Low dose CT Screening for Lung Cancer

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Lung cancer screening with low dose CT (LDCT) is the first and only cost-effective test proven to significantly reduce lung cancer deaths. The United States Preventive Services Task Force (USPSTF) recommends (with a Grade of "B") CT lung cancer screening of adults aged 55-80 who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. With the USPSTF recommendation, the Affordable Care Act (ACA) requires private insurers to cover CT lung cancer screening as an essential health benefit. The Centers for Medicare & Medicaid Services (CMS) has proposed narrowed coverage to high risk seniors aged 55-74.The ACR strongly supports lung cancer screening with LDCT for high-risk patients age 55-80 years with a pack-year smoking history of ≥30. The ability of this technique to reduce mortality depends on appropriate patient selection, the performance of high-quality low radiation exposure LDCT examinations interpreted by qualified physicians, and a structured reporting and management system as the foundation for quality reporting and outcomes monitoring. Potential harms of LDCT screening for lung cancer include radiation dose, false positive results, overdiagnosis, potential harm from interventions and patient anxiety.

American College of Radiology (ACR) resources can help radiology professionals safely and effectively provide LDCT Lung cancer screening.

Before participating in screening, individuals should consult with a health care provider about the risks and benefits of lung cancer screening. It is recommended that radiology practices performing lung cancer screening participate in a multidisciplinary approach that includes the specialties of radiology, pulmonary medicine, pathology, thoracic surgery, medical and radiation oncology, and other related health care disciplines. For current smokers there should be a mechanism for referral to smoking cessation programs.

The College, together with the Society of Thoracic Radiology has created CT lung cancer screening practice parameters for the performance of these exams. LDCT radiation exposure levels should be consistent with lung screening protocols and not routine chest scans. The protocol shall have a CTDIvol of ≤ 3 mGy, for a standard size patient phantom (32 cm diameter CTDI phantom). Exposure values must be reduced for smaller sized patients and increased for larger sized patients using either manual methods (operator adjustment of technique via a technique chart) or automated methods (such as automatic tube current modulation and/or kV selection). Typical scan parameters include a 100-120 kVp and effective mAs ranging from 20-60. Specific LDCT lung cancer screening protocols by manufacturer are available from the American Association of Physicists Medicine website (1) and updated when new information is established.

The ACR Lung Imaging Reporting and Data System (Lung-RADS™) is designed to standardize lung cancer screening CT reporting and management recommendations, assist in lung cancer screening CT interpretations and facilitate outcome monitoring. It should be noted that the size threshold for an actionable nodule has been increased from 4mm to 6mm on the basis of a large amount of supporting data. This change is expected to significantly reduce the number of false positive screens.

The ACR Lung Cancer Screening Center designation is built upon the ACR CT accreditation program and requires use of Lung-RADS or a similar structured reporting and management system. Additional requirements for ACR lung cancer screening designation include selection of appropriate screening population, incorporation of a smoking cessation program and adherence to a LDCT protocol. Sites must submit the details of their LDCT screening protocol to demonstrate compliance with the examination specifications defined in the ACR-STR
Practice Parameter for the Performance and Reporting of Lung Cancer Screening Thoracic CT. This designation recognizes facilities committed to providing quality screening care provides patients and referring providers with the assurance that they will receive high-quality screening with appropriate follow-up care. ACR advises patients to seek out these centers to receive screening.

The Centers for Medicare & Medicaid Services (CMS) will require LDCT screening data to be submitted via an approved lung cancer CT screening registry to gain reimbursement. The ACR has defined draft patient identifier and exam information to be submitted to the new registry. The College will apply for deemed status and finalize data requirements after the final CMS reimbursement decision in February.

The College has created a special lung cancer screening section on ACR.org. Radiology professionals are encouraged to visit this web section often to check for updates (2).

References:

1. http://www.aapm.org/pubs/CTProtocols/documents/LungCancerScreeningCT.pdf

2. ACR. Lung cancer screening resources. Available at: http://www.acr.org/Quality-Safety/Resources/Lung-Imaging-Resources