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2025 Computed Tomography (CT) Chest

Diagnostic Imaging

CT-Chest-HH

Last Review Date: 03/24/2025
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Guideline Initiated: 06/30/2019

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Computed Tomography (CT) Chest

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

NCD 210.14
See also, **NCD 210.14**: Lung Cancer Screening with Low Dose Computed Tomography (LDCT) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT General Contraindications

Computed tomography (CT) is contraindicated (relative) for **ANY** of the following:

1. Allergy/idiosyncratic reaction to contrast material (if intravascular contrast material is used)
2. Pregnancy
3. Renal impairment (glomerular filtration rate [GFR] is less than 30 ml/min/1.73 m^2.)
   References: [2]

CT Chest Contraindications

Computerized tomography (CT) of the chest is contraindicated for **ANY** of the following:

1. Asymptomatic and **NO** high-risk factors (eg, smoking, prior history of cancer, high risk for cancer).
   References: [8] [5]
2. Chest X-ray (or other imaging, as appropriate) was **NOT** completed previously. (*__NOTE__: *Known pathology (eg, cancer, nodules) X-ray is **NOT** required*.)
   References: [8] [5]
3. Chronic lung disease is stable and **NO** new symptoms, for routine follow-up
   References: [8] [5]
4. Chronic obstructive pulmonary disease (COPD) and **NO** acute worsening of symptoms or complications and pulmonary function tests are completed.
   References: [8] [5]

5. Respiratory infection/pneumonia resolution is demonstrated on prior imaging, for follow-up
References: [8] [5]
6. Lung nodule monitoring for nodule(s) size less than 6 mm and low-risk for lung cancer.
References: [8] [5] [2020 Lung Disease]

Preamble: Pediatric Diagnostic Imaging

HealthHelp's clinical guidelines for the Diagnostic Imaging program, are intended to apply to both adults and pediatrics (21 years of age or younger), unless otherwise specified within the criteria.

CT Chest Guideline

Computed tomography (CT) of the chest is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Cancer is known and **ANY** of the following: (*__NOTE__: for lung cancer screening with low-dose CT (LDCT), see the CT: Low Dose CT (LDCT) for Lung Cancer Screening Guideline)
    a. Active treatment within the past 12 months
    b. Recurrence or metastasis is suspected.
    c. Staging or restaging evaluation
    d. Surveillance following the **National Comprehensive Cancer Network (NCCN) Guidelines** recommended schedule (*see* **Surveillance** *section*).

    References: [10] [9] [19]
2. Pulmonary nodules are known, incidentally found on one of the tests below, age is 35 years or older and **ANY** of the following:
    a. Chest CT and nodule size is 6mm or more.
    b. Chest X-ray
    c. Incomplete chest CT (eg, CT abdomen, neck, spine)

    References: [17]
3. Cough is chronic (at least 8 weeks) and persistent or progressing **DESPITE** treatment (eg, antibiotics, steroids) and prior chest X-ray is complete.
References: [14]
4. Chest mass (non-lung parenchymal) including lymphadenopathy and initial chest X-ray is non-diagnostic or indeterminate.
References: [1]
5. Chest wall area pathology, chest X-ray is completed and **ANY** of the following: [18] [23]

a. Injuries are suspected (eg, costochondral cartilage, manubriosternal joint injuries, musculotendinous, pectoralis major, sternoclavicular joint), for treatment planning.

b. Malformations (eg, pectus carinatum, pectus excavatum, scoliosis) are known, with cardiorespiratory symptoms (eg, chest pain, shortness of breath), when treatment is being considered. [11]

c. Mass or lesion and initial imaging is non-diagnostic or indeterminate. [1]

d. Pain is known **AND** chest and/or rib films are completed.

References: [25]

6. Congenital malformation (eg, thoracic anomalies), when an anomaly is demonstrated or suspected from prior X-ray **OR** there is the presence of congenital heart disease with pulmonary hypertension.
References: [11]

7. Gestational trophoblastic disease is known, chest X-ray and surgery are completed **AND** human chorionic gonadotropin (hCG) is **NOT** declining.
References: [16]

8. Granulomatosis with polyangiitis (Wegener's granulomatosis) is suspected or known.
References: [26]

9. Infection is suspected or known, chest X-ray is completed and **ANY** of the following:

   a. Pneumonia or inflammatory disease is **NOT** resolving and is documented by **AT LEAST 2** imaging studies with **EITHER** of the following:

      i. Unimproved with 4 weeks of antibiotic treatment

      ii. Unresolved at 8 weeks

   b. Signs/symptoms of infection are present/progressing (eg, elevated inflammatory markers, fever) **AND** chest X-ray is non-diagnostic or indeterminate.

   c. Tuberculosis is suspected or known and prior chest X-ray is non-diagnostic or indeterminate.

   d. Upper respiratory infection/bronchitis is suspected and persistent **DESPITE** treatment.

   References: [15] [20]

10. Interstitial lung disease/diffuse lung disease is suspected or known and initial chest X-ray and pulmonary function tests are completed, for treatment monitoring.
References: [18] [12] [7]

11. Multiple endocrine neoplasia 1 (MEN1), for follow-up every 1 to 3 years (*__NOTE__: *Does __NOT__ require previous chest X-ray*.)

12. Post-surgical assessments for evaluation of complications or disease recurrence.
References: [6]
13. Pulmonary hypertension is suspected.
References: [24]
14. Weight loss occurred and is unintentional and unexplained (more than 10% of body weight in 2 months or more than 5% of body weight in 6 months)

LCD 33459
See also, **LCD 33459**: Computerized Axial Tomography (CT), Thorax at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35391
See also, **LCD 35391**: Multiple Imaging in Oncology at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Low Dose Computed Tomography (LDCT) for Lung Cancer Screening

NCD 210.14
See also, **NCD 210.14**: Lung Cancer Screening with Low Dose Computed Tomography (LDCT) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LDCT for Lung Cancer Screening Guideline

*(**NOTE**: *In some institutions 71250 is performed using a low-does technique, and low dose imaging is **NOT** necessarily always 71271*.)
A low-dose computed tomography (LDCT) for lung cancer screening of high risk, asymptomatic (eg, **NO** hemoptysis or chronic productive cough) individuals is considered medically appropriate when the documentation demonstrates that **ANY** of the following criteria are met:

1. **ALL** of the following:
    a. Age is 50 to 80 years. (*__NOTE__: *May approve for individuals over the age limit if the individual is a candidate for and willing to undergo curative treatment*.)
    b. Current cigarette smoker with 20 pack years or more of smoking **OR** past smoker, with 20 pack years or more of smoking, who quit within the past 15 years.

> **NOTICE**
> To calculate pack years for different types of tobacco use (eg, pipe, vape), use a Smoking Pack Year Calculator, such as: www.smokingpackyears.com or www.jeffersonradiology.com/calculate-packs-year.

References: [13] [22] [27] [28] [3]

2. Definitive treatment of non-small cell lung cancer is completed, for annual LDCT surveillance, for **EITHER** of the following:
    a. Stage I to stage II (treated with surgery, ± chemotherapy); starting at year 2 to 3 of surveillance
    b. Stage I to stage II (treated primarily with radiation) **OR** stage III to stage IV, with all sites treated with definitive intent; starting at year 5 of surveillance

References: [13] [22] [27] [28] [3]

3. Nodule seen on initial LDCT, for follow-up per Lung Rads criteria (*See **Definitions** section*) (*__NOTE__: *If multiple nodules, the largest and type is used for decision making*.)
References: [13] [22] [27] [28] [3]

Blood/Bone Marrow Cancers Surveillance section

Acute Lymphoblastic Leukemia Surveillance

Acute lymphoblastic leukemia: No imaging surveillance suggested.

References: [2024 Acute Lymphoblastic Leukemia Version 3.2024]

Acute Myeloid Leukemia Surveillance reuse

Blastic plasmacytoid dendritic cell neoplasm surveillance includes a repeat PET/CT for individuals with prior evidence of extramedullary disease.
References: [2025 Acute Myeloid Leukemia (Age ≥18) Version 2.2025]

Chronic Lymphocytic Leukemia/Small Cell Lymphocytic Lymphoma Surveillance

Chronic lymphocytic leukemia/small cell lymphocytic lymphoma: No imaging surveillance suggested.
References: [2025 Chronic Lymphocytic Leukemia/Small Lymphocytic Leukemia Version 1.2025]

Chronic Myeloid Leukemia Surveillance

Chronic Myeloid Leukemia: No imaging surveillance suggested.
References: [2025 Chronic Myeloid Leukemia Version 3.2024]

Hairy Cell Leukemia Surveillance

Hairy cell leukemia: No imaging surveillance suggested.
References: [2025 Hairy Cell Leukemia Version 1.2025]

Multiple Myeloma Surveillance

Multiple myeloma surveillance includes **ANY** of the following:

1. Multiple myeloma, surveillance imaging when recurrence is suspected with **ANY** of the following:
    a. CT scan, low dose
    b. FDG PET/CT
    c. MRI (- contrast material), whole-body
2. Smoldering myeloma, surveillance imaging annually (or more often when recurrence is suspected) with **ANY** of the following:
    a. CT scan, low dose
    b. FDG PET/CT
    c. MRI (- contrast material), whole-body

References: [2025 Multple Myeloma Version 2.2025]

Chest Surveillance section

Bone Cancer Surveillance

Bone cancer surveillance includes **ANY** of the following:

1. Chondrosarcoma surveillance for **ANY** of the following:
    a. Atypical cartilaginous tumor surveillance with cross-sectional imaging (CT + contrast, MRI ± contrast) every 6 to 12 months for 2 years, then annually as clinically indicated
    b. Low-grade, extracompartmental appendicular tumor, grade I axial tumors or high-grade (grade II or III, clear cell or extracompartmental) tumors surveillance with **ALL** of the following:
        i. Chest CT at least every 6 months for 5 years, then annually for at least 10 years, then if symptoms are new or progressing.
        ii. MRI (± contrast) or CT (+ contrast) if symptoms are new or progressing.
2. Chordoma surveillance with **ALL** of the following:
    a. Chest CT imaging every 6 months, annually for 5 years, then annually thereafter, then if symptoms are new or worsening.
    b. Imaging of primary site, timing and modality (eg, MRI ± CT [both + contrast]) if symptoms are new or progressing, up to 10 years
3. Ewing Sarcoma after primary treatment completed surveillance with **ALL** of the following:
    a. Chest CT: every 3 months
    b. Primary site imaging with MRI ± CT (both + contrast), increase intervals after 24 months and after 5 years, annually, then if symptoms are new or progressing (indefinitely) (*__NOTE__: *PET/CT [head-to-toe] is appropriate*)
4. Giant cell tumor of the bone surveillance with **ALL** of the following:
    a. Chest CT or MRI imaging every 6 to 12 months for 4 years, then annually thereafter, then if symptoms are new or progressing
    b. Surgical site imaging if symptoms are new or progressing (eg, CT and/or MRI, both with contrast)

5. Osteosarcoma surveillance with primary site and chest imaging (using same imaging that was done for initial work-up) for **ANY** of the following: (*__NOTE__: *PET/CT [head-to-toe] is appropriate*.)
    a. Image every 3 months for years 1 and 2
    b. Image every 4 months for year 3
    c. Image every 6 months for years 4 and 5
    d. Image annually for year 6 and thereafter, then if symptoms are new or progressing

References: [2025 Bone Cancer Version 2.2025]

Breast Cancer Surveillance

Breast cancer surveillance includes **ANY** of the following: (*__NOTE__: *The waiting period to begin annual surveillance after breast-conserving therapy (BCT) is 6 to 12 months after completing radiation therapy [RT].*)

1. Ductal carcinoma in situ includes a mammogram 6 to 12 months after breast conservation therapy (category 2B) or radiation therapy and annually thereafter.
2. Invasive breast cancer surveillance includes a mammogram every 12 months, beginning 6 months or more after completion of BCT. (*__NOTE__: *routine imaging of reconstructed breast is **NOT** indicated*.)

References: [2025 Breast Cancer Version 4.2025]

Esophageal and Esophagogastric Junction Cancer Surveillance

Esophageal and esophagogastric junction cancer surveillance includes **ANY** of the following[1]:

1. Adenocarcinoma, squamous cell carcinoma; imaging studies if symptoms are new or progressing
2. Tumor classification T1b[a] (N0 on ultrasound) after endoscopic resection or ablation, imaging surveillance includes computed tomography (CT) chest and abdomen (+ contrast, unless **contraindicated**) every 6 months for the first 2 years and annually for up to 5 years
3. Tumor classification T1b or greater, any N[a] or T1a N+, imaging surveillance includes esophagectomy performed with or **WITHOUT** adjuvant therapy then surveillance includes chest and abdomen CT (+ contrast, unless **contraindicated**) every 6 months for the first 2 years and annually for up to 5 years

[1]Routine esophageal/esophagogastric junction cancers are **NOT** recommended for cancer-specific surveillance, for more than 5 years after the end of treatment.

4. Tumor classification any T and/or any N, with neoadjuvant chemotherapy **OR** chemoradiotherapy **AND** esophagectomy, with or **WITHOUT** adjuvant treatment, imaging surveillance includes chest and abdomen CT (+ contrast, unless **contraindicated**) every 6 months for up to 2 years, then annually for up to 5 years and EGD, then if symptoms are new or progressing
5. Tumor classification (pretreatment) N0 to N+, T1b to T4, T4b, with definitive chemoradiation (**WITHOUT** esophagectomy), surveillance imaging includes chest and abdomen CT (+ contrast unless **contraindicated**) every 3 to 6 months for the first 2 years and annually for up to 5 years

References: [2025 Esophageal and Esophagogastric Junction Cancers Version 3.2025]

Mesothelioma: Pleural Surveillance

Mesothelioma: Pleural: No imaging surveillance suggested.
References: [2025 Mesothelioma: Pleural Version 2.2025]

Non-Small Cell Lung Cancer Surveillance

Non-small cell lung cancer imaging surveillance includes **ANY** of the following:

1. Stage I to stage II (primary treatment includes radiation therapy) **OR** stage III or stage IV (oligometastatic with all sites treated with definitive intent); follow-up with chest CT (± contrast) every 3 to 6 months for 3 years, followed by every 6 months for 2 years, then low-dose (- contrast) chest CT annually
2. Stage I to stage II (primary treatment includes surgery ± chemotherapy); follow-up with chest CT (± contrast) every 6 months for 2 to 3 years, then low-dose (- contrast) chest CT annually

References: [2025 Non-Small Cell Lung Cancer Version 4.2025]

Occult Primary Cancer Surveillance

Occult primary cancer surveillance imaging for long-term surveillance includes diagnostic tests based on symptomatology.
References: [2025 Occult Primary Version 2.2025]

Small Cell Lung Cancer Surveillance

Small cell lung cancer surveillance includes **ANY** of the following:

1. Brain magnetic resonance imaging MRI (preferred) or computed tomography (CT) (+ contrast) every 3 to 4 months for 1 year, then every 6 months for year 2, then if

symptoms are new or progressing. (regardless of prophylactic cranial irradiation [PCI] status).

2. Chest CT (± CT abdomen and pelvis) every 2 to 6 months (more frequently in years 1 and 2, less frequently thereafter)
3. Fluorodeoxyglucose-positron emission tomography (FDG-PET)/CT is **NOT** recommended for routine follow-up unless CT or MRI (+contrast) is **contraindicated or unavailable**.

References: [2025 Small Cell Lung Cancer Version 4.2025]

Soft Tissue Sarcoma Surveillance

Soft tissue sarcoma surveillance includes **ANY** of the following: (***NOTE**: *Use contrast imaging; for long term surveillance to minimize radiation exposure,MRI may be substituted.*)

1. Desmoid tumor (aggressive fibromatosis) imaging surveillance includes computed tomography (CT) or magnetic resonance imaging (MRI) every 3 to 6 months for 3 years, then every 6 to 12 months thereafter
2. Extremity, trunk or head and neck, for long-term follow-up with **ANY** of the following:
    a. Long-term follow-up with **ALL** of the following:
        i. Chest CT imaging (- contrast) to detect asymptomatic distant recurrence
        ii. MRI for imaging of primary site
    b. Stage I tumors and **ALL** of the following:
        i. Chest CT imaging (- contrast) every 6 to 12 months
        ii. Post-operative baseline and periodic imaging of primary site with MRI or CT if MRI is **contraindicated or unavailable**.
    c. Stage II and III tumors and **ANY** of the following:
        i. Baseline and periodic imaging of primary site
        ii. Chest and other known sites of metastatic disease imaging (CT [- contrast] or X-ray) every 2 to 6 months for 2 to 3 years, then every 6 months to complete a total of 5 years, then annually.
        iii. Post-operative reimaging to assess the primary tumor site and rule out metastatic disease (MRI or CT if MRI is **contraindicated or unavailable**.
3. Retroperitoneal/intra-abdominal, after management of primary disease imaging surveillance includes chest/abdomen/pelvis CT or MRI every 3 to 6 months for 3 years, then every 6 months for the next 2 years, then annually.

References: [2025 Soft Tissue Sarcoma Version 1.2025]

CT Chest Summary of Changes

CT Chest guideline had the following version changes from 2024 to 2025:

- added "Glomerular filtration rate" to "Renal impairment" under Contraindications
- Citations updated per the evidence
- Removed the following as current evidence no longer supports the indication:
  - Combination studies as they are redundant
  - "Covd-19" as it is redundant and included in Symptoms indication below
  - "Thoracic aortic aneurysm is suspected or known" as this is imaged by CTA
  - "Thymoma screening when myasthenia gravis is known" as it is redundant with "Chest mass" indication

CT Chest Procedure Codes

Table 1. CT Chest Associated Procedure Codes

CODE	DESCRIPTION
71250	Computed tomography, thorax, diagnostic; without contrast material
71260	Computed tomography, thorax, diagnostic; with contrast material(s)
71270	Computed tomography, thorax, diagnostic; without contrast material, followed by contrast material(s) and further sections
71271	Computed tomography, thorax, low dose for lung cancer screening, without contrast material(s)

CT Chest Definitions

Abscess is a swollen area within body tissue, containing an accumulation of pus.
American College of Radiology (ACR) Lung-RADS® Assessment Categories

Table 1. Lung-RADS® Assessment Categories Version 2022 [3]

CATEGORY DESCRIPTOR	Lung-RADS SCORE	FINDINGS	MANAGEMENT	MALIGNANCY RISK	POPULATION PREVALENCE (Est.)
Incomplete	0	• 1. Prior CT Chest being located for comparison • 2. Part/All of lungs cannot be evaluated • 3. Findings suggestive of an inflammatory or infectious process	• 1A. Comparison to prior chest CT • 2A. Additional lung cancer screening CT imaging needed • 3A. LDCT follow-up in 1 to 3 months	N/A	1%
Negative	1	• **NO** lung nodules • Nodule(s) with benign features such as complete, central, popcorn or concentric ring calcifications **OR** fat-containing.	Screening with LDCT in 12 months	less than 1%	39%

CATEGORY DESCRIPTOR	Lung-RADS SCORE	FINDINGS	MANAGEMENT	MALIGNANCY RISK	POPULATION PREVALENCE (Est.)
Benign Based on imaging features or indolent behavior	2	• **Airway nodule(s)**: subsegmental at baseline, new or stable • **Category 3 lesion** is stable or decreased in size at 6 month follow-up • **Category 4B lesion** proven to be benign in etiology following appropriate diagnostic workup • **Juxtapoleural nodule(s)**: less than 10 mm (524 mm^3) mean diameter at baseline or new **AND** Solid; smooth margins; and oval, lentiform, or triangular shape • **Non solid nodule(s) (GGN)**: Baseline less than 30 mm (less than 14137 mm^3) **OR** stable or slow growing greater than or equal to 30 mm (greater than or equal to 14137 mm^3) • **Part solid nodule(s)**: baseline less than 6 mm (less than 113 mm^3) • **Solid nodule(s)**: baseline less than 6 mm (less than 113 mm^3) **OR** new less than 4 mm (less than 34 mm^3)	Screening with LDCT in 12 months	less than 1%	45%

CATEGORY DESCRIPTOR	Lung-RADS SCORE	FINDINGS	MANAGEMENT	MALIGNANCY RISK	POPULATION PREVALENCE (Est.)
Probably Benign Based on imaging features or behavior	3	• **Atypical pulmonary cyst**: Growing cyst component (mean diameter) of a thick-walled cyst • **Category 4A lesion** is stable or decreased in size at 3-month follow-up CT (excluding airway nodules) • **Non solid nodule(s) (GGN)**; Baseline or new greater than or equal to 30 mm (greater than or equal to 14137 mm^3) • **Part solid nodule(s)**; Baseline greater than or equal to 6 mm total mean diameter (greater than or equal to 113 mm^3) with solid component less than 6 mm (less than 113 mm^3) **OR** new less than 6 mm total mean diameter (less than 113 mm^3) • **Solid nodule(s)**: baseline greater or equal to 6 mm to less than 8 mm (greater than or equal to 113 mm^3 to less than 268 mm^3) **OR** new 4 mm to less than 6 mm (34 ^{3} mm to less than 113 mm^3)	6 month LDCT	1-2%	9%

CATEGORY DESCRIPTOR	Lung-RADS SCORE	FINDINGS	MANAGEMENT	MALIGNANCY RISK	POPULATION PREVALENCE (Est.)
Suspicious	4A	• **Airway nodule**: segmental or more proximal is stable or growing • **Atypical pulmonary cyst**: Thick-walled **OR** multilocular cyst at baseline **OR** Thin or thick-walled cyst that becomes multilocular • **Part solid nodule(s)**: Baseline greater than or equal to 6 mm (greater than or equal to 113 mm^3) total mean diameter with solid component greater than or equal to 6 mm to less than 8 mm (greater than or equal to 113 mm^3 to less than 268 mm^3) **OR** new or growing less than 4 mm (less than 34 mm^3) solid component • **Solid nodule(s)**: baseline greater than or equal to 8 mm to less than 15 mm (greater than or equal to 268 mm^3 to less than 1767 mm^3) **OR** growing less than 8 mm (less than 268 mm^3) **OR** new 6 mm to less than 8 mm (113 mm^3 to less than 268 mm^3)	• 3 month LDCT • PET/CT may be considered if there is a more than or equal to 8 mm (more than or equal to 268 mm^3) solid nodule or solid component	5-15%	4%

CATEGORY DESCRIPTOR	Lung-RADS SCORE	FINDINGS	MANAGEMENT	MALIGNANCY RISK	POPULATION PREVALENCE (Est.)
Very Suspicious	4B	• **Airway nodule**: segmental or more proximal is stable or growing • **Atypical pulmonary cyst**: Thick-walled cyst with growing wall thickness/nodularity **OR** Growing multilocular cyst (mean diameter) **OR** Multilocular cyst with increased loculation or new/increased opacity (nodular,ground glass, or consolidation) • **Part solid nodule(s)** baseline with a solid component greater than or equal to 8 mm (greater than or equal to 268 mm^3) **OR** new or growing greater than or equal to 4 mm (greater than or equal to 34 mm^3) solid component • **Slow growing solid or part solid nodule**: demonstrates growth over multiplescreening exams • **Solid nodule(s)** Baseline greater than or equal to 15 mm (greater than or equal to 1767 mm^3) **OR** new or growing and greater than or equal to 8 mm (greater than or equal to 268 mm^3)	• Diagnostic chest CT with or without contrast • PET/CT may be considered if there is a less than or equal to 8 mm (less than or equal to 268 mm^3) solid nodule or solid component • Tissue sampling • Referral for furtrher clinical evaluation • Management depends on clinical evaluation, patient preference, and the probability of malignancy	greater than 15%	2%
See above	4X	**Category 3 or 4 nodules** with additional features or imaging findings that increases the suspicion of malignancy	see above	see above	Less than 1%
Significant or Potentially Significant	S	**Modifier**: May add to category 0-4 for clinically significant or potentially clinicallysignificant findings unrelated to lung cancer	As appropriate to the specific finding	N/A	10%

Aneurysm refers to weakness in an artery wall, allowing it to abnormally balloon out or widen.
Angiotensin-converting enzyme (ACE) inhibitors are medications that block the conversion of angiotensin I to angiotensin II, leading to decreased blood pressure and reduced sodium and water retention.
Aortic root is the section of the aorta that extends from the aortic valve annulus to the sinotubular junction, including the aortic valve, sinuses of Valsalva, and the origin of the coronary arteries.
Asthma is a chronic lung disorder that is marked by recurring episodes of airway obstruction (as from bronchospasm) manifested by labored breathing accompanied especially by wheezing and coughing and by a sense of constriction in the chest, and that is triggered by hyperreactivity to various stimuli (such as allergens or rapid change in air temperature).
Bronchiectasis permanent dilation of the bronchi and bronchioles due to repeated cycles of airway infection and inflammation, leading to chronic productive cough and recurrent acute infective exacerbations.
Collagen vascular disease is a group of autoimmune diseases characterized by inflammation and damage to collagen and other components of connective tissue, often affecting the skin, muscles, and blood vessels.
Computed tomography (CT) is an imaging test that uses X-rays to computer analysis to generate cross sectional images of the internal structures of the body that can be displayed in multiple planes.
Computed tomography angiography (CTA) is a medical test that combines a computed tomography (CT) scan with an injection of a special dye to produce pictures of blood vessels and tissues in a part of the body.
Congenital is a condition or trait present from birth.
Costochondral cartilage refers to the cartilage that connects the ribs to the sternum.
COVID-19 is a mild to severe respiratory illness that is caused by a coronavirus, is transmitted chiefly by contact with infectious material (such as respiratory droplets), and is characterized especially by fever, cough, loss of taste or smell, and shortness of breath and may progress to pneumonia and respiratory failure.
Dissection refers to the separation of the layers within the wall of an artery, most commonly the aorta, due to a tear in the intimal layer, leading to the formation of a false lumen.
Echocardiogram (ECHO) is a test that uses high frequency sound waves (ultrasound) to make pictures of the heart. The test is also called echocardiography or diagnostic cardiac ultrasound. An echo uses sound waves to create pictures of the heart's chambers, valves, walls and the blood vessels (aorta, arteries, veins). A probe called a transducer is passed over the chest. The probe produces sound waves that bounce off the heart and "echo" back to the probe. These waves are changed into pictures viewed on a video monitor.
Empyema is a collection of pus in the space between the lung and the inner surface of the chest wall (pleural space).

Endoscopy is a procedure that uses an endoscope to examine the inside of the body. An endoscope is a thin, tube-like instrument with a light and a lens for viewing. It may also have a tool to remove tissue to be checked under a microscope for signs of disease.
Fibrosis is the pathological replacement of normal tissue architecture with rigid, collagen-rich connective tissue, leading to organ dysfunction.
Fleischner Society Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images: is a characterization tool to support lung cancer diagnosis and treatment planning. The recommendations refer to incidentally encountered lung nodules detected at CT in adult patients that are age 35 years or older. These are not intended for routine screening, when there is metastasis risk with known primary cancer, or when there is risk of infection due to immunocompromise.[2]

Table 2. Solid Nodules, Fleischner Society Guidelines for Incidentally Detected Pulmonary Nodules

NODULE SIZE/ TYPE	SIZE smaller than 6 mm (100 mm^3)	SIZE 6 mm (100 mm^3) to 8 mm (250 mm^3)	SIZE larger than 8 mm (250 mm^3)	COMMENTS
Single				
• Low risk	**NO** routine follow-up	CT at 6 to 12 months, then consider CT at 18 to 24 months	Consider CT at 3 months, PET/CT or tissue sampling	Nodules smaller than 6 mm do **NOT** require routine follow-up in low-risk situations (recommendation 1A)
• High risk	Optional CT at 12 months	CT at 6 to 12 months, then consider CT at 18 to 24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain high risk individuals with suspicious nodule morphology, upper lobe location (or both), may be appropriate for 12 month follow-up (Recommendation 1A)
Multiple				
• Low risk	**NO** routine follow-up	CT at 3 to 6 months, then consider CT at 18 to 24 months	CT at 3 to 6 months then consider CT at 18 to 24 months	Most suspicious nodule should be used to guide management. Follow-up intervals vary by this nodule's risk and size. (recommendation 2A)

[2]MacMahon H, Naidich DP, Goo JM, Lee KS, Leung ANC, Mayo JR, Mehta AC, Ohno Y, Powell CA, Prokop M, Rubin GD, Schaefer-Prokop CM, Travis WD, Van Schil PE, Bankier AA. Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images: From the Fleischner Society 2017. Radiology. 2017 Jul;284(1):228-243.

NODULE SIZE/ TYPE	SIZE smaller than 6 mm (100 mm^3)	SIZE 6 mm (100 mm^3) to 8 mm (250 mm^3)	SIZE larger than 8 mm (250 mm^3)	COMMENTS
• High risk	Optional CT at 12 months	CT at 3 to 6 months, then consider CT at 18 to 24 months	CT at 3 to 6 months then consider CT at 18 to 24 months	Most suspicious nodule should be used to guide management. Follow-up intervals vary by this nodule's risk and size. (recommendation 2A)

Table 3. Subsolid Nodules, Fleischner Society Guidelines for Incidentally Detected Pulmonary Nodules

NODULE SIZE/TYPE	SIZE smaller than 6 mm (100 mm^3)	SIZE larger than 6 mm (100 mm^3)	COMMENTS
Single			
• Ground glass	**NO** routine follow-up	CT at 6 to 12 months to confirm persistence then CT every 2 years until year 5	Certain suspicious nodules smaller than 6 mm consider follow-up at 2 years and 4 years. If solid component develops or growth occurs consider resection (Recommendation 3A and 4A)
• Partly solid	**NO** routine follow-up	CT at 3 to 6 months to confirm persistence, if unchanged lesion with part solid area staying less than 6 mm an annual CT for 5 years	Partly solid nodules are **NOT** defined until they are 6 mm or larger. Nodules less than 6 mm usually do **NOT** require follow-up. Persistent partly solid nodules with solid part 6 mm or larger should be considered as 'highly suspicious." (Recommendation 4A to 4 C)
Multiple	CT at 3-6 months; if lesion is stable, consider CT at 2 years and 4 years	CT at 3 to 6 months, most suspicious nodule guides subsequent management	Multiple ground glass nodules less than 6 mm are usually benign, but consider follow-up at 2 years and 4 years in select individuals at high risk (Recommendation 5A)

Gastroesophageal reflux disease (GERD) is a motility disorder characterized by the reflux of gastric contents into the esophagus or oral cavity, leading to symptoms such as heartburn and epigastric pain, and potentially causing complications like erosive esophagitis, esophageal strictures, Barrett esophagus, and adenocarcinoma.

Gestational trophoblastic cancer is a malignant condition arising from abnormal proliferation of trophoblastic cells, which can invade tissues and metastasize.

Granulomatosis is a chronic condition marked by the formation of numerous masses or nodules of chronically inflamed tissue with granulations that are usually associated with an infectious process.
Hemoptysis is the expectoration of blood from some part of the respiratory tract.
Hilar is relating to, affecting, or located near a hilum. A hilum is a wedge-shaped area in the middle of each lung. The hilar region is where the bronchi, arteries, veins, and nerves enter and exit the lungs.
Human chorionic gonadotropin (hCG) is a glycoprotein hormone produced by the placenta during pregnancy, composed of alpha and beta subunits, and primarily functions to maintain the corpus luteum and support progesterone production.
Immunosuppression is the deliberate reduction or inhibition of the immune system's ability to respond to antigens, typically achieved through medications or therapies, to prevent organ rejection or treat autoimmune diseases, but it increases the risk of infections and malignancies.
Indeterminate findings are inconclusive or insufficient for treatment planning.
Interstitial lung disease is a group of disorders characterized by inflammation and fibrosis of the lung parenchyma, leading to impaired gas exchange, dyspnea, and reduced exercise tolerance.
Low dose computed tomography (LDCT) refers to a computerized X-ray imaging procedure in which a three-dimensional image of a body structure is revealed through a series of cross-sectional images or "slices" that uses 1/5 the radiation of a conventional CT. The scan uses a lower dose of radiation because it is designed to evaluate nodules in low-density lung tissue but is less effective in evaluating bones, organs or other tissues.
Lymphadenopathy refers to the swelling of lymph nodes which can be secondary to bacterial, viral or fungal infections, autoimmune disease and malignancy.
Marfan syndrome is a disorder of connective tissue inherited as a dominant trait, characterized by abnormal elongation of the long bones and often with ocular and circulatory defects.
Mediastinum is the area in the middle of the chest that separates the lungs.
Metastases is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.
Multiple endocrine neoplasia type 1 (MEN1) is a rare endocrine tumor syndrome with high penetrance. This syndrome is also known as Wermer syndrome. It primarily causes neoplasia of the parathyroid glands, the anterior pituitary gland and the neuroendocrine tissue of gastro-entero-pancreatic organ systems.
Myasthenia gravis is a disease that is characterized by progressive weakness and exhaustibility of voluntary muscles without atrophy and is caused by an autoimmune attack on muscle cell receptors which normally bind to acetylcholine released at nerve endings.
Non-diagnostic is a result that does not lead to a confirmed diagnosis.
Non-small cell lung cancer is a group of lung cancers named for the kinds of cells found in the cancer and how the cells look under a microscope. The three main types of non-small cell lung

cancer are adenocarcinoma (most common), squamous cell carcinoma and large cell carcinoma. Non-small cell lung cancer is the most common of the two main types of lung cancer (non-small cell lung cancer and small cell lung cancer).

Oxygen saturation is a measurement of how much oxygen is bound to hemoglobin in the blood. It's also a measure of how well the lungs are working.

Parenchymal the essential and distinctive tissue of an organ or an abnormal growth as distinguished from its supportive framework.

Pectus carinatum (PC) is a chest wall deformity that causes the breastbone and ribs to push outward. It's also known as "pigeon chest". PC occurs when the cartilage between the ribs and sternum overgrows, causing the middle of the chest to stick out. It's most common in adolescent males, and 90% of cases are diagnosed after children are 11 years old.

Pectus excavatum is a medical term that describes a congenital chest wall deformity. It is caused by an abnormal growth of the cartilage that connects the ribs to the breastbone. This causes the ribs and breastbone to grow inward, forming a dent in the chest. The result is a caved-in or sunken appearance in the chest.

Pediatric approximate ages are defined by the US Department of Health (USDH), the Food and Drug Administration (FDA), and the American Academy of Pediatrics (AAP) as the following:

- Infancy, between birth and 2 years of age
- Childhood, from 2 to 12 years of age
- Adolescence, from 12 to 21 years of age, further defined by the AAP into:
    1. Early (ages 11–14 years)
    2. Middle (ages 15–17 years),
    3. Late (ages 18–21 years)
    4. Older ages may be appropriate for children with special healthcare needs.

Pleural effusion is the abnormal accumulation of fluid in the pleural space, which can be caused by various conditions such as congestive heart failure, pneumonia, malignancy, and pulmonary embolism.

Pneumothorax is a condition in which air or other gas is present in the pleural cavity and which occurs spontaneously as a result of disease or injury of lung tissue, rupture of air-filled pulmonary cysts or puncture of the chest wall or is induced as a therapeutic measure to collapse the lung.

Polyangiitis is the inflammation of multiple types of vessels, such as small arteries and veins.

Pulmonary Function Test (PFT) is a noninvasive test that shows how well the lungs are working. The tests measure lung volume, capacity, rates of flow and gas exchange.

Pulmonary hypertension is a chronic, progressive condition characterized by elevated pressure in the pulmonary arteries, defined as a mean pulmonary arterial pressure greater than 20 mm Hg at rest.

Pulmonary nodule is abnormal growth that forms in the lung, most of which are noncancerous and usually do not require treatment.
Recurrence is a new occurrence of something that happened or appeared before.
Scoliosis is a lateral curvature of the spine of at least 10° with vertebral rotation, presenting as a three-dimensional spinal deformity.
Screening is the systematic application of a test or inquiry to identify individuals at sufficient risk of a specific disorder to warrant further investigation or direct preventive action, among persons who have not sought medical attention for symptoms of that disorder.
Staging in cancer is the process of determining how much cancer is within the body (tumor size) and if it has metastasized (spread).
Surveillance in cancer is the ongoing, timely and systematic collection and analysis of information on new cancer cases, extent of disease, screening tests, treatment, survival and cancer deaths.
Thymoma is a tumor of the thymus, an organ that is of the lymphatic system and is located in the chest, behind the chest bone.
Tuberculosis (TB) is a potentially serious infectious disease that mainly affects the lungs. The bacteria that cause tuberculosis are spread from person to person through tiny droplets released into the air via coughs and sneezes.
Wegener's Granulomatosis is an uncommon disease of unknown cause characterized by inflammation of small blood vessels and granuloma formation, especially in the upper and lower respiratory tracts and kidneys, that typically has an onset during the ages of 40 to 65 years old.

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Disclaimer section

Purpose

The purpose of the HealthHelp's clinical guidelines is to assist healthcare professionals in selecting the medical service that may be appropriate and supported by evidence to safely improve outcomes. Medical information is constantly evolving, and HealthHelp reserves the right to review and update these clinical guidelines periodically. HealthHelp reserves the right to include in these guidelines the clinical indications as appropriate for the organization's program objectives. Therefore the guidelines are not a list of all the clinical indications for a stated procedure, and associated Procedure Code Tables may not represent all codes available for that state procedure or that are managed by a specific client-organization.

Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

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National and Local Coverage Determination (NCD and LCD)

NOTICE
To ensure appropriate review occurs to the most current NCD and/or LCD, always defer to https://www.cms.gov/medicare-coverage-database/search.aspx.

Background

National Coverage Determinations (NCD) and Local Coverage Determinations (LCD) are payment policy documents outlined by the Centers for Medicare and Medicaid Services (CMS) and the government's delegated Medicare Audit Contractors (MACs) that operate regionally in jurisdictions.

CMS introduced variation between different jurisdictions/Medicare Audit Contractors (MACs) and their associated covered code lists with the transition to ICD 10. The variation resulted in jurisdictions independently defining how codes are applied for exclusions, limitations, groupings, ranges, etc. for the medical necessity indications outlined in the NCD and LCD. Due to this variation, there is an inconsistent use/application of codes and coverage determinations across the United States between the different MACs.

In addition, **WITHOUT** notice, CMS can change the codes that indicate medical necessity and the format of the coverage determinations/associated documents (eg, Articles). This is an additional challenge for organizations to keep up with ongoing, unplanned changes in covered codes and medical necessity indications.

Medical Necessity Codes

Due to the variation in code application between jurisdictions/MACs and that updates can happen without notification, HealthHelp is not able to guarantee full accuracy of the codes listed for any Coverage Determination, and advises that prior to use, the associated Coverage Determination Articles are reviewed to ensure applicability to HealthHelp's programs and any associated NCDs and LCDs.

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