

Lung Cancer Screening in the US

Lung cancer is the leading cause of cancer death in both women and men in the United States. The results from the National Lung Screening Trial (NLST), published in August 2011, demonstrated that low-dose CT (LDCT) screening reduces lung cancer mortality by 20% compared with screening using chest radiographs as well as a 6.7% decrease in overall mortality rate.

Despite these favorable results, widespread implementation of screening programs in the US requires the limitations of LDCT screening encountered by the NLST and other screening trials, to be addressed. Specifically, the high false positive rate, potential for overdiagnosis, radiation exposure of LDCT and the lack of standardization for image acquisition, reporting and nodule follow-up, are current limitations. Additionally, eligibility criteria standardization and cost coverage also needed to be addressed.

The American College of Radiology (ACR) and the Society of Thoracic Radiology (STR) published standardized parameters for LDCT image acquisition and radiation dose limits in 2014. In the same year, the ACR Lung Imaging Reporting and Data System (Lung-RAD) was released. This system was designed to standardize lung cancer screening CT reporting and management recommendations, reduce confusion in lung cancer screening CT interpretations and facilitate outcome monitoring. Besides standardization, the use of Lung-RADS guidelines reduces the number of false positives by using a larger nodule size threshold for a positive LDCT screening (mean diameter of 6 mm as opposed to 4 mm maximum diameter used at the NLST). Lung-RADS also address the issue of overdiagnosis by classifying ground-glass nodules (GGNs) as lesions of benign appearance or behavior, or probably benign lesions, depending on their size. According to this classification only those GGNs presenting significant interval growth or development of new solid component are considered suspicious for lung cancer.

Following an extensive review of the available data, the US Preventive Services Task Force recommended LDCT screening (grade B recommendation) for high risk smokers and former smokers in Dec 2013. As a result, most private insurance companies are now covering lung cancer screening in the US. Subsequently Medicare also agreed to cover lung cancer screening. A decision-making visit and submission of comprehensive information including patient demographics and CT acquisition parameters and results in a registry are required for Medicare reimbursement. A national registry will allow future reevaluation and refinement of lung cancer CT screening.

It has been four years since the NLST results were published and now many institutions in the US are instituting lung cancer screening programs. This presentation will review the above mentioned changes following the NLST, discuss the challenges and provide insights for setting up a lung cancers screening program.