Lung Cancer Screening
Who, When, Why

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Objectives

• Become familiar with the current USPSTF recommendations on lung cancer screening
• Recognize the risks and benefits of screening for lung cancer
• Engage appropriate patients in the lung cancer screening process

Disclosure

NO RELATIONSHIPS (Speakers Bureau, Consultant, Stock) with the Pharmaceutical, Industry, Tobacco Industry, or makers of products/devices relative to this presentation in the last 12 months to disclose
Pretest Question

- The USPSTF recommends screening adults aged 55-80 years old with a 30 p/y smoking hx (or who have quit within the past 15 years) with
  a) A Chest X-ray
  b) One Low-dose Chest CT
  c) Annual Low-dose Chest CT X 3
  d) Annual Low-dose Chest CT through age 80

Pretest Question

- The SECOND most common cause of lung cancer in the US is
  a) Asbestos
  b) Air Pollution
  c) Radon
  d) e-cigarettes

Pretest Question

- The percent of FALSE POSITIVE low-dose CT lung scans in the National Lung Screening Trial (n=53,000) was
  a) <10%
  b) 10-30%
  c) 40-60%
  d) >90%
Pretest Question

- The absolute risk reduction in lung CA mortality found in the National Lung Screening Trial with Low-Dose CT was
  a) <1%
  b) 20%
  c) 40%
  d) >60%

Before We Get Started:
A Question Specifically About Lung CA

- How many participants would there have to be in an RCT—with a important, statistically significant outcome—to be convincing to you?
  a) ≥ 1,000
  b) ≥ 2,000
  c) ≥ 4,000
  d) ≥ 10,000

Lung CA Screening:
Summary Recommendation

“The USPSTF recommends annual screening for Lung CA with LDCT in adults aged 55-80 years who have a 30 p-y smoking Hx and currently smoke or have quit within the past 15 years.”

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
<th>Suggestions for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>The USPSTF recommends the service. There is high certainty that the net benefit is substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td>B</td>
<td>The USPSTF recommends this service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td>C</td>
<td>The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is a least moderate certainty that the net benefit is small.</td>
<td>Offer or provide this service for selected patients depending on individual circumstances.</td>
</tr>
<tr>
<td>D</td>
<td>The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.</td>
<td>Discourage the use of this service.</td>
</tr>
<tr>
<td>I</td>
<td>The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</td>
<td>Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>

**LUNG CA**

**Epidemiologic Burden**

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www.uspreventiveservicestaskforce.org
Lung CA: The Global Picture

“Lung CA remains the most common cause of death from cancer worldwide...”


Lung CA: Burden in USA

“Lung cancer accounts for more deaths than any other cancer in both men and women. An estimated 159,480 deaths, accounting for about 27% of all cancer deaths, are expected to occur in 2013.”


Lung CA: US Epidemiologic Burden

CA: Estimated NEW CASES 2014

<table>
<thead>
<tr>
<th>Estimated New Cases</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>239,220</td>
<td>17%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>108,703</td>
<td>15%</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>78,000</td>
<td>8%</td>
</tr>
<tr>
<td>Uterine</td>
<td>56,300</td>
<td>7%</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>18,800</td>
<td>3%</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>22,800</td>
<td>3%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>11,900</td>
<td>2%</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>14,000</td>
<td>2%</td>
</tr>
<tr>
<td>Ovarian</td>
<td>9,200</td>
<td>3%</td>
</tr>
<tr>
<td>Liver</td>
<td>1,600</td>
<td>3%</td>
</tr>
<tr>
<td>All sites</td>
<td>896,900</td>
<td>100%</td>
</tr>
</tbody>
</table>

Lung CA: US Epidemiologic Burden

CA: Estimated DEATHS 2014


Cancer DEATH Trends
1930-2010

Males

Lung & Bronchus


Cancer DEATH Trends
1930-2010

Females

Lung & Bronchus

Smoking State of the Union

- 37% CURRENT Smokers
- 20% CURRENT + FORMER Smokers


Lung CA: Risk Factors

- Smoking (→ 85% of all lung cancer)
  - Cigarettes
  - Pipe
  - Cigars
- Radon

- Marijuana


Marijuana ↔ Chronic Lung Disease? NOT

“We systematically reviewed 34 studies.... these studies fail to report a consistent association between long-term marijuana smoking and FEV₁/FVC ratio, DLCO, or airway hyperreactivity.”

Tetrault JM et al Effects of Marijuana Smoking on Pulmonary Function and Respiratory Complications” Arch Intern Med 2007;167:221-228
Marijuana ↔ Lung Cancer? NOT

“A systematic review assessing 19 studies ...concluded that observational studies failed to demonstrate statistically significant associations between marijuana inhalation and lung cancer after adjusting for tobacco use.”

Lung CA Risk Factors: Radon?

“Exposure to radon gas released from soil and building materials is estimated to be the second leading cause of lung cancer in Europe and North America.”

Lung CA: ‘Tier 2’ Risk Factors

- Asbestos
- Chromium
- Cadmium
- Arsenic
- Radiation
- Air pollution
- Diesel exhaust
- Paint

Lung CA: Occupational Risk Factors

- Rubber manufacturing
- Paving
- Roofing
- Chimney Sweeping


Lung CA: The Language

- AIS: adenocarcinoma in situ
  - small solitary lesion; pure lepidic growth
- MIA: minimally invasive carcinoma
  - Small solitary lesion with predominantly lepidic growth with ≤5 mm invasion


Lung CA: The Language

Lepidic (lē-pid´ik) [Gr lepis scale]

1) Pertaining to scales
2) pertaining to embryonic layers

Dorland's Illustrated Medical Dictionary 26th Edition 1974
Lung CA: The Language

“For resection specimens... AIS and MIA... define patients who, if they undergo complete resection, will have 100% or near 100% disease-specific survival.”


Non-Small Cell Lung CA

Lung CA Classification

- Small cell: 10%
- Non-small cell: 90%
The First Prominent Message

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team

NLST: Step 1

• STUDY: aSx participants enrolled at 33 US centers (n=53,454)
• INCLUSION:
  ◆ Age 55-74 with 30 p-y smoking Hx
  ◆ If quit, ≤15 years ago
• RANDOMIZATION (q1y X 3)
  ◆ Low Dose CT (n=26,722)
  ◆ Single PA CXR (n=26,732)
• PRIMARY OUTCOME: Lung CA mortality


NLST: Step 1

PREMISES
• RCT of CXR: no mortality risk reduction
• Molecular Markers: NRFPT
• CT advances allow lower radiation dose
• H2H CT vs CXR: CT superior for detecting nodules and cancers

NLST: Why Wasn’t This a PLACEBO Controlled Trial?

“Radiographic screening...was chosen... because [CXR vs community care] was being evaluated in the PLCO trial at the time the NLST was designed.”

BECAUSE

• IF, in PLCO: CXR > community care (NOT)
• THEN: NLST would have had to prove LDCT >CXR


NLST: Exclusions

• Previous Dx Lung CA
• CT Chest ≤ 18 months prior to enrollment
• Hemoptysis
• Unexplained Weight loss > 15# in prior 12 months


NLST: Radiation Burden Compared

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Radiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Background Radiation (US)</td>
<td>2.4 mSv</td>
</tr>
<tr>
<td>LDCT Chest</td>
<td>1.5 mSv</td>
</tr>
<tr>
<td>‘Standard’ CT Chest</td>
<td>8 mSv</td>
</tr>
<tr>
<td>Mammography</td>
<td>0.7 mSv</td>
</tr>
<tr>
<td>Head CT</td>
<td>1.7 mSv</td>
</tr>
</tbody>
</table>

NLST: Defining “+” Findings

- LDCT: Any non-calcified nodule > 4mm
- CXR: any non-calcified nodule or mass
- BOTH:
  - Adenopathy
  - Effusion

Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LDCT (n=26,722)</th>
<th>CXR (n=26,732)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Randomization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;55</td>
<td>2 (&lt;0.1%)</td>
<td>4 (&lt;0.1%)</td>
</tr>
<tr>
<td>55-60</td>
<td>11,440 (42.8%)</td>
<td>11,420 (42.7%)</td>
</tr>
<tr>
<td>60-64</td>
<td>8,170 (30.6%)</td>
<td>8,198 (30.7%)</td>
</tr>
<tr>
<td>65-69</td>
<td>4,756 (17.8%)</td>
<td>4,762 (17.8%)</td>
</tr>
<tr>
<td>70-74</td>
<td>2,353 (8.8%)</td>
<td>2,345 (8.8%)</td>
</tr>
<tr>
<td>&gt;75</td>
<td>1 (&lt;0.1%)</td>
<td>3 (&lt;0.1%)</td>
</tr>
<tr>
<td>Males</td>
<td>15,770 (59%)</td>
<td>15,762 (59.0%)</td>
</tr>
<tr>
<td>Females</td>
<td>10,952 (41%)</td>
<td>10,970 (41%)</td>
</tr>
</tbody>
</table>

Screening Rounds: +Findings

<table>
<thead>
<tr>
<th></th>
<th>LDCT</th>
<th>CXR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>+</td>
</tr>
<tr>
<td>T0</td>
<td>26,309</td>
<td>?</td>
</tr>
<tr>
<td>T1</td>
<td>24,715</td>
<td>?</td>
</tr>
<tr>
<td>T2</td>
<td>24,102</td>
<td>?</td>
</tr>
</tbody>
</table>
**Screening Rounds: +Findings**

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<td>#</td>
</tr>
<tr>
<td>T0</td>
<td>26,309</td>
<td>26,035</td>
</tr>
<tr>
<td>+</td>
<td>7,191 (27.3%)</td>
<td>2,387 (9.2%)</td>
</tr>
<tr>
<td>T1</td>
<td>24,715</td>
<td>24,089</td>
</tr>
<tr>
<td>+</td>
<td>6,901 (27.9%)</td>
<td>1,482 (6.2%)</td>
</tr>
<tr>
<td>T2</td>
<td>24,102</td>
<td>23,346</td>
</tr>
<tr>
<td>+</td>
<td>4,054 (16.8%)</td>
<td>1,174 (5.0%)</td>
</tr>
</tbody>
</table>

*Includes all three sequential screens*

**NLST Limitations: How Much Unwanted ‘Noise’?**

<table>
<thead>
<tr>
<th></th>
<th>+ Screen</th>
<th>% +Screens that were FALSE+</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDCT</td>
<td>24.2%</td>
<td>96.4%</td>
</tr>
<tr>
<td>CXR</td>
<td>6.9%</td>
<td>94.5%</td>
</tr>
</tbody>
</table>

**LDCT Screening: Adverse Events**

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>COMPLICATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any</td>
</tr>
<tr>
<td>Thoracotomy</td>
<td>165 (32.4)</td>
</tr>
<tr>
<td>Thoracoscopy</td>
<td>7 (9.2)</td>
</tr>
<tr>
<td>Mediastinoscopy</td>
<td>7 (21.2)</td>
</tr>
<tr>
<td>Bronchoscopy</td>
<td>5 (16.1)</td>
</tr>
</tbody>
</table>
NLST: Primary Outcome

<table>
<thead>
<tr>
<th></th>
<th>Lung CA Mortality (n)</th>
<th>Lung CA Mortality (rate/100K-y)</th>
<th>RR</th>
<th>NNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDCT</td>
<td>356</td>
<td>247/100K-y</td>
<td>0.8 (6.8-26.7)</td>
<td>320</td>
</tr>
<tr>
<td>CXR</td>
<td>443</td>
<td>309/100K-y</td>
<td>p = 0.004</td>
<td></td>
</tr>
</tbody>
</table>

### NLST: ALL-CAUSE Mortality

<table>
<thead>
<tr>
<th></th>
<th>Mortality (n)</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDCT</td>
<td>1,877</td>
<td>0.93</td>
</tr>
<tr>
<td>CXR</td>
<td>2,000</td>
<td>0.93 p = 0.02</td>
</tr>
</tbody>
</table>


### NLST Primary Outcome: Simpler

<table>
<thead>
<tr>
<th></th>
<th>Lung CA Mortality (n)</th>
<th>Rate (%)</th>
<th>Absolute RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDCT</td>
<td>356/26,309</td>
<td>1.3%</td>
<td>0.348%</td>
</tr>
<tr>
<td>CXR</td>
<td>443/26,035</td>
<td>1.7%</td>
<td></td>
</tr>
</tbody>
</table>


### NLST Limitations: Radiologist & Tech Training

“NLST radiologists and radiologic technologists...completed training in image acquisition; radiologists also completed training in image quality and standardized image interpretation.”

? Is this training ‘routine’? Will it/should it become so? ?

NLST Limitations:
Remarkably Low Surgical Mortality

"...one of the most important factors determining the success of screening will be the mortality associated with surgical resection, which was much lower in NLST than has been reported previously in the general US population (1% vs 4%)."

NLST Limitations:
How Much Unwanted ‘Noise’**?

<table>
<thead>
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<td></td>
<td>94.5%</td>
</tr>
</tbody>
</table>

*Includes all three sequential screens

NLST Limitations:
How Much ‘Unsolicited Signal’?

“The NLST reported that 7.5% of non-lung cancer abnormalities were clinically significant.”

Moyer VA, USPSTF Ann Int Med 2013;Dec 31 (Online)
NLST Incidentalomas: Impact?

“None of the studies reported data on the evaluations…in response to the incidental findings, therefore, the harms and benefits…cannot currently be determined.”

Moyer VA, USPSTF Ann Int Med 2013;Dec 31 (Online)

Limitations of NLST: Generalizability

- Exclusions
  - Unlikely to complete curative surgery
  - Competing comorbidities posing risk for death during 8-yr trial

- Healthy sample
- Age: <10% over age 70

USPSTF Lung CA Screening Limitations: Comorbidities

“The NLST, the largest RCT (n > 50K)... enrolled generally healthy persons, and the findings may not accurately reflect the balance of benefits and harms in those with comorbid conditions.”

USPSTF Lung CA Screening Limitations: Generalizability

“The evidence for the effectiveness...comes from...large academic medical centers with expertise in using LDCT...and managing abnormal lung lesions.”

?? How well might MY local resources compare??

HARMS of Lung CA Screening: Summary Recommendation

“The harms associated with LDCT screening include false- and false+ results, incidental findings, overDx, and radiation exposure.


HARMS of Lung CA Screening: OverDx

“A modeling study performed for the USPSTF estimated that 10%-12% of screen-detected cancer cases are overdiagnosed—that is, they would not have been detected in the patient’s lifetime without screening.”

HARMS of Lung CA Screening:
False Positives

“...95% of all positive results do not lead to a Dx of cancer.”


LDCT Screening HARMS:
Did They Miss Any?

- False +/-
- Radiation
- Incidentalomas
- OverDx (#False+)
- Radiation Utilization
- LDCT = Permission to Keep Smoking?
- Reinforcement: “I can do this now ‘cause they can fix it later.”

LDCT $$
Shands Hospital
University of Florida, Gainesville 2014

- CT Chest w/o contrast....................$815.00
  (CPT 71250)
- Cash pay patients.....................$285.00

Personal communication, 12/22/14 David C Wymer, MD,
Chief of Adult Cardiac Imaging, University of Florida
Will/Should Europe Follow The USA Path?

“In contrast to the NLST, 3 small European trials showed potential harm or no benefit of screening...these were smaller trials...that may have had limited power to detect a true benefit.”

Moyer VA, USPSTF Ann Int Med 2013;Dec 31 (Online)

Lung CA MORTALITY
Comparing OTHER LDCT Lung CA Screening Trials

<table>
<thead>
<tr>
<th>Trial (n)</th>
<th>Men %</th>
<th>F/U yrs</th>
<th>Lung CA Mortality RR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLST (53,454)</td>
<td>59</td>
<td>6.5</td>
<td>0.80 (0.73-0.93)</td>
</tr>
<tr>
<td>DANTE (2,472)</td>
<td>100</td>
<td>2.8</td>
<td>0.83 (0.45-1.54)</td>
</tr>
<tr>
<td>DLCST (4,104)</td>
<td>56</td>
<td>4.8</td>
<td>1.37 (0.63-2.97)</td>
</tr>
<tr>
<td>MILD (4,099)</td>
<td>66</td>
<td>4.4</td>
<td>1.99 (0.80-4.96)</td>
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Favors LDCT


ALL-CAUSE MORTALITY
Comparing OTHER LDCT Lung CA Screening Trials

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<td>4.8</td>
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</tr>
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<td>66</td>
<td>4.4</td>
<td>1.80 (1.03-3.13)</td>
</tr>
</tbody>
</table>

Favors LDCT

ACCP-Endorsement
in Patients at Risk for Lung CA

LDCT for ≥30 p-y smokers (or who have quit <15 yrs), age 55-74 “but only in settings that can deliver the comprehensive care provided to NLST participants.”

ACCP: Screening Tools NOT Endorsed
• < 30 p-y smoking Hx
• < age 55 or >74 years
• Quit >15 yrs ago
• Severe comorbidities that would likely
  – Preclude curative intervention
  – Limit life expectancy

Lung CA Screening Recommendations:
Other Agencies

American Association for Thoracic Surgery
• Screen age 55-79 with 30 p-y smoking Hx
• Screen age 50-79 with 20 p-y smoking Hx with comorbidities that → CA risk ≥5%/5 yrs
• Annual screening in long-term Lung CA survivors age 55-79 (begin 5 yrs post-Rx)
Lung CA Screening Recommendations:
Other Agencies

American Association for Thoracic Surgery

“We recommend that annual LDCT screening be performed each year from age 55 to 79 years, and not just 3 screening scans in the lifetime of the patient. The risk of lung cancer does not decrease in subsequent years according to the NLST data.”


Defining ‘High Risk’ for Lung CA
The Liverpool Lung Project Model

<table>
<thead>
<tr>
<th>Risk</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>FHx Lung CA by age</td>
</tr>
<tr>
<td>Sex</td>
<td>Previous Cancer Hx</td>
</tr>
<tr>
<td>Years Smoking</td>
<td>Pneumonia Hx</td>
</tr>
<tr>
<td>High Risk = ≥5%/5 yrs</td>
<td>Asbestos</td>
</tr>
</tbody>
</table>

Field JK; Oudkerk M; Pedersen JH; Duffy SW Lancet 2013;382:732-741

Lung CA Prevention?

- Well, there’s
  - Smoking Cessation/Avoidance
  - Asbestos Avoidance
  - Radon Avoidance
  - Silica Dust
- Anything else?
Lung CA Prevention: NOT The ATBC ($\alpha$-tocopherol $\beta$-carotene) Study

- **STUDY:** Lung CA Prevention Trial 1985-93
- **SUBJECTS:** male smokers ($n = 29,133$)
- **Rx:** Vitamin E 50 mg/d vs $\beta$-Carotene 20mg/d vs Both vs placebo X mean 6.1 years
- **RESULTS:**
  - $\beta$-carotene 20 mg/d $\rightarrow$ 18% Lung CA↑
  - $\rightarrow$ 8% Mortality ↑


Lung CA Prevention: NOT NOT CARET (carotene + retinol) Trial

- **STUDY:** High risk Lung CA Subjects ($n = 18,314$)
  - Men & Women
  - Current & Former Smokers
  - Asbestos Workers ($n = 4,060$)
- **Rx:** 30 mg $\beta$-carotene + 25,000 IU Vit A daily
- **OUTCOME:** 4 Yrs Rx $\rightarrow$ 28%↑ lung CA, 17% ↑ deaths $\rightarrow$ study terminated 21months early


What to do about Vitamin Supplementation?

“Smokers should avoid beta carotene supplementation.”

The ATBC Study Group “Incidence of Cancer and Mortality Following $\alpha$-Tocopherol and $\beta$-Carotene Supplementation” JAMA  2004;290(4):476-485
Improving the Odds in Lung CA: Say “I do”

“One study of an American population showed...that patients who were married had better survival rates than patients who were single, divorced or widowed when examining all major primary site cancers.”


Lung CA Screening: Summary Recommendation

“The USPSTF recommends annual screening for Lung CA with LDCT in adults aged 55-80 years who have a 30 p-y smoking Hx and currently smoke or have quit within the past 15 years.”


2014 AAFP Clinical Recommendations
Lung CA Screening: Grade I (Insufficient Evidence)

“The AAFP has....significant concern with basing such a far reaching and costly recommendation on a single study...not replicated in a community setting.”

AAFP Clinical Recommendations aafp.org accessed 1/28/2014
2014 AAFP Clinical Recommendations
Lung CA Screening: Grade I (Insufficient Evidence)

“A shared-decision making discussion between the clinician and patient should occur regarding the benefits and potential harms of screening for lung cancer.”

AAFP Clinical Recommendations aafp.org accessed 1/28/2014

Asymptomatic Smoker or Ex-Smoker

STOP

NO >30 p-y Hx

STOP

NO If Quit, < 15 years ago

STOP

NO Age 50-80 yrs

STOP YES

Problematic Comorbidities

STOP

NO Will Complete Followup thru NLST

Refer

YES NLST Resources Available

Questions Generated by NLST

- What if CXR was PA & lateral
- Is LD (Low Dose) really low dose?
- Should age boundaries be expanded
  - for heavier smoking Hx
  - for FHx Lung CA
  - for COPD
- How can we assess relative skills of local
  - Surgeons (i.e., lung resection mortality)
  - Radiologists (skill at LDCT interpretation)
  - X-ray technologists (provision of low dose)
### Questions Generated by NLST

- What should the rest of the world do? Believe our mega-trial (benefit) or their own (harm)?
- Should we use risk assessment tools (e.g., Liverpool)?
- Given that >95% of + results are False+, are there better ways we could spend our $$?
- NLST was only LDCT X 3. Was Mae West right?

### Pretest Question

- The USPSTF recommends screening adults aged 55-80 years old with a 30 p/y smoking hx (or who have quit within the past 15 years) with
  - a) A Chest X-ray
  - b) One Low-dose Chest CT
  - c) Annual Low-dose Chest CT X 3
  - d) Annual Low-dose Chest CT indefinitely

### Pretest Question

- The SECOND most common cause of lung cancer in the US is
  - a) Asbestos
  - b) Air Pollution
  - c) Radon
  - d) e-cigarettes
Pretest Question

• The percent of FLASE POSITIVE low-dose CT lung scans in the National Lung Screening Trial (n=53,000) was
  a) <10%
  b) 10-30%
  c) 40-60%
  d) >90%

Pretest Question

• The absolute risk reduction in lung CA mortality found in the National Lung Screening Trial with Low-Dose CT was
  a) <1%
  b) 20%
  c) 40%
  d) >60%