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Talking Points to Address the Annals Article: Rates of Downstream Procedures and Complications Associated with Lung Cancer Screening in Routine Clinical Practice — A Retrospective Cohort Study

Lung cancer screening (LCS) is a vital tool for early detection, enhancing survival rates.[1] Performed using a low-dose CT (LDCT) scan, LCS identifies potential issues before symptoms arise, enabling timely intervention and improved outcomes.[2] The American College of Radiology® (ACR®) has adopted a unified coding system for grading lung nodules; Lung-RADS®, now in its third revision, provides specific guidelines for next steps when a nodule is deemed suspicious. Diagnostic studies may include biopsy through bronchoscopy, EBUS, CT guided IR and surgery. [3] The study described in the publication addresses complications related to biopsy and resection procedures. The information presented can be misleading, instill fear among physicians, and discourage other physicians from participating in the lung cancer screening and associated follow-up process when abnormal findings are present. Below are talking points suggested when asked about the article published.

- The PROSPR (Populations-Based Research to Optimize the Screening Process) researchers studied 9,266 individuals who received a baseline LDCT lung screening completed between 2014 to 2018; the data presented is at least five years old. Lung cancer screening has evolved since 2018 and quality indicators show fewer harms than in this study.
- The false positive rate (FPR) for LCS is quoted in the article as being high at 73.4% for National Lung Screening Trial (NLST) after initial screening. [4] The 73.4% reported was the false discovery rate (FDR) for NLST, NOT the FPR. Using the FDR as an indicator for complications is disingenuous as the NLST predated Lung-RADS.[3] In NLST the 96.4% overall FPR (17,497/18,146) is really the FDR.[4] The overall FPR for the NLST (pre-Lung-RADS) was 23.3% (18,146 - 649/75,126). The current FPR for lung cancer screening are less than 10.4%[5]

LCS False Positive is not 96.4% as frequently reported

	Cancer	No Cancer	
Screen +ve	True + (A)	False + (B)	A + B
Screen -ve	False - (C)	True - (D)	C + D
	A + C	B + D	

False Positive Rate is B / (B + D)

FALSE POSITIVE 1.**A positive test result in a person who does not possess the attribute (e.g., the disease)** for which the test is conducted. The **labeling of a healthy person as diseased** in SCREENING. A **Dictionary of Epidemiology**, Oxford University Press.

- PROSPR had higher rates of current smoking (55% vs. 48%) and COPD (35% vs. 18%) than found in the NLST population.

HEADQUARTERS
1892 Preston White Drive
Reston, VA 20191
703-648-8900

GOVERNMENT RELATIONS
505 Ninth St. N.W.
Suite 910
Washington, DC 20004
202-223-1670

CENTER FOR RESEARCH AND INNOVATION
50 South 16th St., Suite 2800
Philadelphia, PA 19102
215-574-3150

ACR INSTITUTE FOR RADIOLOGIC PATHOLOGY
1100 Wayne Ave., Suite 1020
Silver Spring, MD 20910
703-648-8900

- The PROSPR population was significantly older than the NLST population, with 52% of individuals 65 and older, versus 26.6% in NLST. In the article, they compare patients with abnormal findings on screening and subsequent invasive procedures' (59.4%) with NLST participants (52.0%).[4]
- Baseline LDCT LCSs are more likely to discover significant abnormalities and higher rates of late-stage lung cancer.[6]
- The information provided in the article relies on procedure codes, which are known for their inherent inaccuracies. Utilizing coding data poses challenges in accurately reporting follow-up testing and may incorrectly be attributed to screening. Even patients with a negative screen had a 10+% frequency of LDCT and chest CT over the next year which would not be attributable to screening.[7]
- In the PROSPR study, six major complications happened in people without lung cancer, this is only 0.07% of participants. However, most of the complications occurred in people eventually diagnosed with lung cancer.

Easy-to-use evidence-based resources developed by the American College of Radiology and the American Cancer Society, National Lung Cancer Roundtable, such as the Quick Reference Guides on managing Incidental Findings in LCS and appropriate Billing & Coding in LCS are now available for LCS programs. Wider distribution and use of these guides would help address some of the issues raised in the article.

References

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