AAVBC

AMERICAN ACADEMY OF VALUE BASED CARE

Lung Cancer

Quick Reference Guide

2026

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1 CLINICAL SNAPSHOT

Definition: Lung cancer comprises **non-small cell lung cancer** (**NSCLC**, ~80–85% of cases) and **small cell lung cancer** (**SCLC**, ~10–15%).[1] Major NSCLC subtypes are **adenocarcinoma** (most common, non-smoker predilection), **squamous cell carcinoma** (smoking-associated, central airways), and **large cell carcinoma** (aggressive, peripheral).[1] Lung cancer is the **leading cause of cancer death** in the United States in both men and women, accounting for more deaths annually than colorectal, breast, and prostate cancers **combined**.[1]

ICD-10 Codes:

All primary lung cancers use **C34.xx regardless of histologic type**: **C34.01** (right main bronchus), **C34.02** (left main bronchus), **C34.11** (right upper lobe), **C34.12** (left upper lobe), **C34.2** (middle lobe; right only), **C34.31** (right lower lobe), **C34.32** (left lower lobe), **C34.81/C34.82** (overlapping sites by side), **C34.91/C34.92** (unspecified part by side), **C34.90** (unspecified; Avoid). **Carcinoid**: **C7A.090**. **Metastases TO lung from another primary**: **C78.00/C78.01/C78.02** = code the originating primary **AND** each lung site **separately**.[2] **Z85.118** (personal history) applies **ONLY** after complete eradication **and** end of active surveillance.[2]

Prevalence and Burden: Average age at diagnosis is **70 years**; approximately 70% of NSCLC cases occur in adults aged ≥65 years, making lung cancer predominantly a **Medicare-population burden**.[1,3,4] Approximately **60%** of lung cancers arise in the **right lung**; the right upper lobe is disproportionately affected, comprising **31.2%** of tumors despite representing only **17.6%** of total lung volume.[5] Cigarette smoking accounts for approximately **85-90%** of US lung cancer cases, with an estimated **85%** of lung cancer deaths in 2025 **directly caused by cigarette smoking**.[6,7] **LDCT screening** utilization remains critically low: only **~14-18%** of eligible individuals were up to date with screening nationally in 2022, representing the **largest gap in US cancer screening quality**.[8,9] Major **comorbidity burden** among Medicare beneficiaries with cancer is substantial: diabetes **27%**, COPD **22%**, peripheral vascular disease **14%**, and congestive heart failure **12%**.[10]

HCC/RAF V28 Mapping

ICD-10 CODE(S)[2]	HCC CATEGORY (V28)[11]	RAF (CNA)*[12]	DOCUMENTATION REQUIREMENT[13]
C34.01–C34.92 (specific subsite + laterality)	**HCC 20** Lung and Other Severe Cancers	1.136	Active primary lung malignancy confirmed by pathology or imaging; document **specific lobe and laterality** from CT and pathology reports
C34.90 (unspecified, unspecified side)	**HCC 20** Lung and Other Severe Cancers	1.136	**AVOID**: highest audit risk in lung cancer coding; Every CT and pathology report specifies lobe and laterality → transcribe into the encounter note to **support C34.01–C34.92**

ICD-10 CODE(S)[2]	HCC CATEGORY (V28)[11]	RAF (CNA)*[12]	DOCUMENTATION REQUIREMENT[13]
C7A.090 (bronchopulmonary carcinoid)	**HCC 21** Lymphoma and **Other Cancer**	0.671	Confirm **carcinoid** vs adenocarcinoma vs SCLC histology; lower RAF reflects **HCC 21 classification**: carcinoids are indolent, lower-cost neoplasms vs aggressive lung cancers in **HCC 20**
C78.00, C78.01, C78.02	**HCC 17** Cancer Metastatic to **Lung**/ Liver/Brain	4.209	Metastases **TO lung** from another primary; code the originating primary **AND** each lung site separately
Z85.118	**No HCC**	—	**AVOID:** Personal history of bronchus/lung malignancy applies **ONLY** after complete eradication and end of active surveillance/ treatment

ABBREVIATIONS: ICD-10 = International Classification of Diseases, Tenth Revision; HCC = Hierarchical Condition Category; V28 = CMS-HCC Model Version 28; RAF = Risk Adjustment Factor; CNA = Community Non-Dual Eligible, Aged; CT = computed tomography; SCLC = small cell lung cancer; CMS = Centers for Medicare & Medicaid Services; NCCN = National Comprehensive Cancer Network; NSCLC = non-small cell lung cancer *RAF values represent the Community Non-Dual Eligible Aged (CNA) coefficient from the 2026 CMS-HCC model;11 values vary across patient populations based on eligibility and care setting

Risk-Adjusted Care Resources per Patient/Year[11,12]

Risk-adjusted care resource allocation — MA base rate (~$10,402.34) × RAF coefficient

PRIMARY LUNG ADENOCARCINOMA	PRIMARY LUNG CARCINOID	METASTATIC LUNG (SECONDARY)
$11.8K	$7.0K	~$43.8K+
HCC 20 · RAF 1.136		

RAF values represent the Community Non-Dual Eligible Aged (CNA) coefficient from the 2026 CMS-HCC model; values vary across patient populations based on eligibility and care setting

Annual risk value illustrative at base rate ~$10,402/year; actual plan payment varies by county and contract year.

AAVBC PERSPECTIVE

***From the AAVBC's perspective**, value-based care in lung cancer demands that primary care **close the screening gap** (currently **~75%** of eligible adults remain **unscreened**) by correctly deploying the single mandated screening modality: **low-dose CT** (**LDCT**), **NOT** chest X-ray. Chest X-ray misses **up to 26%** of early-stage lung cancers and is explicitly **not** recommended for screening by NCCN, USPSTF, or CMS.[4,14,15] Eligibility criteria vary across organizations: **CMS** covers ages 50–77 with ≥20 pack-years and quit ≤15 years; **USPSTF** extends to age 80; **NCCN** sets no upper age limit, instead conditioning continued screening on*

*candidacy for **curative-intent** treatment.*
*LDCT screening requires a documented shared decision-making (**SDM**) visit using a decision aid (G0296) **before** the first annual LDCT;[15] this visit is separately billable and clinically mandatory, **not** a formality, and gives clinicians the opportunity to individualize discussions for patients near eligibility cutoffs. Treatment selection for screen-detected or symptomatic lung cancer in older adults should be guided by geriatric assessment and performance status (frailty), **not chronological age**, because dose-modified regimens, targeted therapies, and stereotactic body radiation therapy can be effective and tolerable **when appropriately selected**.[6,7]*
***AAVBC emphasizes** that primary care is uniquely positioned to close the lung cancer diagnostic gap by integrating LDCT screening into **routine preventive care** for eligible patients, reinforcing **smoking cessation** at every encounter, coordinating COPD and cardiovascular comorbidity, and ensuring that treatment decisions **incorporate functional status**, comorbidity burden, biomarker profile, and **patient goals** alongside disease biology.*

2 RECOGNITION AND DIAGNOSIS

Lung Cancer Screening and Diagnostic Tests Covered Under Medicare Part B

TEST[6,7,14]	FREQUENCY	CPT CODE	CLINICAL INDICATION[6,7,14]
SDM visit**	Once **before initial screening**; reaffirm annually	G0296	Decision aid documentation is a CMS billing **MANDATE**;[15] LDCT may be **denied** without it**
LDCT lung cancer screening	**Annually** for eligible patients	71271	**CMS eligibility**:[15] age 50–77, ≥20 pack-years, current smoker **OR** quit within 15 years, asymptomatic, **documented SDM** with decision aid; **NCCN criteria**:[14] age ≥50 (category 1) + ≥20 pack-year history (category 1), with **no upper age limit** and **no quit-year cutoff**
Smoking cessation counseling	At **every encounter** for active or recent smokers[16]	99406/ 99407	Should be offered **alongside every LDCT screening** encounter;[16] smoking accounts for **80–90%** of US lung cancer deaths[6,7]
Diagnostic chest CT (non-screening)	**Per indication** (not population-wide screening)[6,7]	71260/ 71270	For **persistent cough** >3 wk, **hemoptysis** (any amount), new **hoarseness** >3 wk, **weight loss** >5%[6,7]

TEST[6,7,14]	FREQUENCY	CPT CODE	CLINICAL INDICATION[6,7,14]
Multigene panel testing (advanced NSCLC)*	Once **at diagnosis** (per Medicare NCD)	81445/ 81455/ 0388U	Required **before first-line systemic therapy** in advanced non-squamous NSCLC;[6] testing rate **only ~45%** in real-world data[17]
PD-L1 testing (IHC)	Once **at diagnosis**	88341/ 88342	Drives **pembrolizumab monotherapy eligibility** (PD-L1 ≥50%) and combination regimen selection[6,7]
Advance care planning (AWV)	**Annually** + when goals change	99497/ 99498	Particularly important for advanced or **metastatic disease and SCLC**[6,7]

ABBREVIATIONS: SDM = shared decision-making; CMS = Centers for Medicare & Medicaid Services; LDCT = low-dose computed tomography; NCCN = National Comprehensive Cancer Network; CT = computed tomography; NSCLC = non-small cell lung cancer; NCD = National Coverage Determination; PD-L1 = programmed death-ligand 1; IHC = immunohistochemistry; AWV = Annual Wellness Visit; SCLC = small cell lung cancer; CPT = Current Procedural Terminology; US = United States
***Coverage may require specific conditions: Multigene panel testing is covered under Medicare Part B via NCD for advanced NSCLC pre-treatment only; coverage may vary by MAC jurisdiction and specific assay. Verify LCD/NCD applicability before ordering**
****Required before first LDCT: The SDM visit (G0296) is a prerequisite for initial LDCT screening coverage. LDCT claims may be denied if G0296 is not documented prior to the first screening**

Subtle Early Signs in Older Adults (>65)

SIGN/SYMPTOM	CLINICAL SIGNIFICANCE[6,7]
Persistent cough >3 weeks in smoker/former smoker	Commonly **misdiagnosed as COPD** exacerbation or recurrent bronchitis;[18] repeated antibiotic courses for '**persistent infection**' is a red-flag pattern that should trigger **CT chest**
Hemoptysis (any amount)	**Mandatory** CT chest workup; do **NOT** attribute to anticoagulants or 'irritation' without imaging
New hoarseness >3 weeks	Possible recurrent **laryngeal nerve compression** by mediastinal tumor; **CT chest** within 1–2 weeks
Unintentional weight loss >5%	**Constitutional symptom**: combined with other risk factors warrants **CT chest**
Recurrent pneumonia in the same lobe	**Post-obstructive pneumonia** from an endobronchial tumor;[18] obtain **CT chest**, not just repeat chest X-ray, after second episode in the same anatomic region
Persistent shoulder/arm pain (Pancoast pattern)	Apical (superior sulcus) tumor with brachial plexus involvement; chest imaging **mandatory**

SIGN/SYMPTOM	CLINICAL SIGNIFICANCE[6,7]
Cushing, SIADH, or hypercalcemia of malignancy	**Paraneoplastic syndromes** = most associated with **SCLC** (Cushing, SIADH) or squamous cell (hypercalcemia);[1] workup includes CT chest

ABBREVIATIONS: COPD = chronic obstructive pulmonary disease; CT = computed tomography; SCLC = small cell lung cancer; SIADH = syndrome of inappropriate antidiuretic hormone secretion

Geriatric Risk Factors

FACTOR	RISK SIGNAL	NOTES
Smoking history ≥20 pack-years	**80–90%** of US lung cancer deaths attributable to smoking[6,7,19]	Risk persists **15+ years** after cessation;[4] **LDCT eligibility window** per CMS[15]
Active smoking at diagnosis	Worsens treatment outcomes and tolerance	Cessation counseling at **every visit** (CPT 99406/99407)
COPD (J44.x)	Most common lung cancer comorbidity (**22%** prevalence);[18] independent risk factor sharing smoking etiology	**Limits** surgical and radiation reserve; pulmonary function tests **before** curative-intent therapy[6,7]
Asbestos/ occupational carcinogen exposure	Mesothelioma (**asbestos**), uranium, arsenic, radon, diesel exhaust	Take **occupational history** at intake; document for cumulative risk and surveillance
Family history of lung cancer	**~1.7-fold** increased risk vs general population[20]	Document on problem list; consider **earlier LDCT discussion**
Prior thoracic radiation (e.g., Hodgkin lymphoma)	**HL survivors**: RT associated with HR 1.23 (95% CI 1.002–1.55) for secondary lung cancer	**NCCN Hodgkin Lymphoma**: RT increases lung cancer risk linearly with dose;[21] minimize lung volume >5 Gy; **NCCN Lung Cancer Screening**:[14] increased risk in survivors of lymphoma, breast cancer, head/neck cancer, or prior chest RT
VA Frailty Index: moderate or severe frailty	Dose-response relationship: 1-year survival 44.7% (mod-severe frail) vs. 59.3% (non-frail)[22,23]	Frailty assessment (**NOT** age alone) **predicts** OS, hospitalizations, ER visits, and IADL decline in NSCLC patients across treatment type[22,23]

FACTOR	RISK SIGNAL	NOTES
Age ≥75 with adequate functional status	Osimertinib in patients ≥75 shows **ORR ~58–64%**, median **PFS 16.9–19.4** months[24,25]	Targeted therapy is **feasible in very old**; CGA should guide treatment intensity; higher **pneumonitis risk** (17.5%) in elderly[24,25]

ABBREVIATIONS: US = United States; LDCT = low-dose computed tomography; CMS = Centers for Medicare & Medicaid Services; CPT = Current Procedural Terminology; COPD = chronic obstructive pulmonary disease; HL = Hodgkin lymphoma; RT = radiation therapy; HR = hazard ratio; CI = confidence interval; NCCN = National Comprehensive Cancer Network; VA = Veterans Affairs; OS = overall survival; ER = emergency room; IADL = instrumental activities of daily living; NSCLC = non-small cell lung cancer; ORR = objective response rate; PFS = progression-free survival; CGA = comprehensive geriatric assessment

Screening and Diagnostic Thresholds

Lung cancer detection follows a **two-phase sequence**:[14,26] population-based screening with **LDCT** in **asymptomatic high-risk individuals (Medicare covered)**,[15] followed by **diagnostic escalation** with contrast-enhanced CT, PET/CT, or tissue sampling when screening identifies a **suspicious finding** or when a patient presents with **symptoms**. These are **distinct clinical pathways**: LDCT (71271) is a **low-dose**, non-contrast study optimized for nodule detection in **asymptomatic patients**, while diagnostic CT with contrast (71260/71270) provides the mediastinal, hilar, and soft-tissue characterization required for **symptomatic workup and cancer staging**. Symptomatic patients are **never candidates for screening LDCT** and should enter the diagnostic pathway **directly**.[15]

LDCT Screening: Lung-RADS Categories and Next Steps

LUNG/RADS CATEGORY[14,26]	FINDING[14,26]	NEXT STEP[14,26]	PCP ACTION[14,26]
1 (Negative)	**No nodules** or definitely **benign nodules**	Annual screening **LDCT** in 12 months	Document **Lung-RADS 1**; continue annual screening **until no longer a candidate** for curative-intent treatment
2 (Benign)	**Small nodules**, **benign** in appearance or behavior	Annual screening **LDCT** in 12 months	Document **Lung-RADS 2**; no additional workup needed
3 (Probably benign)	**Solid nodule** ≥6 to 8 mm (baseline); **new** 4 to 6 mm (follow-up)	**LDCT** in 6 months	Document **Lung-RADS 3**; ensure patient navigation for **6-month follow-up**
4A (Suspicious)	**Solid nodule** ≥8 to 15 mm (baseline); **growing** 8 mm; new 6 to 8 mm	LDCT in 3 months; **PET/CT** may be considered if solid nodule or solid component ≥8 mm	Document **Lung-RADS 4A**; consider **multidisciplinary referral**

LUNG/RADS CATEGORY[14,26]	FINDING[14,26]	NEXT STEP[14,26]	PCP ACTION[14,26]
4B (Very suspicious)	**Solid nodule ≥15 mm**; airway nodule segmental or more proximal	**Chest CT** with contrast and/or **FDG-PET/CT** and/or **tissue sampling**	Refer for d**iagnostic workup**; this is the transition from screening LDCT to **diagnostic imaging**
4X	Category 3 or 4 nodule with **additional suspicious features**	**Same as 4B**; diagnostic CT, PET/CT, or biopsy	Refer for **further clinical evaluation**; document additional features
S (modifier)	Significant finding **unrelated to lung cancer** (e.g., emphysema, CAC, aortic aneurysm)	As appropriate to the specific finding	Can be added to **any category 0–4**; manage the incidental finding per relevant guidelines

ABBREVIATIONS: CAC = coronary artery calcium; CT = computed tomography; FDG = fluorodeoxyglucose; LDCT = low-dose computed tomography; Lung-RADS = Lung Imaging Reporting and Data System; PCP = primary care provider; PET = positron emission tomography

Diagnostic Escalation: When and Why to Move Beyond LDCT

MODALITY[6,14]	KEY THRESHOLD/TRIGGER[6,14]	IMPORTANT NOTES[6,14]
Diagnostic CT chest with contrast (71260/71270)	**≥15 mm solid nodule** on initial LDCT (Lung-RADS **4B/4X**); **OR** any **symptomatic patient** (cough >3 wk, hemoptysis, hoarseness, weight loss)	Symptomatic patients start here: LDCT is **never appropriate** for **symptomatic workup**; provides mediastinal, hilar, and adrenal assessment that **LDCT cannot**
FDG-PET/CT	**Solid nodule** or solid component **≥8 mm** with intermediate malignancy probability; **OR** staging of confirmed/ highly suspected lung cancer	Low sensitivity **below 8 mm**; false-positive rate higher in **endemic fungal areas**; false-negative possible with **indolent histologies** (AIS, carcinoid); performed skull base to mid-thigh
Bronchoscopy /EBUS-TBNA	Central lesion or mediastinal lymphadenopathy **requiring tissue diagnosis**	EBUS-TBNA preferred for **mediastinal nodes**; tissue must be **sufficient for both** histology and molecular testing (multigene panel); multidisciplinary evaluation **before biopsy**
CT-guided transthoracic needle biopsy	Peripheral nodule **≥8 mm** not accessible by bronchoscopy	**Higher diagnostic yield** than bronchoscopy but **higher pneumothorax risk**; if non-diagnostic and suspicion persists, **repeat** biopsy or surgical excision

ABBREVIATIONS: AIS = adenocarcinoma in situ; CT = computed tomography; EBUS-TBNA = endobronchial ultrasound-guided transbronchial needle aspiration; FDG = fluorodeoxyglucose; LDCT = low-dose computed tomography; Lung-RADS = Lung Imaging Reporting and Data System; PET = positron emission tomography

CLINICAL PEARL: FOLLOW-UP CT

Recurrent or **slow-resolving pneumonia** in the same lobe warrants a follow-up **chest CT**, **NOT** just a repeat chest X-ray, to exclude an underlying **endobronchial lesion**. Post-obstructive pneumonia is a commonly missed presentation of lung cancer, particularly in patients with smoking history.

Clues to Dig Deeper

CLINICAL CLUE	WHY IT MATTERS	NEXT DIAGNOSTIC STEP
Smoker ≥50 with ≥20 pack-years not yet screened	LDCT uptake only **~24.5%** of eligible individuals;[8,17,27] largest cancer-screening quality gap	**SDM visit** (G0296) with decision aid;[8] LDCT (71271) **if eligibility confirmed**[15]
Persistent cough >3 weeks in smoker/former smoker	Often **misdiagnosed** as COPD or bronchitis;[18,28] repeated antibiotics is a red flag	Diagnostic **CT chest**;[6,7] **NOT** empirical antibiotic retrial
Hemoptysis (any amount) in smoker or ≥50	**Mandatory workup**; do not attribute to anticoagulants alone	**CT chest** within **1–2 weeks**;[6,7] bronchoscopy if CT positive
Recurrent pneumonia in the same lobe	**Post-obstructive pneumonia** from endobronchial tumor[18]	**CT chest after second episode** in same lobe;[6,7,18] bronchoscopy if anatomic concern
Solitary 'liver' or 'brain' lesion in patient with smoking history	May be **metastatic** from occult lung primary	**CT chest + biopsy** of accessible lesion;[6,7] reflex **multigene panel testing** if NSCLC[17]
Lung mass in patient with known non-lung primary (breast, colon, renal)	A new primary lung cancer and a metastasis from the known cancer have **fundamentally different treatment plans**, **prognoses**, and **goals of care**; misclassification delays correct therapy and misinforms patient counseling	**Tissue confirmation** + histology/biomarker comparison to known primary; **document** basis for primary vs. secondary designation: treatment intent (**curative vs. palliative**) depends on answer

ABBREVIATIONS: CT = computed tomography; NSCLC = non-small cell lung cancer

Common Oversights

OVERSIGHT/SHORTCUT	WHY IT MATTERS — WHAT TO DO INSTEAD
Not identifying LDCT-eligible patients systematically	Only **~24.5% of eligible patients** receive screening;[8,17,27] deploy **EHR alerts** and **dedicated SDM** visit workflow
LDCT order without documented SDM and decision aid	CMS requires documented SDM with decision aid (G0296) **before LDCT** (71271);[15] LDCT **may be denied** without it
Not testing multigene panel before 1L systemic therapy in advanced NSCLC	Guideline compliant comprehensive testing only **~39-45%**;[29] **misses** EGFR/ALK/ROS1/BRAF/KRAS G12C/MET ex14/RET/HER2/ NTRK/NRG1/ PD-L1 **actionable targets** per NCCN[6,7]
Treating ECOG alone as sufficient for treatment selection in elderly	ASCO 2026 Living Guideline + ASCO 2023 Update + GAP70+ recommend **geriatric assessment for older adults**;[30–32] **frailty** (not age alone) predicts outcome
Recurrent antibiotic courses for 'persistent infection' without CT	Lung cancer is commonly **misdiagnosed** as pneumonia or bronchitis;[33,34] persistent **cough >3 weeks in smoker** warrants CT chest[6,7]

ABBREVIATIONS: LDCT = low-dose computed tomography; EHR = electronic health record; SDM = shared decision-making; CMS = Centers for Medicare & Medicaid Services; 1L = first-line; NSCLC = non-small cell lung cancer; EGFR = epidermal growth factor receptor; ALK = anaplastic lymphoma kinase; ROS1 = ROS proto-oncogene 1; BRAF = B-Raf proto-oncogene; KRAS = Kirsten rat sarcoma viral oncogene homolog; MET = mesenchymal-epithelial transition factor; RET = rearranged during transfection; HER2 = human epidermal growth factor receptor 2; NTRK = neurotrophic tyrosine receptor kinase; NRG1 = neuregulin 1; PD-L1 = programmed death-ligand 1; NCCN = National Comprehensive Cancer Network; ECOG = Eastern Cooperative Oncology Group; ASCO = American Society of Clinical Oncology; CT = computed tomography

Key Differentials in Elderly

PRESENTATION	DIFFERENTIAL	KEY TESTS
Persistent cough in smoker	**NSCLC**; **SCLC**; COPD; chronic bronchitis; post-nasal drip; GERD; ACE inhibitor cough	**CT chest**;[6,7] **spirometry** if COPD suspected;[35] bronchoscopy if mass identified
Solitary pulmonary nodule (Lung-RADS 3 or 4)	**NSCLC**; **SCLC**; **carcinoid**; granuloma; hamartoma; **metastasis** from non-lung primary	**Repeat LDCT** at 3–6 months for **Lung-RADS 3**;[14,26] **diagnostic CT** + **PET** for **Lung-RADS 4**[6,7]
Hemoptysis	**Lung cancer**; bronchitis; bronchiectasis; pulmonary embolism; pneumonia; anticoagulation effect	**CT chest**;[6,7] **bronchoscopy** if persistent or large volume

PRESENTATION	DIFFERENTIAL	KEY TESTS
Hypercalcemia of malignancy[34]	**Squamous NSCLC**; **SCLC** (less common); multiple myeloma; **metastatic disease**	**CT chest**;[6,7] PTHrP;[34] SPEP/ serum free light chains[36]
SIADH	**SCLC** (classic); medications; CNS pathology[1]	**CT chest**;[7] urine osmolality and sodium;[34] medication review

ABBREVIATIONS: NSCLC = non-small cell lung cancer; SCLC = small cell lung cancer; COPD = chronic obstructive pulmonary disease; GERD = gastroesophageal reflux disease; ACE = angiotensin-converting enzyme; CT = computed tomography; LDCT = low-dose computed tomography; PET = positron emission tomography; PTHrP = parathyroid hormone–related peptide; SPEP = serum protein electrophoresis; SIADH = syndrome of inappropriate antidiuretic hormone secretion; CNS = central nervous system; IHC = immunohistochemistry

Comorbidity Screening

CONDITION	PREVALENCE/ASSOCIATION	SCREENING APPROACH
COPD (J44.x)	Most common lung cancer comorbidity (**22%**)[18]	**Spirometry**; document **GOLD stage** and exacerbation history;[37] affects surgical/ radiation reserve
Active or former smoking (F17.2x)	**80–90%** of lung cancer deaths smoking-attributable[19]	Tobacco use screening **every visit**;[20] Medicare Part B-covered **cessation counseling** up to 8 sessions/12 months
Cardiovascular disease (I25.x, I50.x)	**Highest CVD prevalence** among all cancer types[38]	Baseline **CVD risk factor assessment**; echocardiogram **before** cardiotoxic therapy; coordinate cardio-oncology
Diabetes (E11.x)	27% prevalence in lung cancer Medicare beneficiaries[10]	**HbA1c trend**; coordinate glycemic management during steroid antiemetics
Frailty/ sarcopenia	Dose-response relationship with OS, hospitalizations, ER visits	VA Frailty Index or G8 + CGA per ASCO 2023;[39] **integrate frailty** into treatment intensity decisions[6,7,20]
Depression/ anxiety (F32.x/ F41.x)	Common in advanced disease and during treatment	PHQ-9/GAD-7 at **every visit**;[30] coordinate palliative care
VTE (I82.4x/ I26.x)	Lung cancer carries **elevated VTE risk**[40]	**Symptom-prompted workup**; LMWH preferred for active malignancy[40]

ABBREVIATIONS: COPD = chronic obstructive pulmonary disease; GOLD = Global Initiative for Chronic Obstructive Lung Disease; CVD = cardiovascular disease; HbA1c = glycated hemoglobin; OS = overall survival; VA = Veterans Affairs; CGA = comprehensive geriatric assessment; ASCO = American Society of Clinical Oncology; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; VTE = venous thromboembolism; LMWH = low-molecular-weight heparin; G8 = Geriatric 8; ER = emergency room

Staging Summary

Once a tissue diagnosis of lung cancer is established, **accurate staging** is the single most important determinant of treatment selection and prognosis. **Two parallel frameworks** are used in US clinical practice:

- **Anatomic staging (TNM)**: The **AJCC/UICC TNM system** classifies tumors by primary tumor extent (**T**), regional lymph node involvement (**N**), and distant metastases (**M**). NSCLC now uses the **9th edition** (effective January 2025),[41,42] while SCLC continues to use the **8th edition**.[43] TNM stage groups drive surgical, radiation, and systemic therapy decisions per NCCN guidelines[6,7]
- **Functional/clinical staging**: For **SCLC**, the Veterans Administration Lung Study Group (**VALSG**) **limited-stage/extensive-stage** classification remains the primary framework guiding treatment selection (chemoradiation vs. systemic-only therapy).[44] The NCCN integrates **both** VALSG and TNM systems for SCLC[7]

In addition to staging, **biomarker and molecular profiling** is an essential component of the diagnostic workup for advanced NSCLC. Multigene panel testing (MGPT) and PD-L1 immunohistochemistry directly determine **first-line systemic therapy selection** and must be completed **before** treatment initiation.

PCPs should document the **specific staging system**, **stage group**, and **biomarker results** on the problem list to facilitate care coordination with oncology.

NSCLC- AJCC/UICC TNM Staging (9th Edition)

TNM 9TH EDITION CATEGORIES			
Tx	Tumor in sputum/bronchial washings not assessed in imaging/scopy	**Nx**	Regional lymph nodes cannot be assessed
T0	No evidence of primary tumor	**N0**	No regional lymph node metastasis
Tis	Carcinoma in situ		
T1	• ≤ 3cm, surrounded by lung/visceral pleur, or in lobar or peripheral bronchus • T1mi Minimally invasiveadenocarcinoma • T1a ≤1 cm • T1b >1 cm but ≤2 cm • T1c >2 cm but ≤3 cm	**N1**	• Ipsilateral peribronchial and/or • Ipsilateral hilar and/or • Intrapulmonary lymph nodes, including involvement by direct extension

TNM 9TH EDITION CATEGORIES			
T2	• T2a > 3 cm but ≤4 cm **OR** • Invasion of main bronchus without carina or invasion visceral pleura transgression fissure, invading adjacent lobe **OR** • Atelectasis or obstructive pneumonitis extending to the hilum • T2b >4 cm but ≤5 cm	**N2**	• Metastasis in ipsilateral mediastinal/ subcarinal nodes • **N2a Single N2 station involvement*** • **N2b Multiple N2 station involvement***
T3	• >5 cm but ≤7 cm • Or invasion parietal pleura, chest wall, pericardium, phrenic nerve, azygos vein, thoracic nerve roots (T1, T2) or stellate ganglion • Or separate nodules in same lobe	**N3**	Contralateral mediastinal/hilar,, ipsilateral/contralateral scalene or supraclavicular
T4	• >7 cm **OR** • Invasion mediastinum, thymus, trachea, carina, recurrent laryngeal nerve, vagus nerve, esophagus, diaphragm **OR** • Invasion heart, great vessels, intrapericardial pulmonary arteries/veins, supra-aortic arteries, brachiocephalic veins, subclavian vessels, vertebral body, lamina, spinal canal, cervical nerve roots, brachial plexus **OR** • Or separate nodules in different ipsilateral lobe	**M0**	No distant metastasis
		M1	• Distant metastasis
		M1a	Pleural or pericardial nodules or malignant pleural or pericardial effusions Separate tumor nodule(s) in contralateral lobe
		M1b	Single extrathoracic metastasis in a single organ system
		M1c[1]	**Multiple extrathoracic metastases in single organ***
		M1c[2]	**Multiple extrathoracic metastases in multiple organs***

***Staging classification changes new to the AJCC 9th edition are indicated in BOLD text**

SCLC- AJCC/UICC TNM Staging (8th Edition) + VALSG Classification

VALSG CLASSIFICATION		
STAGE[44]	**DEFINITION**[44]	**TREATMENT IMPLICATION**
Limited Stage (LS)	**Stage I–III** (T any, N any, M0) that can be safely treated with **definitive radiation doses**; excludes T3–4 with multiple lung nodules **too extensive** for a tolerable radiation plan	Concurrent chemoradiation (cisplatin/etoposide + thoracic RT); **PCI in responders**[7]
Extensive Stage (ES)	**Stage IV** (T any, N any, M1a/b/c), or T3–4 with tumor/nodal volume **too large** for a tolerable radiation plan	Platinum + etoposide + immune checkpoint inhibitor (atezolizumab or durvalumab)[7]

TNM 8TH EDITION CATEGORIES					
T/M	**LABEL**	**NX**	**N1**	**N2**	**N3**
T1	**T1a**	I1A	IIB	IIIA	IIIB
	T1b	IA2	IIB	IIIA	IIIB
	T1c	IA3	IIB	IIIA	IIIB
T2	**T2a** central visceral pleura	IB	IIB	IIIA	IIIB
	T2a >3-4 cm	IB	IIB	IIIA	IIIB
	T2b >4-5 cm	IIA	IIB	IIIA	IIIB
T3	**T3** >5-7 cm	IIB	IIIA	IIIB	IIIC
	T3 invasion	IIB	IIIA	IIIB	IIIC
	T3 satellite nodules	IIB	IIIA	IIIB	IIIC
T4	**T4** >7 cm	IIIA	IIIA	IIIB	IIIC
	T4 invasion	IIIA	IIIA	IIIB	IIIC
	T4 ipsilateral nodules	IIIA	IIIA	IIIB	IIIC
M1	**M1a** PI dissem	IVA	IVA	IVA	IVA
	M1a contralateral nodule	IVA	IVA	IVA	IVA
	M1b single lesion	IVA	IVA	IVA	IVA
	M1c multiple lesions	IVB	IVB	IVB	IVB

TNM 8TH EDITION CATEGORIES					
T/M	**LABEL**	**NX**	**N1**	**N2**	**N3**

ABBREVIATIONS: VALSG = Veterans Affairs Lung Study Group; LS = limited stage; ES = extensive stage; T = tumor; N = node; M = metastasis; RT = radiation therapy; PCI = prophylactic cranial irradiation; PI = pleural/pericardial; AJCC = American Joint Committee on Cancer; TNM = tumor, node, metastasis

Complementary Staging and Testing Systems in US Clinical Practice

TEST	WHEN TO ORDER	KEY TARGETS	PCP RELEVANCE
Multigene panel testing (MGPT)	**At diagnosis for all** advanced/metastatic non-squamous NSCLC; **consider** for squamous NSCLC; results required before initiating first-line systemic therapy	EGFR, ALK, ROS1, BRAF V600E, KRAS G12C, MET exon 14, RET, ERBB2 (HER2), NTRK1/2/3, NRG1	Comprehensive genomic profiling identifies **actionable driver mutations** in ~60% of adenocarcinomas; results must be available **before** first-line therapy; document biomarker profile on problem list
MGPT for early-stage NSCLC	**At diagnosis** for resectable stage IB–IIIB NSCLC	EGFR (for adjuvant osimertinib eligibility); ALK (emerging); PD-L1	Increasingly relevant as perioperative targeted/immunotherapy options expand; **early reflex testing** from biopsy specimens is recommended
PD-L1 IHC	**At diagnosis** for all NSCLC (category 1 recommendation)	PD-L1 tumor proportion score (TPS%)	**TPS ≥50%**: pembrolizumab monotherapy eligible (no driver mutation); **TPS 1–49%**: combination chemoimmunotherapy; **TPS <1%**: chemotherapy ± immunotherapy; document on problem list
Molecular profiling for SCLC	Consider only in **select cases**: never-smokers, light/remote smoking history, diagnostic dilemma, or at relapse	Comprehensive molecular profiling via tissue and/or blood	**Rarely changes management**; may identify rare cases **reclassifiable** as NSCLC or mixed histology

ABBREVIATIONS: MGPT = multigene panel testing; NSCLC = non-small cell lung cancer; EGFR = epidermal growth factor receptor; ALK = anaplastic lymphoma kinase; ROS1 = ROS proto-oncogene 1; BRAF = B-Raf proto-oncogene; KRAS = Kirsten rat sarcoma viral oncogene homolog; MET = mesenchymal-epithelial transition factor; RET = rearranged during transfection; ERBB2 (HER2) = human epidermal growth factor receptor 2; NTRK = neurotrophic tyrosine receptor kinase; NRG1 = neuregulin 1; PD-L1 = programmed death-ligand 1; IHC = immunohistochemistry; TPS = tumor proportion score; SCLC = small cell lung cancer

⚠ RED FLAG — EMERGENCY/ACTIVATE CRISIS RESPONSE

These emergency conditions require **same-day ED transfer or emergent special consultation** for patients with known or suspected lung cancer:

- **Massive hemoptysis** (>100 mL/24h or any amount causing hemodynamic instability)
  - → **ED transfer**; position bleeding lung dependent; emergent bronchoscopy and IR consultation for bronchial artery embolization; intubate with double-lumen ETT if airway threatened
  - × **Mortality exceeds 50%** without emergent airway control
- **Superior vena cava syndrome** (facial swelling, dyspnea, distended neck veins)
  - → **Urgent CT angiography**; dexamethasone IV; emergent oncology/IR consultation for **stenting vs. radiation**; obtain tissue diagnosis **before** empiric treatment when feasible
  - × Can progress to cerebral edema and airway compromise **within hours**
- **Spinal cord compression** (new back pain with leg weakness, sensory level, or bowel/bladder dysfunction)
  - → **Emergent MRI entire spine**; dexamethasone IV bolus (do not wait for MRI); urgent radiation oncology/neurosurgery consultation
  - × Deficits present >48 hours are **frequently irreversible**
- **Tumor lysis syndrome on SCLC therapy (rising creatinine, hyperkalemia, hyperuricemia)**
  - → Aggressive **IV hydration**; rasburicase for uric acid >8 mg/dL; continuous cardiac monitoring; nephrology for CRRT if refractory
  - × SCLC is among the **highest-risk** solid tumors for TLS due to rapid chemosensitivity
- **Severe immune-related adverse event on checkpoint inhibitor** (grade 3–4 colitis, pneumonitis, hepatitis, myocarditis)
  - → **Hold checkpoint inhibitor**; methylprednisolone IV; for myocarditis obtain troponin, ECG, emergent cardiology; coordinate oncology **within 24 hours**
  - × Checkpoint inhibitor myocarditis carries **25–50% mortality**; delayed steroids worsen **all severe irAE outcomes**

⚠ RED FLAG — URGENT (24-72 HOURS)

Expedited workup required = **do not** refer to routine follow-up:

- **Hemoptysis** (any amount) in a current or former smoker
  - → **CT chest** with contrast within 1–2 weeks; **do not** rely on normal chest X-ray; pulmonology referral if CT abnormal or hemoptysis persists
  - × Hemoptysis presents in **~20%** of lung cancers; scant hemoptysis in a smoker warrants cross-sectional imaging
- **New hoarseness >3 weeks** in a smoker without URI
  - → **CT chest** within 1–2 weeks to evaluate for hilar mass or mediastinal lymphadenopathy; concurrent **ENT referral** for laryngoscopy
  - × **Vocal cord paralysis** from mediastinal invasion indicates at least stage IIIA disease
- **Recurrent pneumonia in the same anatomic region**
  - → **CT chest** with contrast, not repeat X-ray; pulmonology referral for bronchoscopy if post-obstructive pattern identified
  - × Same-location recurrence suggests **endobronchial lesion** until proven otherwise
- **Persistent cough >3 weeks** in a smoker unresponsive to initial treatment
  - → **CT chest**, **not** empirical antibiotic retrial; low threshold even with "normal" chest X-ray
  - × Repeated empiric antibiotics without imaging are a leading cause of **lung cancer diagnostic delay**
- **New neurologic symptoms in known lung cancer** (headache, seizure, focal weakness, gait instability)
  - → **Urgent brain MRI** with contrast within 24–72 hours; dexamethasone 4–8 mg/day if vasogenic edema suspected; coordinate radiation oncology
  - × Brain metastases present at diagnosis in **~10%** NSCLC and **~15–25%** SCLC; early detection enables **stereotactic radiosurgery**

3 MEAT DOCUMENTATION ESSENTIALS

Lung cancer documentation translates a multi-stage, multi-line treatment trajectory (and the largest cancer-screening quality gap) into a record that supports **continuity**, **screening eligibility**, and **accurate risk adjustment**. The most frequent pitfalls include defaulting to **C34.90** (unspecified) when CT and pathology **clearly specify** lobe and laterality, conflating primary lung cancer (**C34.x**) with metastases **TO** lung (**C78.0x**), using soft language for confirmed disease, and charting active disease as "**history of**" (**Z85.118**) during active surveillance. The MEAT framework below ties each element into appropriate clinical action:

A 69-year-old patient (40 pack-year former smoker, quit 6 years ago) presents with **persistent cough** × 6 weeks **not responding** to two antibiotic courses. Patient had not received LDCT. **Diagnostic CT chest** reveals a 3.2 cm right upper lobe mass with mediastinal lymphadenopathy. **PET/CT** confirms uptake. EBUS-TBNA confirms adenocarcinoma. **Multigene panel**: EGFR exon 19 deletion. PD-L1 60%. **ECOG 1**; G8 14 → CGA placed per ASCO 2023.[39]

MONITOR: "Smoking status: former smoker, **40 pack-years**; cessation counseling continued. Weight: stable. Functional status: **ECOG 1**; **G8 = 14 → CGA ordered**. Pulmonary function: FEV1 68% predicted (mild COPD). Lung-RADS: **4X** (suspicious) on diagnostic CT. Baseline CTCAE: cough 2, dyspnea 1, fatigue 0."

EVALUATE: "Diagnostic **CT chest** (date): 3.2 cm right upper lobe mass with mediastinal lymphadenopathy. PET/CT (date): hypermetabolic primary; mediastinal nodes positive; no distant metastases identified. EBUS-TBNA (date): **adenocarcinoma confirmed**; **sufficient tissue** for molecular profiling. Multigene panel: EGFR **exon 19 deletion**; ALK **negative**; ROS1 **negative**; KRAS wild-type; **PD-L1 TPS 60%**. Brain MRI (date): no metastases (baseline for EGFR-mutated patients per NCCN)."

ASSESS: "Adenocarcinoma of the right upper lobe, EGFR exon 19 deletion, clinical **stage IIIA** (**T2aN2M0**) = **C34.11** (specific lobe + laterality per CT and pathology). Associated: former tobacco use disorder, in remission (**Z87.891**); mild COPD (**J44.9**); EPI screening negative."

TREAT: "EGFR-positive stage IIIA, multidisciplinary tumor board discussion (resectability vs. definitive chemoradiotherapy + osimertinib consolidation per LAURA/ADAURA framework). Supportive care: **smoking cessation reinforcement**; nutrition; PT for prehabilitation; PHQ-9/GAD-7 at **every visit**. Surveillance plan: serial CT and PET/CT per oncology; brain MRI q6 months for EGFR-mutated patients per NCCN. Referrals: multidisciplinary thoracic oncology team, geriatric oncology (**G8 14**), palliative care for integrated supportive care. ACP documented (CPT 99497): surrogate named, code status discussed."

Clinical Documentation Elements

- **LDCT screening:** Document pack-year history, smoking status, and age eligibility to establish USPSTF criteria;[15] code as **Z12.2** with **Z87.891/F17.21x** as applicable; record **Lung-RADS** category and annual adherence to satisfy **MIPS Quality #112**
- **Specify subsite + laterality:** Document specific lobe and laterality from CT and pathology → supports **C34.01–C34.92** over **C34.90**
- **Primary vs secondary distinction:** Document '**new primary lung adenocarcinoma**' OR '**metastatic [primary site] to lung**' with histology/biomarker basis; **determines treatment pathway** and RAF differential is **~3.7×**[12]
- **Histology and molecular profile:** Document **NSCLC subtype** (adenocarcinoma/squamous/large cell), **SCLC**, or **carcinoid**; EGFR/ALK/ROS1/BRAF/KRAS G12C/MET/RET/HER2/NTRK/NRG1/PD-L1 results[15]
- **Stage and biomarker status:** AJCC TNM 9th Ed (**NSCLC**) or VALSG + AJCC TNM 8th Ed (**SCLC**);[6,7] document **PD-L1 percentage** and **any actionable driver**
- **Functional status:** ECOG and G8 with CGA findings when triggered; **frailty** (not age alone) predicts outcome[45]
- **Active vs personal history:** Use **C34.x** while disease is active or under surveillance; **Z85.118 ONLY** after complete eradication and end of active surveillance

Reframing Common Documentation Shortcuts

INSTEAD OF…	DOCUMENT…
'Lung cancer'	'**Right upper lobe adenocarcinoma** (**C34.11**), clinical **Stage IIIA**, EGFR **exon 19 deletion**, PD-L1 **60%** = confirmed by EBUS-TBNA [date]'
'C34.90 lung cancer'	Review CT and pathology; **every report** specifies lobe and laterality; transcribe into encounter note for **C34.x specific subsite** + laterality coding
'Mass on lung'	'Lung mass in patient with **prior colorectal cancer**; pending biopsy and molecular profiling to determine **new primary** vs **metastatic disease**'
'History of lung cancer' (in patient under surveillance)	'Active right upper lobe adenocarcinoma (**C34.11**) on surveillance imaging post-resection [date]; ongoing PET/CT per oncology' (**Z85.118 only** after complete eradication and end of active surveillance)
'On chemo'	'Right upper lobe NSCLC (**C34.11**), Stage IV EGFR-mutated, on **osimertinib** 80 mg daily; cycle 8 [date]; CTCAE: grade 1 dermatitis, no QTc prolongation; brain MRI surveillance every 3 months'
'Screened for lung cancer'	'**LDCT** performed [date]; **Lung-RADS 2** (benign appearance); annual screening continued; **SDM** with decision aid documented'

ABBREVIATIONS: EGFR = epidermal growth factor receptor; PD-L1 = programmed death-ligand 1; EBUS-TBNA = endobronchial ultrasound-guided transbronchial needle aspiration; CT = computed tomography; NSCLC = non-small cell lung cancer; CTCAE = Common Terminology Criteria for Adverse Events; QTc = corrected QT interval; MRI = magnetic resonance imaging; PET = positron emission tomography; LDCT = low-dose computed tomography; Lung-RADS = Lung Imaging Reporting and Data System; SDM = shared decision-making

DOCUMENTATION IS COMPREHENSIVE CODING

Every *active lung cancer encounter should state the diagnosis with anatomic subsite + laterality (****C34.01–C34.92****),* ***histology*** *(NSCLC subtype/SCLC/carcinoid),* ***biomarker profile*** *(EGFR/ALK/ROS1/BRAF/KRAS G12C/MET/RET/HER2/NTRK/NRG1 /PD-L1),* ***AJCC TNM stage*** *(NSCLC, SCLC) and* ***VALSG*** *(SCLC), current treatment regimen and cycle, and concurrent comorbidities (COPD* ***J44.x****, smoking* ***F17.2x****, frailty).* ***Z85.118*** *applies only after complete eradication and end of active surveillance; premature transition* ***eliminates HCC 20 mapping****.*

4 TREATMENT AND REFERRAL QUICK GUIDE

Once staging and biomarker profiling are complete, treatment selection follows two overarching principles: (**1**) anatomic stage determines the treatment modality (surgery, radiation, systemic therapy, or combinations), and (**2**) **functional status**, not chronological age, determines treatment intensity, particularly in older adults. [1-2] The **NCCN Older Adult Oncology Guidelines** and

ASCO guidelines recommend that **all** older adults (≥65 years) receiving cancer treatment undergo **geriatric assessment** (GA) to identify vulnerabilities that affect treatment tolerance, with the G8 screening tool (score ≤14) triggering a comprehensive GA.[32,39] The **GAP70+ trial** demonstrated that GA-guided management **reduced grade 3–5 toxicity** in older adults with advanced cancer without compromising survival.[31]

NSCLC: Stage-Based Treatment Framework

Early stage (I–II, resectable): The primary treatment is **surgical resection** (lobectomy preferred) with lymph node dissection.[7] For medically inoperable patients, common in older adults with comorbid COPD or cardiac disease, stereotactic ablative radiotherapy (**SABR**) is the preferred alternative.[7] Biomarker testing for EGFR, ALK, and PD-L1 is performed preoperatively to evaluate eligibility for perioperative systemic therapy.[6]

Locally advanced (stage II–IIIA, resectable): Neoadjuvant chemoimmunotherapy followed by surgery has become the preferred approach for eligible patients without EGFR/ALK alterations (**CheckMate-816**, **KEYNOTE-671**).[46,47] For EGFR-mutated tumors, adjuvant osimertinib is recommended (**ADAURA**).[48] Multidisciplinary tumor board evaluation is **essential** before initiating any treatment.

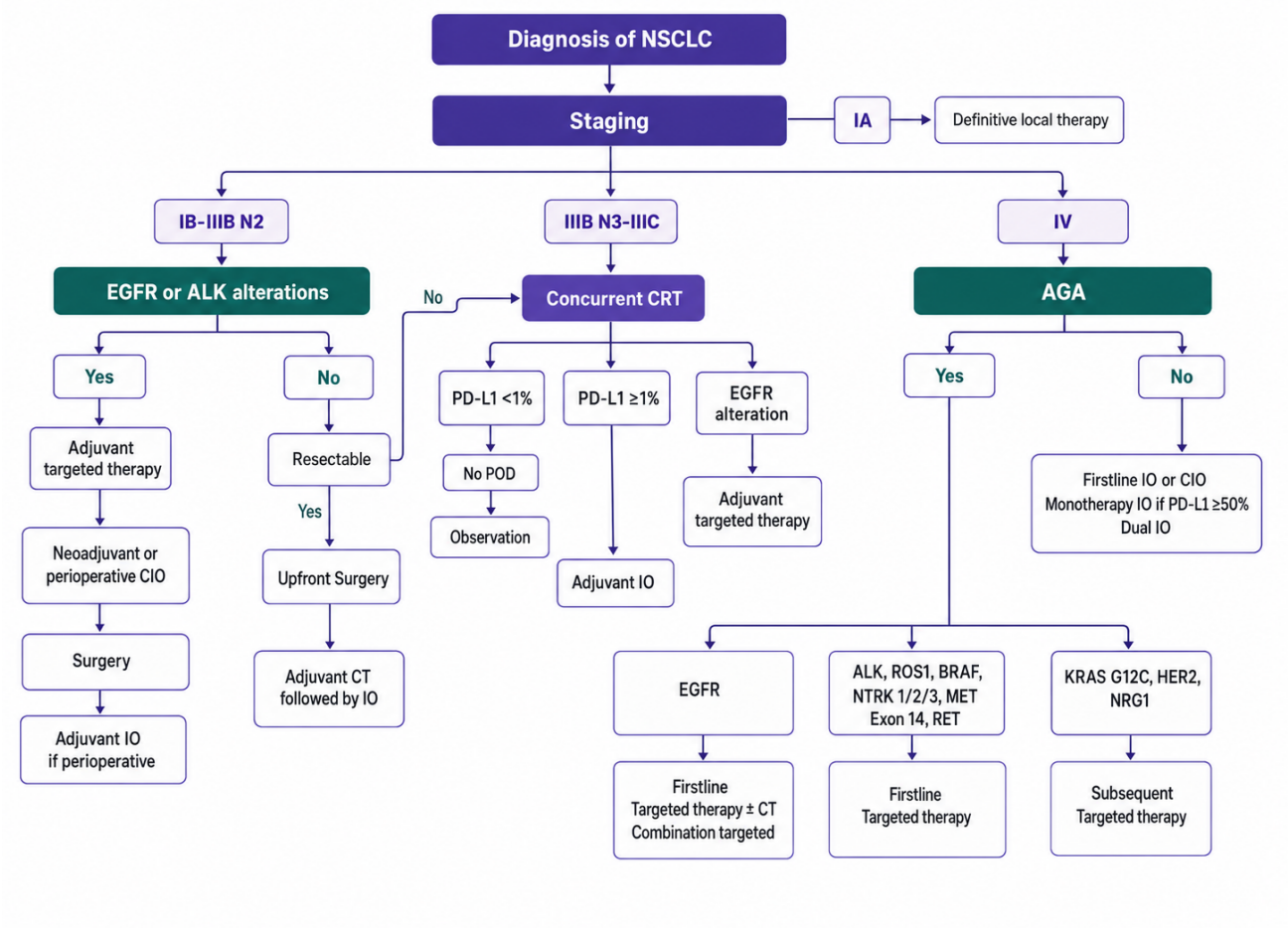
Locally advanced, unresectable (stage IIIB–IIIC): Concurrent chemoradiation followed by consolidation immunotherapy is the standard → durvalumab for patients **without** EGFR mutations (**PACIFIC**),[49] osimertinib for those with EGFR **exon 19 deletion** or **L858R mutation** (**LAURA**).[50] For older adults unable to tolerate concurrent therapy, sequential chemoradiation or RT alone with accelerated fractionation may be considered.[6]

Advanced/metastatic (stage IV): Treatment hinges on biomarker results, which must be available **before** initiating first-line systemic therapy:[6]

- Actionable driver mutation **present** (EGFR, ALK, ROS1, BRAF, RET, MET exon 14, HER2, NTRK, NRG1, KRAS G12C): **targeted therapy first-line**
- No driver mutation, **PD-L1 ≥50%**: pembrolizumab monotherapy or combination regimens
- **No driver mutation**, **PD-L1 <50%**: platinum-doublet chemotherapy + pembrolizumab (**KEYNOTE-189** for non-squamous; **KEYNOTE-407** for squamous)[51,52]

For older adults with advanced NSCLC, a Cochrane review found that adding immune checkpoint inhibitors to platinum-based chemotherapy **improved OS** across age subgroups, though **toxicity monitoring** is critical.[53]

Diagnostic and treatment pathway for NSLSC



SCLC: Stage-Based Treatment Framework

Limited stage (LS-SCLC): Approximately 30% of SCLC presents as **limited stage**.[7] Treatment depends on extent:

- **Stage I–IIA (T1–2, N0)**: Lobectomy with lymph node dissection (if operable) followed by adjuvant chemotherapy; **SABR** for medically inoperable patients
- **Stage IIB–IIIC (node-positive or T3–4)**: Concurrent cisplatin/etoposide + thoracic radiation (category 1), with RT starting early (cycle 1 or 2). Consolidation durvalumab following chemoradiation is now the **standard of care** based on the **ADRIATIC** trial,[54] with real-world data confirming **PFS benefit**. Prophylactic cranial irradiation (**PCI**) may be offered to responders, though its role is evolving given MRI surveillance alternatives

Extensive stage (ES-SCLC): Approximately **70%** of SCLC presents as extensive stage, with median OS of ~12–13 months. First-line treatment is platinum/etoposide + immunotherapy (atezolizumab [**IMpower133**] or durvalumab (**CASPIAN**)) followed by maintenance immunotherapy until progression (category 1).[55,56] For patients with poor performance status **not** due to SCLC, individualized/supportive care is appropriate.[7] Consolidative thoracic RT may benefit selected patients with good response and residual thoracic disease.[57] Second-line options include lurbinectedin and tarlatamab, which demonstrated OS superiority over chemotherapy in the phase III **DeLLphi-304 trial**.[58]

Therapy Escalation Criteria

TRIGGER	ACTION
LDCT-eligible patient not yet screened	**SDM** visit (G0296) with decision aid; **LDCT** (71271) if eligibility confirmed and patient accepts[14,15]
Lung-RADS 3 on screening LDCT	**Repeat LDCT** at 6 months[14]
Lung-RADS 4 (suspicious) on screening LDCT	Diagnostic **CT chest** with contrast + **PET/CT** + **biopsy** planning per oncology
Symptomatic red flag (hemoptysis, persistent cough >3 wk, new hoarseness >3 wk)	Diagnostic **CT chest** within 1–2 weeks;[6,7,20] **bronchoscopy** if mass identified
Confirmed NSCLC advanced/metastatic	Multigene panel testing **BEFORE** first-line systemic therapy;[6,7,17] **PD-L1 IHC**
EGFR-positive advanced NSCLC	Osimertinib monotherapy or osimertinib + pemetrexed + platinum (**FLAURA**/**FLAURA2**);[25,59] **brain MRI** surveillance per NCCN[6]
PD-L1 ≥50%, no driver, advanced NSCLC, ECOG 0–2	Pembrolizumab or **cemiplimab monotherapy** (preferred)[6]
PD-L1 <50%, no driver, advanced non-squamous NSCLC	Carboplatin or cisplatin + pemetrexed + pembrolizumab (**KEYNOTE-189**)[52]
SCLC limited stage	Concurrent **cisplatin/etoposide** + **thoracic RT** + **PCI** in responders[6]
SCLC extensive stage	Platinum + etoposide + atezolizumab (**IMpower133**)[56] or durvalumab (**CASPIAN**)[55]
ECOG 3/advanced frailty	ECOG 3–4/advanced frailty → **Best supportive care preferred**; atezolizumab (NSCLC, **PS 3 only**, **IPSOS**);[60] for SCLC, chemotherapy ± ICI if poor PS is due to SCLC[7]

ABBREVIATIONS: LDCT = low-dose computed tomography; SDM = shared decision-making; CT = computed tomography; PET = positron emission tomography; NSCLC = non-small cell lung cancer; PD-L1 = programmed death-ligand 1; IHC = immunohistochemistry; EGFR = epidermal growth factor receptor; MRI = magnetic resonance imaging; NCCN = National Comprehensive Cancer Network; ECOG = Eastern Cooperative Oncology Group; SCLC = small cell lung cancer; RT = radiation therapy; PCI = prophylactic cranial irradiation; ICI = immune checkpoint inhibitor; PS = performance status; Lung-RADS = Lung Imaging Reporting and Data System

Non-Pharmacologic Care and Supportive Interventions

INTERVENTION	TARGET/RECOMMENDATION	NOTES
LDCT screening enrollment	USPSTF recommendations = CMS coverage eligibility requirements: **50–77 yr**, **≥20 pack-years**, current smoker **OR** quit ≤15 yr[4,15]	SDM visit (**G0296**) + LDCT (**71271**) annually; $0 cost-sharing[15]
Smoking cessation counseling	At **every encounter** for active or recent smokers	Medicare-covered up to 8 sessions/12 months (99406/99407)
Multigene panel + PD-L1 testing	**Before** first-line systemic therapy in advanced non-squamous NSCLC[17]	CGP **improves targeted therapy** receipt; no significant PPPM cost difference[17]
Geriatric assessment	**G8/CGA** for patients ≥70 or with frailty signals[6,7]	**GAP70+ trial**: reduces grade 3–5 toxicity;[31] ASCO 2023 Update[39]
Pulmonary rehabilitation/ prehab	**Before** curative-intent surgery/radiation[18]	COPD management optimization (**22%** comorbidity prevalence)[18,61]
Early palliative care	**Within 8 weeks** of advanced/metastatic diagnosis	Reduces ED visits and **improves QoL**; integrated alongside active therapy[32,62]
Patient navigation	Care coordination across imaging, biopsy, treatment	RCT: **$6,852 cost reduction** per navigated patient[63]
Advance care planning	**At diagnosis** of advanced/metastatic disease	**CPT 99497/99498** during AWV with no copay

ABBREVIATIONS: LDCT = low-dose computed tomography; USPSTF = United States Preventive Services Task Force; CMS = Centers for Medicare & Medicaid Services; SDM = shared decision-making; PD-L1 = programmed death-ligand 1; NSCLC = non-small cell lung cancer; CGP = comprehensive genomic profiling; PPPM = per-patient-per-month; CGA = comprehensive geriatric assessment; G8 = Geriatric 8; ASCO = American Society of Clinical Oncology; COPD = chronic obstructive pulmonary disease; ED = emergency department; QoL = quality of life; RCT = randomized controlled trial; AWV = annual wellness visit

Medication Safety and Key Interactions

DRUG/CLASS	INTERACTION/TOXICITY*	CLINICAL ACTION*
Osimertinib (3rd-gen EGFR TKI)	QTc prolongation; **pneumonitis** (~3%); **cardiotoxicity** (LVEF decline)	Baseline ECG + echocardiogram; serial QTc and LVEF; coordinate cardiology[64]

DRUG/CLASS	INTERACTION/TOXICITY*	CLINICAL ACTION*
Pembrolizumab/ cemiplimab (PD-1 inhibitors)	**Immune-related AEs**:[65,66] colitis, pneumonitis, hepatitis, endocrinopathies (hypothyroidism, hypophysitis, T1DM)	Baseline TSH, ACTH cortisol, glucose; serial monitoring; high-dose corticosteroids for severe irAE[65,66]
Atezolizumab + carboplatin/etoposide (SCLC)	Myelosuppression, **immune-related AEs**[65,66]	CBC weekly during induction; immune-related AE surveillance[65,66]
Durvalumab (PACIFIC consolidation)	**Pneumonitis** (~3.4% grade ≥3); irAEs	Baseline + serial chest imaging; coordinate pulmonology **if dyspnea**
Carboplatin/cisplatin	**Nephrotoxicity** (cisplatin); peripheral neuropathy; nausea; cytopenias	Use carboplatin if CrCl <60 mL/min;[6,7]* aggressive hydration; antiemetic regimen
Anticoagulants	**Hemoptysis risk** in central tumors; **DOACs preferred** for active malignancy[40]	Discuss **before** initiation in lung cancer patients; **reassess at progression**[40]
Brain MRI for EGFR/ ALK NSCLC	High **CNS metastasis risk**;[6] baseline imaging required	Document baseline; surveillance **every 3–6 months** per NCCN[6]

ABBREVIATIONS: EGFR = epidermal growth factor receptor; TKI = tyrosine kinase inhibitor; QTc = corrected QT interval; LVEF = left ventricular ejection fraction; ECG = electrocardiogram; PD-1 = programmed death-1; AE = adverse event; T1DM = type 1 diabetes mellitus; TSH = thyroid-stimulating hormone; ACTH = adrenocorticotropic hormone; irAE = immune-related adverse event; SCLC = small cell lung cancer; CBC = complete blood count; CrCl = creatinine clearance; DOAC = direct oral anticoagulant; MRI = magnetic resonance imaging; ALK = anaplastic lymphoma kinase; CNS = central nervous system; NCCN = National Comprehensive Cancer Network; NSCLC = non-small cell lung cancer
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

When to Refer

CRITERION	SPECIALIST	URGENCY
Massive hemoptysis; SVC syndrome; spinal cord compression; severe irAE	Emergency department	**EMERGENT** (same-day): → Protect airway; high-dose dexamethasone for cord compression; hold checkpoint inhibitor and start IV corticosteroids for severe irAE
Hemoptysis (any amount); new hoarseness; recurrent pneumonia same lobe	Diagnostic CT chest + pulmonology/ thoracic oncology	**URGENT** (1–2 weeks): → Diagnostic CT chest with contrast; bronchoscopy if mass identified; do NOT repeat chest X-ray for recurrent same-lobe pneumonia

CRITERION	SPECIALIST	URGENCY
Lung-RADS 4 on screening	Diagnostic CT + thoracic oncology	**URGENT** (1–2 weeks): → **Diagnostic CT** with contrast + **PET/CT** + **tissue sampling** per multidisciplinary evaluation
Confirmed lung cancer	Multidisciplinary thoracic oncology team	**URGENT** (**before** any treatment initiation): → Multidisciplinary discussion should occur **prior** to initiating any treatment plan; early program entry associated with improved survival (**aHR 0.78** for enrollment before radiologic staging)[67]
Advanced NSCLC, biomarker testing pending	Medical oncology + molecular pathology	**URGENT**: results required **before** first-line systemic therapy: → Multigene panel (EGFR, ALK, ROS1, BRAF, KRAS G12C, MET, RET, HER2, NTRK, NRG1) + PD-L1 IHC; do **NOT** start systemic therapy until results available
G8 ≤14 in older adult	Geriatric oncology/CGA	**ROUTINE: before** treatment decision: → GA identifies vulnerabilities **missed** by standard oncology assessment; GA-guided management reduces grade 3–5 toxicity (**GAP70+ trial**);[31] domains: function, cognition, nutrition, comorbidity, polypharmacy, social support
Advanced or metastatic disease	Palliative care	**ROUTINE: early** in treatment, **not** at end of life: → NCCN recommends palliative care integration at initial evaluation **for all** NSCLC;[6] ASCO recommends early referral (within 8–12 wk of diagnosis);[62] improves **QOL and survival**
End-of-life trajectory, hospice eligible	Hospice	**When goals align**: → Reassess prognostic awareness; redirect goals to achievable outcomes; assess preferred location of death; open-access hospice programs if available

ABBREVIATIONS: SVC = superior vena cava; irAE = immune-related adverse event; IV = intravenous; CT = computed tomography; PET = positron emission tomography; aHR = adjusted hazard ratio; NSCLC = non-small cell lung cancer; EGFR = epidermal growth factor receptor; ALK = anaplastic lymphoma kinase; ROS1 = ROS proto-oncogene 1; BRAF = B-Raf proto-oncogene; KRAS = Kirsten rat sarcoma viral oncogene homolog; MET = mesenchymal-epithelial transition factor; RET = rearranged during transfection; HER2 = human epidermal growth factor receptor 2; NTRK = neurotrophic tyrosine receptor kinase; NRG1 = neuregulin 1; PD-L1 = programmed death-ligand 1; IHC = immunohistochemistry; G8 = Geriatric 8; CGA = comprehensive geriatric assessment; GA = geriatric assessment; NCCN = National Comprehensive Cancer Network; ASCO = American Society of Clinical Oncology; QOL = quality of life; Lung-RADS = Lung Imaging Reporting and Data System

Follow-Up Timing

STAGE/CATEGORY	FREQUENCY[6,7,14]	LABS/MONITORING[6,7,14]
NSCLC post-resection, surveillance	CT chest **every 6 months × 2 years** then **annually**	CBC, CMP; coordinate with pulmonology if COPD

STAGE/CATEGORY	FREQUENCY[6,7,14]	LABS/MONITORING[6,7,14]
NSCLC EGFR/ALK on TKI	Imaging **every 8–12 weeks**	**Brain MRI** every 3–6 months; QTc, LVEF (osimertinib)
NSCLC on checkpoint inhibitor[6]	Imaging every **8–12 weeks**; clinic **every 3 weeks** during induction	CBC, CMP, TSH, glucose; immune-related AE surveillance[65]
SCLC on chemoimmunotherapy	Imaging **every 6–9 weeks** during induction; **every 2–3 months** in maintenance	CBC, CMP, LFTs; brain MRI **if symptomatic**; **PCI** in LS-SCLC responders
LDCT screening (annual)	**Annual** for eligible patients[15]	**SDM reaffirmed**; smoking cessation reinforced; Lung-RADS documented

ABBREVIATIONS: NSCLC = non-small cell lung cancer; CT = computed tomography; CBC = complete blood count; CMP = comprehensive metabolic panel; COPD = chronic obstructive pulmonary disease; EGFR = epidermal growth factor receptor; ALK = anaplastic lymphoma kinase; TKI = tyrosine kinase inhibitor; MRI = magnetic resonance imaging; QTc = corrected QT interval; LVEF = left ventricular ejection fraction; AE = adverse event; TSH = thyroid-stimulating hormone; SCLC = small cell lung cancer; LFTs = liver function tests; PCI = prophylactic cranial irradiation; LS = limited stage; LDCT = low-dose computed tomography; SDM = shared decision-making; Lung-RADS = Lung Imaging Reporting and Data System

Comorbidity Management — Primary Care Role

COMORBIDITY	APPROACH	CAUTION*
COPD (J44.x)	Optimize **before** curative-intent therapy;[18] pulmonary rehabilitation	**Limits** surgical and radiation reserve; checkpoint inhibitor pneumonitis **adds risk**
Active or former smoking (F17.2x)	Tobacco cessation counseling **every visit**[16]	Active smoking worsens treatment outcomes; **80–90%** of US lung cancer deaths smoking-attributable[19]
Cardiovascular disease (I25.x, I50.x)	Echocardiogram **before** anthracycline/osimertinib; coordinate cardiology[64,68]	**LVEF decline** on osimertinib;[64] QTc prolongation
Diabetes (E11.x)	**HbA1c trend**; coordinate glycemic management during steroid antiemetics[12]	**27% prevalence** in Medicare cancer beneficiaries[10]
Frailty	G8 + CGA per ASCO 2023;[31,39] integrate into **treatment intensity** decisions[6,7]	**VA Frailty Index** dose-response with OS, hospitalizations, ER visits
Depression/anxiety	PHQ-9/GAD-7 at **every visit**; coordinate palliative care[6]	Common in advanced disease and during checkpoint inhibitor therapy

COMORBIDITY	APPROACH	CAUTION*
VTE (I82.4x/I26.x)	**DOACs** for active malignancy[40]	**Balance** bleeding risk with central tumors and hemoptysis history

ABBREVIATIONS: COPD = chronic obstructive pulmonary disease; LVEF = left ventricular ejection fraction; QTc = corrected QT interval; HbA1c = glycated hemoglobin; G8 = Geriatric 8; CGA = comprehensive geriatric assessment; ASCO = American Society of Clinical Oncology; VA = Veterans Affairs; OS = overall survival; ER = emergency room; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; VTE = venous thromboembolism; DOACs = direct oral anticoagulants
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

Cost-Smart Options

BRAND (EST. COST)[69]	GENERIC/ ALTERNATIVE (EST. COST)[69,70]	EST. SAVINGS	COST-SMART TIP[69,71]
Brand pembrolizumab IV Keytruda (~$15,000/mo)	No biosimilar available; cemiplimab Libtayo (**~$12,000/mo**) is **lower-cost PD-1 alternative** for PD-L1 ≥50% monotherapy	**~$3,000/mo**	Cemiplimab cost-effective vs pembrolizumab for PD-L1 ≥50%; **lower cost**, **comparable efficacy**
Brand pembrolizumab SC Keytruda Qlex (~$15,000/mo)	IV pembrolizumab 200 mg q3wk or 400 mg q6wk (**same cost**, fewer infusion visits with q6wk)	Variable	Q6wk dosing **cuts infusion visits 50%**; reduces burden for older adults
Brand osimertinib Tagrisso (~$18,500/mo)	**No generic**; 1st-gen EGFR TKIs (erlotinib **~$9,400/mo**, gefitinib **~$9,100/mo**) are lower-cost **but** inferior PFS/OS	**~$9,000/mo**	IRA caps Part D OOP at **$2,000/yr**; enroll in MPPP to spread to **~$167/mo**
Osimertinib + platinum/ pemetrexed combo (~$23,000/mo total cost of care)	Osimertinib monotherapy (**~$18,500/mo**) for ECOG 0–1 without CNS metastases	**~$4,500/mo**	Combo adds ~10 mo OS **but** ICER $265K/QALY; reserve for **CNS mets or L858R**; higher grade ≥3 AEs
Amivantamab + lazertinib Rybrevant/ Lazcluze (~$25,000–$30,000/mo combined)	Osimertinib monotherapy (**~$18,500/mo**)	**~$8,000–$12,000/mo**	PFS benefit (**MARIPOSA**) but **no OS difference**;[72] grade ≥3 AEs 73% vs 43%; MDT discussion

BRAND (EST. COST)[69]	GENERIC/ ALTERNATIVE (EST. COST)[69,70]	EST. SAVINGS	COST-SMART TIP[69,71]
Conventional fractionated RT (25–30 fx; ~$14,000–$27,000/ course)	**SBRT** (3–5 fx; **~$7,000–$14,000/course**) for medically inoperable Stage I	**~$4,000–$14,000 per course**	**SBRT preferred** per NCCN;[6,7] fewer sessions, less treatment burden
Brand carboplatin formulations	**Generic** carboplatin (standard)	**Significant**	**Generic equivalent**; preferred over cisplatin **if CrCl <60 mL/min**
Brand durvalumab Imfinzi (~$12,000/mo)	Atezolizumab Tecentriq (**~$12,500/mo**) for ES-SCLC	Comparable	Both NCCN category 1 for **ES-SCLC**;[7] choose per formulary
NK1 RA combos: fosnetupitant/ palonosetron Akynzeo (~$600–$800/dose)	**Generic** ondansetron + dexamethasone ± olanzapine (**~$2–$10/ dose**)	**~$300–$700/cycle**	Reserve NK1 RA for high emetic risk (cisplatin); ondansetron + dex NCCN category 1 for moderate risk
Brand pemetrexed Alimta (~$4,000–$6,000/ cycle)	**Generic** pemetrexed (**~$200–$500/cycle**)	**~$3,500 – $5,500/cycle**	Multiple generics available; **no efficacy difference**
Oral cancer drugs (all) pre-IRA: OOP ~$10,900/yr	Post-IRA 2025: **OOP capped at $2,000/yr**; MPPP spreads to **~$167/ mo**	**~$8,900/yr**	Counsel **ALL** Part D patients on $2,000 cap + MPPP before January
Brand pembrolizumab IV Keytruda (~$15,000/mo)	No biosimilar available; cemiplimab Libtayo (**~$12,000/mo**) is **lower-cost PD-1 alternative** for PD-L1 ≥50% monotherapy	**~$3,000/mo**	**Cemiplimab cost-effective** vs pembrolizumab for PD-L1 ≥50%; lower cost, **comparable efficacy**

ABBREVIATIONS: PD-1 = programmed death-1; PD-L1 = programmed death-ligand 1; SC = subcutaneous; IV = intravenous; EGFR = epidermal growth factor receptor; TKI = tyrosine kinase inhibitor; PFS = progression-free survival; OS = overall survival; IRA = Inflation Reduction Act; OOP = out-of-pocket; MPPP = Medicare Prescription Payment Plan; ECOG = Eastern Cooperative Oncology Group; CNS = central nervous system; ICER = incremental cost-effectiveness ratio; QALY = quality-adjusted life-year; AEs = adverse events; MDT = multidisciplinary team; RT = radiation therapy; fx = fractions; SBRT = stereotactic body radiation therapy; NCCN = National Comprehensive Cancer Network; CrCl = creatinine clearance; ES-SCLC = extensive-stage small cell lung cancer; NK1 RA = neurokinin-1 receptor antagonist; OOP = out-of-pocket

Patient Education and Adherence

What makes lung cancer patient education unique is the intersection of **screening complexity**, **rapid treatment evolution**, and the reality that most patients are older adults with complex

comorbidities who may have **limited health literacy**. LDCT screening, the single highest-impact PCP intervention, requires a **documented** SDM visit before the initial screen per CMS coverage requirements, including use of **at least one decision aid** and documentation in the medical record.[15] The 2022 CMS update reduced administrative burden by allowing non-physician professionals and telehealth (including audio-only) to conduct the SDM visit, but retained the counseling and documentation mandate.[15] Only **~24.5%** of eligible individuals are currently screened, making the SDM visit both a **clinical and quality gap** the PCP is uniquely positioned to close.[27,73]

Beyond screening, the treatment landscape has **shifted dramatically**: biomarker-driven therapy selection, immune-related adverse events (**irAEs**) that can present **weeks to months after treatment**, and oral targeted therapies requiring **daily adherence and cardiac monitoring** all demand patient and caregiver understanding. Older adults face **compounding barriers**: sensory impairment, cognitive decline, polypharmacy, and caregiver dependence; these require tailored education strategies including large-font materials (≥14 pt), teach-back confirmation, and caregiver inclusion in all treatment discussions.

DOCUMENTATION — PATIENT EDUCATION

*Document the following education topics, the patient and caregiver(s) present, materials provided, and patient understanding (**teach-back method**):*

- ***LDCT screening eligibility and SDM**: Document decision aid used, benefits/harms discussed, smoking history, eligibility determination, and **patient decision** (required for CMS coverage of initial LDCT; G0296)*[15]
- ***Smoking cessation**: Status, counseling provided, pharmacotherapy offered; use **5 A's framework** (Ask, Advise, Assess, Assist, Arrange)*
- ***Biomarker testing rationale**: Why multigene panel and PD-L1 results must be available before first-line systemic therapy; how results guide targeted vs immunotherapy selection*
- ***Immune-related AE warning signs**: New-onset diarrhea, dyspnea, rash, fatigue, polyuria/polydipsia; when to call vs present to ED; symptoms may appear weeks to months after treatment*
- ***Cardiac and QTc monitoring on osimertinib**:*[64] *Baseline ECG and echocardiogram; report palpitations, syncope, or new dyspnea*
- ***Brain MRI surveillance**: For EGFR/ALK-mutated patients; explain rationale for serial imaging **even when asymptomatic***
- ***Advance care planning**: Surrogate designation, code status, goals of care; CPT 99497/99498 billable during AWV with no patient copay*
- ***Caregiver assessment**: Document caregiver present, their understanding of care responsibilities, and burden screening; refer to social work **if strain identified** (Zarit Burden Interview, Caregiver Strain Index)*

Quality Metrics Tie-In

Lung cancer sits at the intersection of the **largest cancer-screening quality gap** in US medicine and one of the most **quality-measure-dense** care trajectories in Medicare. The disease spans **prevention** (LDCT screening, tobacco cessation), **oncology-specific process measures** (biomarker testing, pathology reporting), **chronic disease co-management** (COPD, diabetes, depression), **geriatric-focused measures** (functional status, medication review, advance care planning), and **care transitions** (readmissions, medication reconciliation), meaning that nearly every major HEDIS and MIPS domain **applies simultaneously** across the care continuum. With only **~24.5%** of eligible individuals currently screened and 5-year overall survival at 27% (rising to 67% for stage I disease),[27] the gap between what quality measurement demands and what is delivered in practice **remains substantial**.

Lung cancer's high comorbidity burden (**85–90%** smoking-attributable, frequent COPD, cardiovascular disease, and depression), rapid treatment evolution (biomarker-driven therapy, immunotherapy, oral targeted agents), and the predominance of older adults in the affected population mean that HEDIS COA sub-measures, MIPS oncology-specific measures, and CMS value-based program metrics **converge on a single patient simultaneously**; thorough, measure-aligned documentation are not just a billing exercise but a clinical imperative for care coordination between PCP, oncology, and supportive care teams.

MEASURE (MY2026)	STANDARD	APPLICABILITY TO LUNG CANCER
HEDIS COA: Care for Older Adults-Medication Review	**Denominator**: MA enrollees ≥66, continuously enrolled; **Numerator**: 4 sub-measures documented annually: (1) functional status assessment, (2) medication review, (3) pain assessment, (4) advance care planning; **Exclusions**: hospice, ESRD	Polypharmacy is common in lung cancer patients on targeted/immunotherapy; medication review **should reconcile**: osimertinib QTc interactions, steroid antiemetics, anticoagulants, and CYP3A4 substrates; cognitive impairment in older adults **impairs self-report** → pharmacy verification recommended
HEDIS COA: Care for Older Adults-Functional Status Assessment	**Denominator**: enrollees ≥66; **Numerator**: functional status assessment documented annually; **Exclusions**: hospice, ESRD	**ECOG** performance status and **G8** geriatric screening directly satisfy this sub-measure; document at **every visit** to track functional trajectory and guide treatment intensity decisions (**G8 ≤14 triggers CGA**)
HEDIS TSC-E: Tobacco Use Screening and Cessation Interview	**Denominator 1:** enrollees ≥12; **Denominator 2**: positive tobacco users from Numerator 1; **Numerator 1**: screened with documented positive or negative tobacco status during measurement period; **Numerator 2**: received cessation counseling (ages ≥12) or pharmacotherapy (ages ≥18) **Exclusions**: death, hospice	**85–90%** of US lung cancer deaths are smoking-attributable;[19] tobacco status is a vital sign → document at **every visit** using **5 A's framework**; active smoking worsens treatment outcomes and is an LDCT screening eligibility criterion; **USPSTF Grade A** recommendation[4]

MEASURE (MY2026)	STANDARD	APPLICABILITY TO LUNG CANCER
HEDIS TRC: Transitions of Care Patient	**Denominator**: enrollees ≥18 with inpatient discharge; **Numerator**: 4 sub-measures **within 30 days**: (**1**) notification of inpatient admission, (**2**) receipt of discharge information, (**3**) patient engagement after discharge, (**4**) medication reconciliation post-discharge; **Exclusions**: hospice	Lung cancer patients have **high readmission rates** driven by treatment toxicity (neutropenic fever, irAEs, pneumonitis), disease progression, and comorbidity exacerbations; medication reconciliation is critical for EGFR-TKI + anticoagulant + steroid polypharmacy post-hospitalization
HEDIS DMS-E: Utilization of the PHQ-9 to Monitor Depression Symptoms for Adolescents and Adults	**Denominator**: enrollees ≥12 with diagnosis of major depression or dysthymia **AND** elevated PHQ-9 ≥10 **Numerator**: follow-up PHQ-9 documented within 4–8 months of index elevated score **Exclusions**: hospice	Depression prevalence in lung cancer patients is **20–40%**;[30] PHQ-9 at **every visit** with follow-up plan if positive; lung cancer diagnosis, functional decline, and treatment toxicity are independent depression risk factors[32]
HEDIS ACP: Advance Care Planning	**Denominator**: enrollees ≥66; **Numerator**: advance care plan or surrogate decision-maker documented, OR documentation that ACP was discussed but patient declined **Exclusions**: hospice	Initiate **while decisional capacity intact**; lung cancer has high mortality → ACP should begin at diagnosis, **not** end-of-life;[6,7] billable as CPT 99497/99498 during AWV with **no copay**; document surrogate, code status, and goals of care
HEDIS PCR: Plan All-Cause Readmission	**Denominator**: enrollees ≥18 with acute inpatient discharge; **Numerator**: unplanned readmission within 30 days (lower is better) **Exclusions**: planned readmissions (maintenance chemotherapy, transplant), hospice, psychiatric	Lung cancer 30-day readmission rates are among the highest of all cancers; **primary drivers include**: febrile neutropenia, irAEs, pneumonitis, uncontrolled pain, and dehydration; PCP post-discharge follow-up **within 7 days** reduces readmission risk
MIPS #364: Optimizing Patient Exposure to Ionizing Radiation: Appropriateness: Follow-up CT Imaging for Incidentally Detected Pulmonary Nodules According to Recommended Guidelines	**Denominator**: patients ≥35 with incidental pulmonary nodule on CT; **Numerator**: follow-up CT imaging performed according to recommended guidelines (Fleischner Society/ACR);[74] **Exclusions**: known lung cancer, lung cancer screening participants,, heavy tobacco users	Ensures guideline-concordant nodule surveillance per **Fleischner Society 2017 criteria**;[75] prevents both unnecessary imaging (6 mm low-risk = no routine follow-up) and missed cancers (≥8 mm = 3-month CT or PET/CT or biopsy); PCP role is ensuring tracking and timely follow-up

MEASURE (MY2026)	STANDARD	APPLICABILITY TO LUNG CANCER
MIPS #395: Lung Cancer Reporting (Biopsy/Cytology Specimens)	**Denominator**: Patient (≥18) lung biopsy/cytology specimens with NSLSC diagnosis; **Numerator**: pathology report includes histologic type, adequacy for molecular testing, and results of ancillary studies **Exclusions**: Documented medical reason(s) for not including histological type or NSLSC-NOS classification	Ensures biopsy reports include **histologic subtype** (adenocarcinoma vs squamous vs SCLC) and **tissue adequacy** for molecular profiling; PCP should verify report completeness before oncology referral
MIPS #396: Lung Cancer Reporting (Resection Specimens)	**Denominator**: Primary lung cancer resection specimens; **Numerator**: synoptic pathology report includes histologic type, tumor size, margins, lymph node stations, lymphovascular invasion, visceral pleural invasion; **Exclusions**: Specimen not lung-derived **OR** classified as NSCLC-NOS:G9424	Ensures **complete staging parameters** per AJCC 9th edition;[42] number of involved lymph node stations has **prognostic significance**; PCP should confirm synoptic report is on file for care coordination
MIPS #497: Preventive Care and Wellness - Tobacco Screening Component	**Denominator**: patients ≥12 with 2 visits or at least one preventive visit; **Numerator**: Screened for tobacco use and received cessation intervention if positive **Exclusions**: hospice	Platform for integrating lung cancer prevention into routine care: tobacco screening → **LDCT eligibility** determination
MIPS #506: Positive PD-L1 Biomarker Expression Test Result Prior to First-Line Immune Checkpoint Inhibitor Therapy	**Denominator**: patients ≥12 with diagnosis of metastatic NSCLC initiating first-line ICI monotherapy; **Numerator**: PD-L1 IHC result documented prior to first-line ICI administration **Exclusions**: NSCLC with targetable mutations/genomic abnormalities	Ensures PD-L1 TPS% is available **before** initiating pembrolizumab, cemiplimab, or atezolizumab; PD-L1 **≥50%** qualifies for monotherapy; PD-L1 1–49% requires chemo-immunotherapy **combination**; PCP should verify PD-L1 result is documented on problem list

ABBREVIATIONS: MA = Medicare Advantage; ESRD = end-stage renal disease; QTc = corrected QT interval; CYP3A4 = cytochrome P450 3A4; ECOG = Eastern Cooperative Oncology Group; G8 = Geriatric 8; CGA = comprehensive geriatric assessment; LDCT = low-dose computed tomography; USPSTF = United States Preventive Services Task Force; irAEs = immune-related adverse events; EGFR = epidermal growth factor receptor; TKI = tyrosine kinase inhibitor; PHQ-9 = Patient Health Questionnaire-9; ACP = advance care planning; AWV = annual wellness visit; CPT = Current Procedural Terminology; CT = computed tomography; ACR = American College of Radiology; PET = positron emission tomography; NSCLC = non-small cell lung cancer; SCLC = small cell lung cancer; NSCLC-NOS = non-small cell lung cancer, not otherwise specified; AJCC = American Joint Committee on Cancer; ICI = immune checkpoint inhibitor; PD-L1 = programmed death-ligand 1; IHC = immunohistochemistry; TPS = tumor proportion score; SDM = shared decision-making; GAD-7 = Generalized Anxiety Disorder-7; HEDIS = Healthcare Effectiveness Data and Information Set; MIPS = Merit-based Incentive Payment System; NCQA = National Committee for Quality Assurance; PCP = primary care physician; VBC = value-based care

QUALITY OUTCOME

*When primary care **closes the LDCT screening gap** (currently **~24.5%**),[27] reinforces smoking cessation through surveillance, supports symptomatic referral when red flags appear, coordinates COPD and CV comorbidity, and ensures multigene panel testing before first-line systemic therapy, patients are diagnosed **at earlier stages** with curative options available and receive optimal biomarker-driven therapy. Quality outcomes follow naturally from delivering and documenting the care the clinical picture demands: they are **consequences of good care**, not separate goals.*

DOCUMENTATION

*When a treatment decision is reached at a multidisciplinary tumor board, **document:** the recommendation, the clinical reasoning (histology, stage, biomarker profile, frailty/CGA findings), the patient's expressed preferences, and the agreed-upon plan. Anchor surveillance documentation to active **C34.x** with specific **subsite** + **laterality** throughout disease activity; **Z85.118** applies **ONLY** after complete eradication and end of active surveillance.*

5 CODING REMINDERS AND CASE EXAMPLES

Coding Specificity

- **Subsite + Laterality (C34.01–C34.92):** Every CT and pathology report specifies lobe and laterality → transcribe into the encounter note. **C34.90** (unspecified) is the highest **audit-risk code** in lung cancer because the supporting documentation almost always contains the specific information; auditors will downgrade
- **Histology:** Document **NSCLC subtype** (adenocarcinoma/squamous/large cell), **SCLC**, or **carcinoid** (**C7A.090**); this sub-classification drives **treatment eligibility** (e.g., pemetrexed restricted to non-squamous), HCC mapping (**HCC 20** vs. **HCC 21** for carcinoid), and multigene panel indication
- **Primary vs. Secondary:** RAF differential ~3.7× between **C34.x primary** (**HCC 20**, RAF 1.136) and **C78.0x secondary** lung metastasis (**HCC 17**, RAF 4.209); document the basis for designation (histology, biomarker profile, imaging pattern); **misclassification** in either direction distorts both clinical record and risk capture
- **Stage (ACJJ TNM 9th Edition-NSLSC; 8th edition-SCLC):**[42] Document **T** (tumor size + local invasion), **N** (regional nodal involvement), **M** (distant metastasis) with specific substage; **for SCLC**, document VALSG Limited Stage vs. Extensive Stage **in addition to** TNM. Stage drives treatment algorithm selection and clinical trial eligibility

- **Biomarker Profile (Advanced NSCLC):** EGFR, ALK, ROS1, BRAF V600E, KRAS G12C, MET exon 14, RET, HER2, NTRK, NRG1, PD-L1 TPS%; multigene panel required **before** first-line systemic therapy per NCCN.[6,7] Document results (positive, negative, or pending) with test date; creates the auditable **treatment-rationale trail** for targeted therapy and immunotherapy selection
- **Active vs. Personal History**: Use **C34.x** while disease is active, under treatment, or under active surveillance; **Z85.118** (personal history of malignant neoplasm of bronchus and lung) applies **ONLY** after complete eradication and end of all active surveillance. **Premature switch** to Z85.118 during ongoing therapy **eliminates HCC 20 mapping** entirely
- **Functional Status (ECOG + G8)**: Document ECOG performance status (0–4) at **every encounter**; for patients ≥65, document **G8 screening score** → G8 ≤14 triggers comprehensive geriatric assessment per ASCO 2023.[39] **Frailty** (**not** chronologic age) predicts treatment tolerance and outcomes;[31] functional scores drive regimen intensity decisions and geriatric oncology referral
- **Concurrent Comorbidities**: COPD (**J44.x**), active or former tobacco use (**F17.2x**/**Z87.891** with pack-year history), CHF (**I50.x**), diabetes (**E11.x**), VTE (**I82.4x**), immune-related adverse events (thyroiditis **E03.9**, hepatitis **K75.4**, pneumonitis **J84.89**) = each carries independent clinical significance, affects treatment decisions, and supports distinct HCC categories. Code and document MEAT **for each** at every encounter
- **Chronicity**: Diagnosis date, current treatment regimen with cycle number and date of last administration, duration in remission or progression status; distinguishes **active disease** requiring ongoing management (**C34.x**) from completed treatment (**Z85.118**). Update at every encounter during the reporting year to **maintain HCC continuity**

Annual Clinical Review and Confirmation

- **Annual review:** Active lung cancer (**C34.x**) requires annual MEAT documentation; concurrent COPD, smoking, frailty, and treatment status updated **each encounter**
- **Visit modality:** Face-to-face **or** synchronous audio-video telehealth qualifies when it supports meaningful clinical evaluation
- **Clinical context:** Under CMS-HCC V28, **C34.x** primary lung cancers map to **HCC 20** (CNA RAF 1.136);[11,12] **C78.0x** lung metastases map to **HCC 17** (RAF 4.209)[11,12]
- **Avoid rollover: Do not** copy forward last year's lung cancer note without updating treatment regimen, biomarker results, AJCC TNM stage, ECOG/G8, and comorbidity status

Good Documentation is Comprehensive Coding

EHR SHORTCUT/RISK	PREFERRED DOCUMENTATION LANGUAGE
Coding C34.90 when CT and pathology specify subsite + laterality	'Right upper lobe adenocarcinoma (**C34.11**), **confirmed by** CT [date] and bronchoscopic biopsy [date]'
Coding C34.x when patient has metastatic disease from another primary	Document the originating primary **AND** each lung site: 'Metastatic colorectal adenocarcinoma **to right and left lungs** (C18.x + C78.01 + C78.02); histology/biomarker pattern **confirms metastatic**, not new primary'
Using Z85.118 in patient still under surveillance	Use **C34.x** throughout surveillance; reserve Z85.118 **ONLY** for completed treatment with **no evidence of active disease**
Not documenting molecular profile	'Right upper lobe adenocarcinoma (**C34.11**), Stage IIIA, **EGFR exon 19 deletion**, **ALK negative**, **PD-L1 60%**; multigene panel completed [date]'
'On chemo'	'**EGFR-mutated** Stage IV NSCLC (**C34.11**) **on osimertinib 80 mg/day**; cycle 8 [date]; serial QTc and LVEF monitoring; brain MRI every 3 months per NCCN'
'LDCT done'	'**LDCT** (71271) performed [date]; Lung-RADS 2 (benign appearance); annual screening continued; **SDM** (G0296) **reaffirmed** with decision aid'

ABBREVIATIONS: CT = computed tomography; EGFR = epidermal growth factor receptor; ALK = anaplastic lymphoma kinase; PD-L1 = programmed death-ligand 1; NSCLC = non-small cell lung cancer; QTc = corrected QT interval; LVEF = left ventricular ejection fraction; MRI = magnetic resonance imaging; NCCN = National Comprehensive Cancer Network; LDCT = low-dose computed tomography; SDM = shared decision-making; EHR = electronic health record

EHR Workflow Tips

- **[EHR TIP — Smartphrase]** Build a **.lungca dot phrase** that auto-populates ICD-10 with specific subsite + laterality (**C34.01–C34.92**), **histology** (adenocarcinoma/squamous/SCLC/carcinoid), **AJCC 9th edition** stage (**AJCC 8th edition** for SCLC), **biomarker profile** (EGFR/ALK/ROS1/BRAF/KRAS G12C/MET/RET/HER2/NTRK/NRG1/PD-L1 TPS%), **ECOG** or **G8 score** with trend, current **treatment regimen**/cycle/day, and **active comorbidities** (COPD, smoking status with pack-years, CHF, diabetes) = sourced from pathology, radiology, oncology notes, and the problem list. Eliminates **unspecified C34.90** coding and supports MEAT documentation in a single paste
- **[EHR TIP — Alert]** Worklist filter "**Lung Cancer Active**" = surfaces patients with **any C34.x** (6th character specific) or **C7A.090** on the problem list, or any patient with a **Z51.11** antineoplastic chemotherapy encounter in the last 12 months plus lung malignancy on the problem list, **without** a thoracic oncology or PCP visit in the past 12 months. Second filter:

"**LDCT Screening Due**" = patients meeting CMS eligibility (age 50–77, ≥20 pack-years, current/quit ≤15 years) without 71271 claim in the **past 12 months**. Identifies active patients due for follow-up and **closes the screening gap**

- **[EHR TIP — Best Practice] Problem list hygiene**: maintain the problem list entry as **specific** (e.g., "NSCLC, right upper lobe, adenocarcinoma, EGFR L858R+, stage IVA, in treatment"), **not** "lung cancer." Update subsite and laterality from **every CT and pathology report**; **never** leave as **C34.90** after imaging confirmation. Code each active comorbidity **individually** (COPD **J44.1**, tobacco dependence **F17.210** with pack-year history, CHF **I50.x**, diabetes **E11.x**). Maintain biomarker profile and PD-L1 TPS% on the active list to support treatment selection documentation
- **[EHR TIP — Workflow]** Annual diagnosis confirmation: **fire a BPA** when an active lung cancer code (**C34.x**, **C7A.090**) appears on the problem list and no face-to-face or synchronous audio-video encounter with MEAT documentation has been recorded in the **past 12 months**. Fires **at year-end** to support HCC 20/21 mapping and RAF continuity before the sweep deadline. **Secondary trigger**: flag any **C34.90** (unspecified) persisting >30 days after initial entry for **specificity upgrade**
- **[EHR TIP — Order Set]** "**Lung Cancer Screening**" order set: G0296 (SDM visit with decision aid) → 71271 (**LDCT**); auto-attaches smoking cessation counseling (99406/99407) to **every screening encounter**. "**Lung Cancer Diagnostic Workup**" order set: diagnostic **CT chest** (71260/71270), PET/CT, bronchoscopy with biopsy, multigene panel (81445/81455/0388U), PD-L1 IHC (88341/88342), brain MRI (for stage III–IV); frequency and components adjustable per clinical stage. **New-diagnosis add-on bundle** includes multidisciplinary tumor board referral, palliative care consult, and advance care planning (99497/99498) = all triggered at problem list entry

Brief Case Examples

SUCCESS: COMPREHENSIVE DOCUMENTATION

SCENARIO

A 69-year-old patient (40 pack-year former smoker, quit 6 years ago) presents with persistent cough × 6 weeks **not responding to two antibiotic courses**. PCP recognized the red-flag pattern, ordered diagnostic **CT chest** revealing 3.2 cm right upper lobe mass with mediastinal lymphadenopathy. Multidisciplinary workup completed with biopsy and multigene panel.

Documentation: "Right upper lobe adenocarcinoma (**C34.11**), clinical **Stage IIIA** (**T2N2M0**), EGFR exon 19 deletion, PD-L1 TPS 60% = confirmed by EBUS-TBNA [date] with multigene panel completed. **Concurrent**: mild COPD (**J44.9**), former tobacco use disorder (**Z87.891**), **40 pack-years**. ECOG 1; **G8 14** → comprehensive geriatric assessment placed per ASCO 2023. Multidisciplinary thoracic oncology referral to Dr. [Name]; brain MRI baseline ordered (per NCCN for EGFR-mutated NSCLC); **concurrent palliative care referral** for integrated supportive care; CPT 99497 **advance care planning completed**, patient confirms full-code status with focus on function. Assessment: Stage IIIA EGFR-mutated NSCLC = osimertinib-based therapy per oncology;

COPD stable on current inhalers; smoking cessation maintained. Return 4 weeks or sooner for new hemoptysis, worsening dyspnea, or unintentional weight loss >5%."

Outcome: HCC 20 (active malignancy) supported with anatomic specificity (**C34.11** = right upper lobe); biomarker profile (EGFR exon 19 del, PD-L1 60%) drives **osimertinib-based treatment selection** and creates an auditable treatment-rationale trail; concurrent COPD and former tobacco use documented as **distinct coded comorbidities**; **G8-triggered CGA** supports geriatric-tailored care; palliative care integration **early in trajectory** per ASCO/NCCN. Every MEAT element present: histology with stage and biomarkers, imaging with findings, treatment plan with referral and regimen rationale, functional assessment with score, coded diagnoses, follow-up interval with symptom-based return criteria.

PITFALL: INSUFFICIENT DOCUMENTATION

Documentation as written: "Lung cancer, on chemo. Tolerating treatment. F/u with oncology." Coded as **C34.90**. Patient is in cycle 6 of pembrolizumab for Stage IV NSCLC. CT report specifies right upper lobe primary; pathology confirms adenocarcinoma. PD-L1 TPS 80% from initial workup but **not documented** in PCP problem list. No molecular profile mentioned. COPD on home oxygen, **not in active problem list**. Recent immune-related thyroiditis (TSH 12), **not coded**.

Consequence: C34.90 is the **highest audit-risk code** in lung cancer; every CT and pathology report in this chart **specifies C34.11** (right upper lobe), making the unspecified code **indefensible on review**. PD-L1 80% documentation absence **impairs treatment-rationale** audit trail for pembrolizumab. "On chemo" without regimen name, cycle number, or date fails MEAT. COPD with home oxygen and immune-related thyroiditis not on active problem list **undermines clinical complexity** capture and irAE surveillance. The record understates the clinical complexity the team is actually managing and **impairs continuity** between PCP and oncology.

RAF Impact: HCC 20 is technically supported by **C34.90,** but the code carries the highest audit risk and may be downgraded or rejected on review. Missing concurrent COPD on home oxygen and immune-related hypothyroidism documentation **understates true clinical complexity**. If the patient is mistakenly switched to Z85.118 (personal history) during ongoing active therapy, **full HCC 20** is lost (CNA RAF 1.136).

Fix: Update problem list and assessment: "Right upper lobe adenocarcinoma (**C34.11**), **Stage IV** (**T3N2M1b**, adrenal metastasis), **PD-L1 TPS 80%**, EGFR/ALK/ROS1 wild-type per multigene panel [date], on pembrolizumab 200 mg IV q3w cycle 6 (last infusion [date]) per oncology (Dr. [Name], last seen [date]). **Concurrent**: COPD on 2L home O_2 (**J44.1**); immune-related hypothyroidism (**E03.9**) on levothyroxine 75 mcg daily, TSH 12 → dose adjustment today; former tobacco use (**Z87.891**), **40 pack-years**. ECOG 2. Advance care plan reviewed, patient confirms current goals. Assessment: Stage IV NSCLC on active immunotherapy = continue pembrolizumab per oncology; COPD stable on current O_2; immune-related hypothyroidism = increase levothyroxine, recheck TSH 6 weeks; smoking cessation maintained. Return 4 weeks or sooner for fever ≥38.0°C, new dyspnea, or signs of immune-related adverse event." Coding after fix: **C34.11** (right upper lobe → **HCC 20**) + **J44.1** (COPD with exacerbation history) + **E03.9** (hypothyroidism) + **Z87.891** (former tobacco) = **real clinical picture preserved** with auditable specificity.

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