DISCLOSURES

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None

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No financial disclosure
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Member of the ACR Lung-RADS Screening Registry Committee
OBJECTIVES

• Provide an overview of SDM relative to lung cancer screening
• Understand the benefits and harms of lung cancer screening and the available decision aids.
• Discuss dilemmas and best practices for shared decision making as it pertains to lung cancer screening
SHARED DECISION MAKING

- What is shared decision making?
- What are the important steps?
WHAT IS SHARED DECISION MAKING?

A conversation between two experts

- Provider presents options, information
- Elicits patient values, support, preferences
- Balances the two
SIX STEPS TO SHARED DECISION MAKING

What is important to the patient?
Elicit values, support and preferences

Provide Information on risks and benefits

Present the Options

Facilitate deliberation and decision making

Assist with implementation

Identify decision and invite patient

DISCUSS THE DECISION AND PRESENT THE OPTIONS

Lung Cancer Screening versus no Lung Cancer Screening and what about doing nothing?
Does the patient actually meet the criteria?
Why is this important?
Facilitate Deliberation and Decision Making
Evidence based tools
Balanced presentation of options and outcomes
Guide in deliberating & communication
Improve knowledge
Increase patient involvement in decision making
Create more realistic expectations
Clarify personal values
Lower decisional conflict
Helping you decide about Lung Cancer Screening

This fact sheet explains the benefits and harms of lung cancer screening with low-dose CT scans so you and your health care provider can decide whether it is right for you.

Why should I be screened?
Lung cancer is most treatable when it is identified in the earliest stages.

Why should I be screened?
Lung cancer screening looks for signs of the disease before there are any symptoms in patients who are at high risk. Using advanced medical imaging equipment known as a CT scanner, a hospital radiology department can take very detailed "pictures" of your lungs. A doctor will then examine these pictures to look for changes that could be signs of lung cancer. Cancer can look like a spot on your lung. A CT scan is the only proven effective way to screen for lung cancer.

Who should consider being screened for lung cancer?
Medical experts agree that lung cancer screening should be offered annually to adults who meet all three of the following criteria:
- Current or former heavy smokers with at least a 30 pack-years history of smoking
- Between the ages of 55-77
- Without any major health problems or conditions that would prevent a person from receiving cancer treatments like surgery.

Where should I be screened?
Major medical societies recommend that lung cancer screening be done at medical centers with access to multi-disciplinary lung cancer diagnosis and treatment programs. Since the first scan can lead to additional testing, find a center that has the ability to interpret and respond to your results. Sometimes lung cancer screening identifies other things not related to lung cancer that may require follow up.

Potential benefits and harms of lung cancer screening
It is important to consider both the benefits and harms before deciding whether to have lung cancer screening. Use the table below to consider your options.

<table>
<thead>
<tr>
<th>Benefits of being screened for lung cancer</th>
<th>The facts*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved chance of dying from lung cancer</td>
<td>Over 70% of patients who die of lung cancer die within 1 year of diagnosis</td>
</tr>
<tr>
<td>Percentage of patients who benefit from screening</td>
<td>Patients may live longer if screening catches early stage cancer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The harms of being screened for lung cancer</th>
<th>The facts*</th>
</tr>
</thead>
<tbody>
<tr>
<td>False alarm</td>
<td>1 in 7 CT scans will have a false alarm **</td>
</tr>
<tr>
<td>False positive</td>
<td>1 in 100 who have a false positive will have an invasive procedure</td>
</tr>
<tr>
<td>Future procedures</td>
<td>False alarms will have a major complication</td>
</tr>
</tbody>
</table>

Are there radiation risks from the CT scan?
Low-dose CT scans expose people to radiation. Over time, exposure to repeated or high doses of radiation may cause cancer and other health problems. For heavy former or current smokers, the benefit of screening is probably much greater than the harm from radiation.

The most important thing you can do
Stop smoking, regardless of your screening decision, avoiding cigarettes is the most powerful way to lower your chance of dying or suffering from lung cancer, emphysema, and heart attacks. For help quitting, call 1.800.QUIT-NOW.

Benefits of Quitting Smoking
Within minutes of quitting smoking you will experience benefits.

Taking the next step
Talk to your health care provider about lung cancer screening. For more information, you can also visit cancer.dartmouth.edu/lungscreening.

A patient decision aid by:
Dartmouth-Hitchcock Medical Center
cancer.dartmouth.edu

*Benefits and harms based on results of the National Lung Screening Trial, which included three annual screens and five years of follow up for more information: cancercontrol.gov/nlst
doctorpatienthandouts/dh_handouts_ff.pdf
**After adjustment for the lung cancer screening system
Helping you decide about
Lung Cancer Screening

This fact sheet explains the benefits and harms of lung cancer screening with low-dose CT scans so you and your health care provider can decide whether it is right for you.

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HOW TO FIND YOUR PACK YEARS OF SMOKING

\[
\text{number of years you have smoked} \times \text{average number of packs per day} = \text{pack years}
\]
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<thead>
<tr>
<th>Benefits of being screened for lung cancer</th>
<th>Facts*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduced risk</strong></td>
<td></td>
</tr>
<tr>
<td>- Reduced chance of dying from lung cancer.</td>
<td></td>
</tr>
<tr>
<td>- If caught early, treatment may be more successful.</td>
<td></td>
</tr>
<tr>
<td>- It may detect cancer before you have any symptoms.</td>
<td></td>
</tr>
<tr>
<td><strong>More treatment options</strong></td>
<td></td>
</tr>
<tr>
<td>- If caught early you may have more treatment options.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Harms of being screened for lung cancer</th>
<th>Facts*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>False alarms</strong></td>
<td></td>
</tr>
<tr>
<td>- There is the chance of a false alarm. A false alarm is a result that looks like cancer but is not.</td>
<td></td>
</tr>
<tr>
<td>- A false alarm could lead to an invasive procedure like surgery or a biopsy.</td>
<td></td>
</tr>
<tr>
<td>- Invasive procedures sometimes cause serious complications.</td>
<td></td>
</tr>
<tr>
<td><strong>Over diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>- Sometimes screening identifies slow growing cancers that would not lead to illness or death.*</td>
<td></td>
</tr>
</tbody>
</table>

*Benefits and harms based on results of the National Lung Screening Trial, which included three annual screens and five years of additional follow up. For more information cancer.gov/clinicaltrials/noteworthy-trials/nlst
** After adjustment for new LungRADS reporting system
Counseling and Shared Decision Making

Victoria Alexandria Test Patient | born 5/24/1940 was seen in the office today. She reports that she quit smoking about 10 years ago. She has a 45.00 pack-year smoking history. She does not have any smokeless tobacco history on file.

Considering her tobacco history and the absence of any other signs or symptoms suggestive of lung cancer she is found to be eligible for lung cancer screening using Low Dose CT (LDCT).

Shared decision making occurred, including one or more decision aid (benefits and harms of screening, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure), and the importance of annual lung cancer Low Dose CT screening was also discussed.

Counseling was provided on the importance of adherence to annual lung cancer LDCT screening, impact of co-morbidities, and ability or willingness to undergo diagnosis and treatment. Additional counseling on the importance of tobacco cessation/abstinence was provided.

She verbalizes understanding of information discussed today and is agreeable to proceed with LDCT lung cancer screening. Appropriate order provided.
WHAT’S THE PROBLEM? A PRIMARY CARE VIEW

• Screening rates nationally are low
• The criteria for referral are complex and the CMS requirements are onerous
• The false positive rate is high
• Potential out of pocket costs worry patients and their providers
• Majority of PCP’s are not adequately trained in SDM
• TIME!
## LUNG CANCER SCREENING RATES

<table>
<thead>
<tr>
<th>US Region</th>
<th>No. Acc Sites</th>
<th>No. Eligible</th>
<th>No. Screens</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>404</td>
<td>1,152,141</td>
<td>40,105</td>
<td>3.5</td>
</tr>
<tr>
<td>Midwest</td>
<td>497</td>
<td>2,020,045</td>
<td>38,931</td>
<td>1.9</td>
</tr>
<tr>
<td>South</td>
<td>663</td>
<td>3,072,095</td>
<td>47,966</td>
<td>1.6</td>
</tr>
<tr>
<td>West</td>
<td>232</td>
<td>1,368,694</td>
<td>14,080</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>1796</td>
<td>7,612,975</td>
<td>141,260</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Pham et al. J Clin Oncol 36, 2018 (suppl; abstr 6504)
CMS CRITERIA

• Age 55 – 77 years;
• Asymptomatic (no signs or symptoms of lung cancer);
• Tobacco smoking history of at least 30 pack-years (one pack-year = smoking one pack per day for one year; 1 pack = 20 cigarettes);
• Current smoker or one who has quit smoking within the last 15 years
• Receives a written order for LDCT lung cancer screening that meets the following criteria:

• For the initial LDCT lung cancer screening service: a beneficiary must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision making visit, furnished by a physician (as defined in Section 1861(r)(1) of the Social Security Act) or qualified non-physician practitioner (meaning a physician assistant, nurse practitioner, or clinical nurse specialist as defined in §1861(aa)(5) of the Social Security Act). A lung cancer screening counseling and shared decision making visit includes the following elements (and is appropriately documented in the beneficiary’s medical records):
  
  • Determination of beneficiary eligibility including age, absence of signs or symptoms of lung cancer, a specific calculation of cigarette smoking pack-years; and if a former smoker, the number of years since quitting;
  
  • Shared decision making, including the use of one or more decision aids, to include benefits and harms of screening, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure;
  
  • Counseling on the importance of adherence to annual lung cancer LDCT screening, impact of comorbidities and ability or willingness to undergo diagnosis and treatment;
  
  • Counseling on the importance of maintaining cigarette smoking abstinence if former smoker; or the importance of smoking cessation if current smoker and, if appropriate, furnishing of information about tobacco cessation interventions; and
  
  • If appropriate, the furnishing of a written order for lung cancer screening with LDCT.
• Shared decision making, including the use of one or more decision aids, to include benefits and harms of screening, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure

• REALLY? No other screening test requires SDM!
• Evaluating SDM for Lung Cancer Screening – JAMA August 2018

• Qualitative analysis of 14 recorded and transcribed outpatient encounters: poor quality SDM, no discussion of potential harms, 8% of total visit time (range 1-18%), no use of decision aids

Sample Scenario:
Physician: “Because of the smoking history, um, I’d like to get a CT scan of the lungs and make sure there’s nothing in there. Um, this is a new benefit now. Insurance companies are paying for it.”

Patient: “Okay”

Physician: “Okay? Now, I’ll just get that set up and we’ll move on.”
WHAT’S POSITIVE?

- **Lung-RADS 0**: Incomplete, meaning previous chest CTs are still being located for comparison, or part of the lungs cannot be properly visualizes.

- **Lung-RADS 1**: Negative. No nodules are seen, or definitely benign nodules are seen (with complete, central or popcorn calcifications or fat in a benign pattern). Risk of cancer <1%; continue annual low dose chest CT screening.

- **Lung-RADS 2**: Benign appearance; nodules are present that are low risk (e.g., new solid nodules <4 mm or stable <6 mm). Risk of cancer <1%; continue annual chest CT screening.

- **Lung-RADS 3**: Probably benign, repeat chest CT in 6 months (e.g., new solid nodules 4 mm to <6 mm). Risk of cancer 1-2%.

- **Lung-RADS 4A**: Suspicious, 5-15% risk of cancer (e.g. new solid nodule 6 mm to <8 mm), repeat chest CT in 3 months or get PET/CT if solid component is ≥ 8 mm

- **Lung-RADS 4B**: More suspicious, >15% risk of cancer (e.g. new or growing solid nodule ≥ 8 mm). Obtain PET/CT and/or biopsy.
WHO IS DOING THE STUDY/ WHO IS READING IT?

- Vt has 7 listed facilities as official lung cancer screening facilities
- NH has 15
- Consistency/quality of read
- Registry?
BENEFITS/ HARMS

• Early diagnosis of lung cancer

• Reassurance

• For every 1000 people screened: 10 diagnosed with early –stage lung cancer; 5 with advanced; 20 undergo invasive procedures (bronchoscopy/thoracotomy); 550 will have findings requiring follow up + repeated scanning + alarm to patients.

• Radiation exposure = The estimated lifetime risk for developing lung cancer caused by 10 years of annual low-dose CT screening, starting at age 50, was about 2 per 10,000 in men and 6 per 10,000 in women; estimates for all radiation-induced cancers (lung plus others) were slightly higher. In contrast, the rate of actual lung cancer detection in this study was about 500 lung cancers per 10,000 screened people.
FOLLOW UP DIAGNOSTIC TESTING

- If you have a positive study: follow up testing will be required.
- A high percentage of people will have pulmonary nodules of no consequence; PCP’s need clarity about follow up.
- Inside a carefully designed system with a registry and tight quality controls and designated radiologists, PCP’s feel more comfortable.
- Not everyone has the luxury of a well designed system with plenty of specialty access/relationship.
OVER DIAGNOSIS

- Defined: you have a positive study but you do not have cancer.
- Harm – you undergo further worry, work up, testing, potentially invasive procedures with their attendant risks
- Benefits – you learn you do have lung cancer, it is early and can be treated and the treatment is more likely to be successful
FALSE POSITIVE RATE: DEPENDS ON THE STUDY!

- JAMA Jan 2017
- 8 VA Centers
- 2100 screens 60% nodules; 1.5% lung cancer
- False positive rate of 97.5%
- Others range 9 – 60%
- What is a positive test? Any pulmonary nodule > 4 mm in size
COSTS

• Medicare covers the cost as a screening test
  SDM counselling visit: $111.14 (tech + professional fees)
  LDCT itself: $125.42
  Total = $361.98

• Private payors reimbursement is higher
  Range: LDCT = $250-392
    SDM = $136-178
  Total = $386-570
• What about pre-Medicare pop with high deductibles?
• What about follow up studies?
• What happens if you have a pulmonary nodule requiring follow up?
• If you have a positive study you no longer qualify for screening – what happens then to your costs?
QUESTIONS?

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