



Medical Policy Reference Manual

Medical Policy

6.01.027 Computed Tomography as a Screening Test for Lung Cancer

Original MPC Approval: 06/13/2001

Last Review: 11/01/2021

Last Revision: 11/01/2021

Description

Computed tomographic (CT) scanning of the lungs is an imaging technology used to generate detailed images with the use of multiple x-ray slices. The tomographic images are then formatted by a computer and a 3-dimensional image of the lungs is displayed. The use of this technology has been proposed as a method of detecting possible lung cancer in current and former smokers because lung cancer discovered and treated at an early stage greatly improves chances of survival. Unfortunately, most lung cancers are diagnosed at a late stage, accounting for an overall poor rate of survival, and making lung cancer the leading cause of cancer death. A type of CT scan is now available that allows imaging with as much as 90% lower radiation exposure than a conventional scan at the expense of lower resolution and image clarity.

Policy

The use of low-dose CT scanning as a screening test for lung cancer is considered **medically necessary** for patients who meet all of the following criteria:

- 50 to 80 years of age
- smokers or former smokers of at least a pack of cigarettes a day for 20 years or more
- active smokers or those who have stopped smoking for less than 15 years

Low-dose CT scanning as a screening test for lung cancer is considered **experimental / investigational** when all of the above criteria are not met and for all other screening indications in asymptomatic individuals as it does not meet TEC criteria #2-5.

Separate benefits **are not provided** for computer-aided detection as they are considered *included in* the low-dose CT scanning for lung cancer procedure.

NOTE: This policy does not address the use of CT scanning of the lungs for diagnostic purposes.

Policy Guidelines

Experimental / Investigational

The term "experimental/investigational" describes services or supplies that are in the developmental stage and are in the process of human or animal testing. Services or supplies that do not meet all 5 of the criteria listed below adopted by the BlueCross BlueShield Association Technology Evaluation Center (TEC) are deemed to be experimental/investigational:

1. The technology* must have final approval from the appropriate U.S. government regulatory bodies; and
2. The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes; and

3. The technology must improve the net health outcome; and
4. The technology must be as beneficial as any established alternatives; and
5. The improvement must be attainable outside the investigational settings.

* *Technology* includes drugs, devices, processes, systems, or techniques

Rationale 2001:

Lung cancer is the leading cause of cancer related deaths in the United States. It has been proposed that computerized tomography, with its ability to detect non-calcified nodules as small as 5 mm, may lead to earlier diagnosis and intervention resulting in lower mortality rate. It is not known if screening the asymptomatic population will demonstrate improved outcomes, as there is a scarcity of peer-reviewed medical literature addressing this. An additional concern with this method of screening, is the high rate of false positives which would lead to unnecessary follow-up with invasive diagnostic procedures. Currently the National Cancer Institute is conducting the *National Lung Screening Trial* (NLST) to determine if there is any benefit to performing chest x-rays (CXRs) or computed tomography's (CTs) in an asymptomatic population.

Update 2007:

A search of the peer-reviewed literature was performed for the period of June 2005 through June 2007. Findings in the recent literature do not change the conclusions on the use of computerized tomography as a screening test for lung cancer. Therefore, the policy statement is unchanged.

The NLST, a randomized screening study using CT scanning to follow up over 50,000 patients, is underway.

Update 2009:

A search of the peer-reviewed literature was performed for the period of July 2007 through August 2009. Findings in the recent literature do not change the conclusions on the use of computerized tomography as a screening test for lung cancer. Therefore, the policy statement is unchanged.

The NLST is closed to further enrollment and will continue to collect data for eight years. The risks and benefits of chest x-rays and computed tomography's will be analyzed to compare the impact early detection may play in mortality rates.

Update 2011:

A search of the peer-reviewed literature was performed for the period of August 2009 through September 2011. Recently released primary findings from the National Cancer Institute's *National Lung Screening Trial* (NLST) (June 2011) suggests that low-dose CT screening in current and former smokers may reduce lung cancer mortality by 20 percent more than those screened by chest X-ray. However, questions still remain for further research regarding management of suspicious screening findings due to high false positive results, screening frequency, selection of appropriate risk groups and other issues as a result of the NLST findings. At the present time, no medical or scientific organization recommends routine use of CT screening for early lung cancer in asymptomatic individuals. Therefore, the policy statement is unchanged.

Update 2013:

In 2004 the U.S. Preventive Services Task Force (USPSTF) judged the evidence of the effectiveness of lung cancer screening with chest x-ray or low-dose CT scan (LDCT) as insufficient. A systematic review by Humphrey et al (2013) was undertaken to update the USPSTF recommendations. The authors concluded that there is strong evidence that LDCT screening can reduce the incidence of lung cancer and other diseases but that the harms associated with screening must be balanced with the benefits. The harms associated with LDCT include radiation exposure, false positives, overdiagnosis and incidental findings. The USPSTF performed a risk vs. benefits analysis and determined that an acceptable balance can be found in the age 55 to 74 age group who are or have been heavy smokers for an extended period of time (30 or more pack-years) and who have stopped for less than 15 years. The USPSTF recommendations are consistent with those of organizations such as the American Cancer Society, American Lung Association, and the National Comprehensive Cancer Network. Therefore, CareFirst considers LDCT lung cancer screening medically necessary for the indication so named in the policy statement. The service remains experimental / investigational for all other indications.

Update 2015:

In 2013, the USPSTF updated their recommendation on the upper age limit for LDCT to age 80 based on modeling studies that predicted a reasonable balance of benefits and harms through this age. The policy statement is updated to reflect the change in the upper age limit of screening to age 80 based on the USPSTF recommendation. Other recommendations in the policy statement remain unchanged.

Update 2018:

A search of the peer-reviewed literature was performed for the period of October 2015 through December 2017. Findings in the recent literature do not change the conclusions on the use of low-dose CT as a screening test for lung cancer. Separate benefits are not provided for computer-aided detection as they are considered *included in* the low-dose CT scanning for lung cancer procedure.

Update 2020:

A search of the peer-reviewed literature was performed for the period of January 2018 through January 2020. Findings in the recent literature do not change the conclusions on the use of low-dose CT as a screening test for lung cancer.

Update 2021:

In 2021 the USPSTF updated their recommendation for the lower age limit for LDCT to 50 and the smoking history was decreased from 30 years to 20 years.

Provider Guidelines

Low-dose CT lung cancer screening may be performed on eligible patients until the patient has been abstinent for 15 years. It must be emphasized that the availability of LDCT screening is not a justification for continuance of smoking. Every effort must be made at smoking cessation.

Cross References to Related Policies and Procedures

Preventative Services, Policy 10.01.003A

Electron Beam Computed Tomography to Detect Coronary Artery Calcification, Policy 6.01.003

Whole Body Computed Tomography Scan as a Screening Test, Policy 6.01.026

Archived Computed Tomographic Colonography as a Test for Colon Cancer (Virtual Colonoscopy), Policy 6.01.028

References

The following were among the resources reviewed and considered in developing this policy. By reviewing and considering the resources, CareFirst does not in any way endorse the contents thereof nor assume any liability or responsibility in connection therewith. The opinions and conclusions of the authors of these resources are their own and may or may not be in agreement with those of CareFirst.

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This policy statement relates only to the services or supplies described herein. Coverage will vary from contract to contract and by line of business and should be verified before applying the terms of the policy.