LOW-DOSE COMPUTED TOMOGRAPHY (LDCT) SCREENING WAS STUDIED VS CHEST X-RAY IN MORE THAN 53,000 PATIENTS

Relative reduction in rate of death from lung cancer with LDCT screening: 20%

LDCT screenings needed to prevent 1 death from lung cancer: 320

Risks of LDCT include radiation exposure and false-positive results.

**Patient population**
- 55 to 74 years old
- 30 pack-year smoking history
- Current smoker or quit within past 15 years

**Randomized 1:1**

LDCT n=26,722

Chest X-ray n=26,732

Annual screenings for 3 years (unless diagnosed with lung cancer)

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DEFINING POSITIVE RESULTS IN THE NLST BASED ON RADIOLOGIST EVALUATION

**LDCT**
- Noncalcified nodules measuring at least 4 mm in any diameter
- Other abnormalities (eg, adenopathy, effusion)

**Chest X-ray**
- Any noncalcified nodule or mass
- Other abnormalities (eg, adenopathy, effusion)

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FALSE POSITIVES

- Overall false-positive result rate of 23.3% in the LDCT study arm

- Since the NLST, additional developments have been made in lung cancer screening with LDCT

- Follow-up studies have demonstrated the potential benefits of using updated criteria to evaluate LDCT screening results (see next page)
AN UPDATED LOOK AT FALSE-POSITIVE RATES IN LDCT SCREENING

AMERICAN COLLEGE OF RADIOLOGY (ACR) LUNG CT SCREENING REPORTING AND DATA SYSTEM (LUNG-RADS™)

- Lung-RADS was developed by the ACR to standardize lung cancer screenings and reports, and to reduce false-positive rates.
- Lung-RADS criteria increase the threshold for a positive baseline screening result from 4 mm to 6 mm and require growth for preexisting nodules.

RETROSPECTIVE ANALYSIS USING LUNG-RADS: REDUCTION IN FALSE POSITIVES

<table>
<thead>
<tr>
<th>Baseline screening</th>
<th>2nd screening</th>
<th>3rd screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLST 26.6%</td>
<td>Lung-RADS 12.8%</td>
<td>NLST 27.3%</td>
</tr>
</tbody>
</table>

52% relative reduction | 80% relative reduction | 67% relative reduction

*All initial screenings, regardless of screening round, were denoted as “baseline” screenings.

- The relative increase in positive predictive value (PPV), or percentage of positive screening results with cancer present, was 82% after applying Lung-RADS criteria to the NLST population at baseline (PPV increased from 3.8% to 6.9%).
- The potential effect of reduced sensitivity of the mortality benefit of LDCT in the NLST is unknown.

LUNG-RADS IN PRACTICE

Applying Lung-RADS criteria to a clinical LDCT program showed an increase in the PPV of LDCT screening at baseline from 6.9% to 17.3% (a 150% relative increase).

BENEFITS OF REDUCING FALSE-POSITIVE RATES

- Decrease in unnecessary, invasive procedures, follow-up scans, and associated costs or complications.
- Improvement in patient experience by reducing stress and worry.

References:

Lung-RADS is a trademark of the American College of Radiology. Additional information can be found at https://www.acr.org/Quality-Safety/Resources/LungRADS.