# RLS Journal Club, Episode 1: [Implementation of Lung Cancer Screening In the Veterans Health Administration](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2599437) by Linda Kinsinger, MD MPH et al in Jama internal medicine

*“In RLS Journal Club we examine publications (peer-reviewed articles, opinion pieces, etc.) that discuss CTLS, either in general or focusing on a specific topic, and review the statements or conclusions that are made. It is our goal to highlight the facts of screening and provide support/evidence of benefits and risks of CT lung screening in current clinical practice.”*

1. “Based on LCSDP experience, only about 58% of candidates will agree to be screened. Patients’ reasons for declining screening were not collected but may have included concerns about the need for LCS, exposure to radiation, psychological distress, effort required for the screening examinations, and others.”
   * The decision aid used to discuss benefits and harms of screening with participants presented a 36.5% CTLS false positive rate (“365 out of 1000 people screened experience a false positive result”). This may have negatively impacted the decision to participate in screening. In the National Lung Screening Trial (NLST) published in 2011 one year before the inception of this study the false positive rate was reported as 23.5%. Using Lung-RADS and the IELCAP protocol false positive CTLS rates are closer to 10%.
   * The study authors state they did not collect reasons why screening was declined. Conjecture about what may or may not have contributed to participants’ decision to decline screening should not be included in a scientific publication.
2. “The rate of positive findings after 1 round of screening in the LCSDP was more than twice that in the NLST (1257 [59.7%] vs 7191 of 26 309 [27.3%]). The reason for the overall high rate of initially positive examination results in the VHA sites is not certain but may be owing, in part, to the older age and heavier smoking history of veterans screened.”
   * The study design is not reflective of NLST protocol or of current clinical practice. In the VA study, a nodule of any size could be considered a positive scan. In the NLST nodules with a maximum diameter ≥ 4mm were considered positive. In current clinical practice nodules ≥6mm are considered positive scans given the significant decrease in false positives without substantial increase in false negatives. The high rate of positive findings in this study is an expected result reported in the Mayo Clinic lung cancer screening experience in 2003 nine years before the Under Secretary for Health Robert Petzel requested the initiation of the VHA’s LCSDP. While more advanced age and greater pack years smoking history may marginally impact the rate of positives exams, the lack of a positive nodule size threshold will invariably increase the number of positive exams by a factor of 3 or more. In fact, the authors acknowledged this fact stating, “Since only about one-third of nodules identified as needing to be tracked in the LCSDP were 6 mm or greater, the positive rate might decline from nearly 60% to about 20%.” Why the authors used this outdated protocol is not explained. In current clinical practice the positive rate on the baseline scan is 12-13% and around 5% at annual follow-up screening.
3. “The rate of false-positive test results for lung cancer was 97.5% (1226 of 1257) during the 330-day follow-up period (Table 1).

* 97.5% is the false discovery rate not the false positive rate. JAMA has published an erratum[3](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2759587) – ““The rate of false-positive test results for lung cancer was 97.5%” should more correctly read “The proportion of all positive tests that were falsely positive was 97.5%.”

1. “Approximately 40% of those screened in the LCSDP had a variety of incidental findings. Many reported findings, such as emphysema and coronary calcifications, may not require follow-up.”

* Clinically significant incidental findings not suspicious for lung cancer in the NLST occurred in 10.2% of prevalence (baseline) exams and 6% of incidence (annual) exam. In clinical practice when clinically significant incidental findings are restricted to unexpected findings which are either new or unknown and require some form of clinical or imaging care escalation prior to the next CTLS exam, prevalence (baseline) rates are 6-7% and 2% on incidence (annual) scans. 80% - 90% of CTLS participants have some degree of emphysema or coronary artery calcifications as expected in an older population with a history of heavy smoking. Even if CTLS programs include only severe emphysema or coronary artery calcifications as clinically significant incidental findings the rate of these findings will be 3-4x that reported in the NLST as seen in this study.

References:

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