2115S-e250S. doi: 10.1378/chest.12-2355. Methods for staging non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Silvestri GA1, Gonzalez AV2, Jantz MA3, Margolis ML4, Gould MK5, Tanoue LT6, Harris LJ7, Detterbeck FC8.	Clinical practice guideline	2a	"PET scanning appears to have excellent performance characteristics in assessing bone metastases"	Patients with pain, elevated ALP or elevated calcium - PET/CT is sufficient; bone scan if no PET performed	
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of non-small-cell lung cancer (NSCLC). Ann Oncol. 2001 Aug;12(8):1049-50.	Clinical practice guideline	5	Bone scintigraphy, in the presence of bone pain, elevated serum calcium level, or elevated alkaline phosphatase level	Bone scan may be appropriate but only if clinical findings	
ESMO. ESMO Minimum Clinical Recommendations for diagnosis, treatment and follow-up of small-cell lung cancer (SCLC). Ann Oncol. 2001 Aug;12(8):1051-2.	Clinical practice guideline	5	Additional tests to define limited disease in patients with symptoms or abnormal physical examination suggesting metastasis are: a bone scintigraphy, a CT-scan of the brain, and a bone marrow biopsy. Once any one of these tests is positive, extensive disease has been confirmed and there is no need to proceed with the rest of the tests [V, E>].'	Bone scan, brain imaging may be appropriate in SCLC but only if clinical findings	V,D
Simon GR, Wagner H; American College of Chest Physicians. Small cell lung cancer. Chest. 2003 Jan;123(1 Suppl):259S-271S. Review. PubMed PMID: 12527584. - Added	Consensus - nonsystematic review	5	In all patients, the routine staging of SCLC should include medical history and physical examination, complete blood counts, comprehensive chemistry panels, CT scans of the chest and abdomen, a CT scan or MRI of the brain, and a bone scan. Level of evidence, good; benefit, substantial; grade of recommendation, A	Brain imaging and PET CT appropriate for staging SCLC	