



National Imaging Associates, Inc.	
Clinical guidelines CHEST (Thorax) CT	Original Date: September 1997 Page 1 of 6 "FOR CENTENE MEMBERS ONLY"
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**"FOR CENTENE MEMBERS ONLY"**

**INTRODUCTION:**

Computed tomography (CT) scans provide greater clarity than regular x-rays and are used to further examine abnormalities found on chest x-rays. They may be used for detection and evaluation of various disease and conditions in the chest, e.g., tumor, inflammatory disease, vascular disease, congenital abnormalities, trauma and hemoptysis.

**INDICATIONS FOR CHEST CT:**

**For annual lung cancer screening:**

The use of low-dose, non-contrast spiral (helical) multi-detector CT imaging as an annual screening technique for lung cancer is considered **medically necessary** when used to screen for lung cancer for certain high-risk individuals when **ALL** of the following criteria are met:

- Individual is between 55-80 years of age; **AND**
- There is at least a 30 pack-year history of cigarette smoking; **AND**
- If the individual is a former smoker, that individual had quit smoking within the previous 15 years.
- No current symptoms suggestive of possible underlying lung cancer.

The use of CT scanning as a screening technique for lung cancer in individuals is considered not medically necessary when the above criteria are not met and for all other indications.

**For evaluation of known tumor, cancer or mass:**

- Initial evaluation of diagnosed cancer.
- Evaluation of known tumor or cancer for patient undergoing active treatment with most recent follow-up study > 2 months (documentation to include but not limited to type/timing/duration of recent treatment).
- Evaluation of known tumor or cancer or history of prior cancer presenting with new signs (i.e., physical, laboratory, or imaging findings) or new symptoms.
- Cancer surveillance excluding small cell lung cancer: Every six (6) months for the first two (2) years then annually thereafter.
- Cancer surveillance – small cell lung cancer: Up to every 3 months for the first two years then annually thereafter.

**Evaluation of suspicious mass/tumor (unconfirmed cancer diagnosis):**

- Initial evaluation of suspicious mass/tumor found on an imaging study and needing clarification *or* found by physical exam and remains non-diagnostic after x-ray or ultrasound is completed.
- Known distant cancer with suspected chest/lung metastasis based on a sign, symptom, imaging study or abnormal lab value.
- For the follow-up evaluation of a nodule with a previous CT (follow-up intervals approximately 3, 6, 12 and 24 months).

**Known or suspected interstitial lung disease (e.g. idiopathic interstitial lung diseases, idiopathic pulmonary fibrosis, hypersensitivity pneumonitis, pneumoconiosis, sarcoidosis, silicosis and asbestosis) and initial x-ray has been performed:**

- With abnormal physical, laboratory, and/or imaging findings requiring further evaluation.

**Known or suspected infection or inflammatory disease (i.e., complicated pneumonia not responding to treatment, abscess, Tuberculosis (TB), empyema or immunosuppression post-organ transplant with new symptoms or findings) and initial x-ray has been performed:**

- With abnormal physical, laboratory, and/or imaging findings requiring further evaluation.
- For evaluation of known inflammatory disease:
  - Initial evaluation
  - During treatment
  - With new signs and symptoms
- For evaluation of non-resolving pneumonia documented by at least two imaging studies:
  - Unimproved with 4 weeks of antibiotic treatment OR
  - Not resolved at 8 weeks
- For evaluation of lung abscess, cavitory lesion, or empyema, demonstrated or suggested on prior imaging.

**Suspected vascular disease, (e.g., aneurysm, dissection):**

- For evaluation of widened mediastinum on x-ray
- For evaluation of known or suspected superior vena cava (SVC) syndrome
- Suspected thoracic/thoracoabdominal aneurysm or dissection (documentation of clinical history may include hypertension and reported “tearing or ripping type” chest pain).

**Known or suspected congenital abnormality:**

- For evaluation of known or suspected congenital abnormality
- Vascular - suggest Chest CTA or Chest MRA depending on age and radiation safety issues.
- Nonvascular - abnormal imaging and/or physical examination finding.

**Hemoptysis:**

- For evaluation of hemoptysis and prior x-ray performed.

**Post-operative/procedural evaluation:**

- A follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

**Indication for combination studies for the initial pre-therapy staging of cancer, OR ongoing tumor/cancer surveillance OR evaluation of suspected metastases:**

- < 5 concurrent studies to include CT or MRI of any of the following areas as appropriate depending on the cancer: Neck, Abdomen, Pelvis, Chest, Brain, Cervical Spine, Thoracic Spine or Lumbar Spine.

**Other indications for Chest CT:**

- Pre-operative evaluation.
- For further evaluation after abnormal imaging within past 30 - 60 days and with no improvement on x-ray, (not indicated with known rib fractures).
- For evaluation of persistent unresolved cough with at least four weeks duration, unresponsive medical treatment and chest x-ray has been performed
- For evaluation of other chest or thorax adenopathy.
- Evaluation of pneumothorax.
- For evaluation of vocal cord paralysis.
- For suspected thymoma with myasthenia gravis.

**Combination of studies with Chest CT:**

- **Abdomen CT/Pelvis CT/Chest CT/Neck MRI/Neck CT with MUGA** – known tumor/cancer for initial staging or evaluation before starting chemotherapy or radiation treatment.

**COMBINATION OF STUDIES WITH CHEST CT/SINUS CT:**

- For poorly controlled asthma associated with upper respiratory tract infection. May be preformed without failing 4 consecutive weeks of treatment with medication.
- Granulomatosis with polyangiitis (GPA) (Wegener's) .

**ADDITIONAL INFORMATION RELATED TO CHEST CT:**

**CT for Management of Hemoptysis** – High-resolution CT (HRCT) is useful for estimating the severity of hemoptysis, localizing the bleeding site and determining the cause of the bleeding. Its results can be related to the severity of bleeding. The volume of expectorated blood and the amount of blood that may be retained within the lungs without being coughed up are important. HRCT is a way to evaluate the amount of bleeding and its severity. It may also help in the localization of bleeding sites and help in detecting the cause of bleeding.

**CT and Solitary Pulmonary Nodules** – Solitary Pulmonary nodules are abnormalities that are solid, semisolid and non solid; another term to describe a nodule is focal opacity. CT makes it possible to find smaller nodules and contrast-enhanced CT is used to differentiate benign from malignant pulmonary nodules. When a nodule is increasing in size or has spiculated margins or mixed solid and ground-glass attenuation, malignancy should be

expected. Patients who have pulmonary nodules and who are immunocompromised may be subject to inflammatory processes.

**CT and Empyema** – Contrast-enhanced CT used in the evaluation of the chest wall may detect pleural effusion and differentiate a peripheral pulmonary abscess from a thoracic empyema. CT may also detect pleural space infections and help in the diagnosis and staging of thoracic empyema.

**CT and Superior Vena Cava (SVC) Syndrome** – SVC is associated with cancer, e.g., lung, breast and mediastinal neoplasms. These malignant diseases cause invasion of the venous intima or an extrinsic mass effect. Adenocarcinoma of the lung is the most common cause of SVC. SVC is a clinical diagnosis with typical symptoms of shortness of breath along with facial and upper extremity edema. Computed tomography (CT), often the most readily available technology, may be used as confirmation and may provide information including possible causes.

**CT and Pulmonary Embolism (PE)** – Spiral CT is sometimes used as a substitute for pulmonary angiography in the evaluation of pulmonary embolism. It may be used in the initial test for patients with suspected PE when they have an abnormal baseline chest x-ray. It can differentiate between acute and chronic pulmonary embolism but it can not rule out PE and must be combined with other diagnostic tests to arrive at a diagnosis. CT chest is NOT indicated if the patient has none of the risks/factors AND the D-Dimer is negative. (D-Dimer is a blood test that measures fibrin degradation products that are increased when increased clotting and clot degradation is going on in the body.)

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