

# Before Diagnosis: Lung Cancer Screening

## Part 1: Evidence & Guidelines

June 28, 2018

9:00-10:30 am ET

Kevin Oeffinger, MD

Lead Facilitator



# Today's Agenda

Time (9-10:30 am EST;8-9:30 am CST)	Presentation	Presenter(s)
9:00 – 9:10 am	Introductions/Agenda Review	Kevin Oeffinger, MD, Robert Smith, PhD, Robert Volk, PhD
9:10-9:40 am	Didactic Presentation: Before Diagnosis: Lung Cancer Screening Guidelines	Robert Smith, PhD (Presenter), Robert Volk, PhD, (Presenter) Peter Mazzone, M.D.
9:40- 9:55 am	Didactic Q&A	Kevin Oeffinger, MD (Facilitator)
9:55 – 10:10 am	Case Presentation	Luann Jeffries, Outreach Coordinator, Cabin Creek Health Systems
10:10 – 10:25 am	Case Discussion/Q & A	Kevin Oeffinger, MD (Facilitator)
10:25 – 10:30 am	Wrap up: Implementation ideas and take aways Next ECHO session on July 26, 2017 9-10:30 am: Before Diagnosis: Lung Cancer Screening and Nodule Management	Kevin Oeffinger, MD

\*Sessions will be recorded.

\*Please mute phones when not speaking. Mute cell phones and try to reduce extraneous noise.

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The following planners and faculty disclose that they have no financial relationships with any commercial interest: Kevin Oeffinger, MD; Robert Smith, PhD, Robert Volk, PhD, Dawn Wiatrek, PhD, and Luann Jeffries.

3

# Before Diagnosis: Lung Cancer Screening Part 1: Evidence & Guidelines

Robert A. Smith, PhD  
Vice President, Cancer Screening  
American Cancer Society  
Adjunct Professor of Epidemiology  
Emory University Rollins School of Public Health



# Estimated New U.S. Lung Cancer Cases & Deaths by Sex, 2018

## Both sexes combined

*Estimated new cases / Lung and bronchus*



*Estimated deaths / Lung and bronchus*

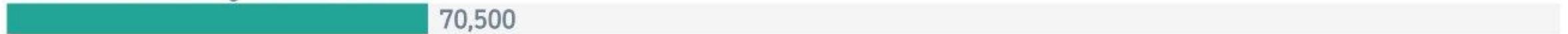


## Female

*Estimated new cases / Lung and bronchus*



*Estimated deaths / Lung and bronchus*

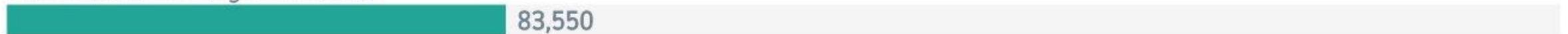


## Male

*Estimated new cases / Lung and bronchus*

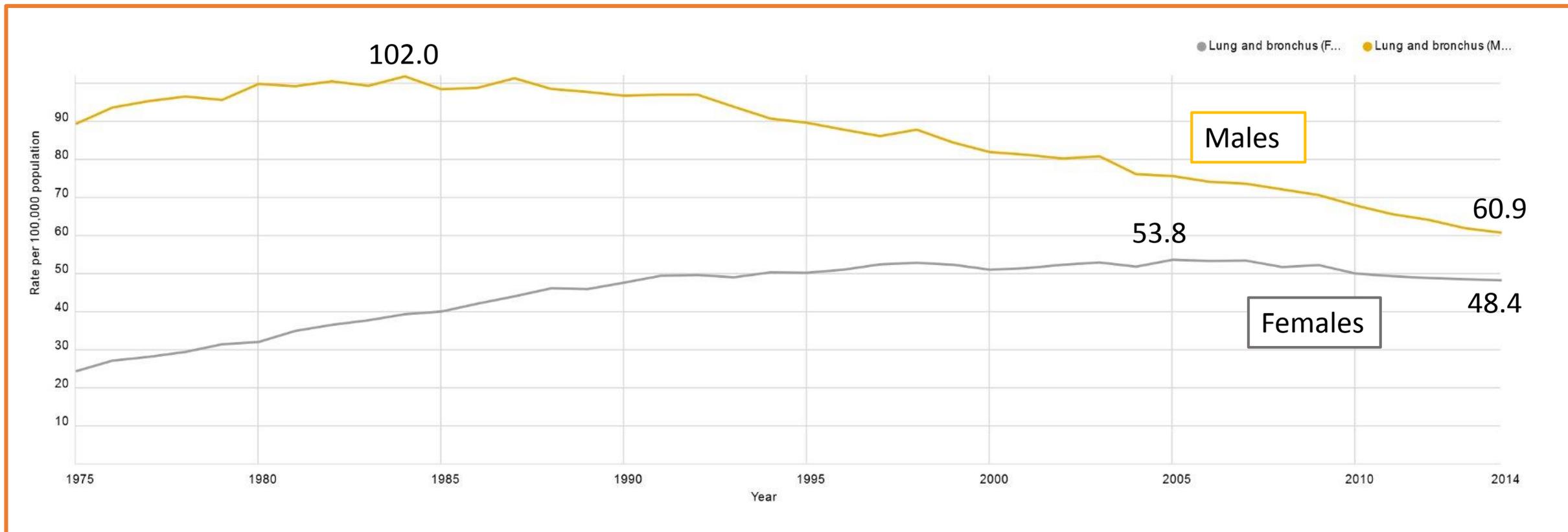


*Estimated deaths / Lung and bronchus*



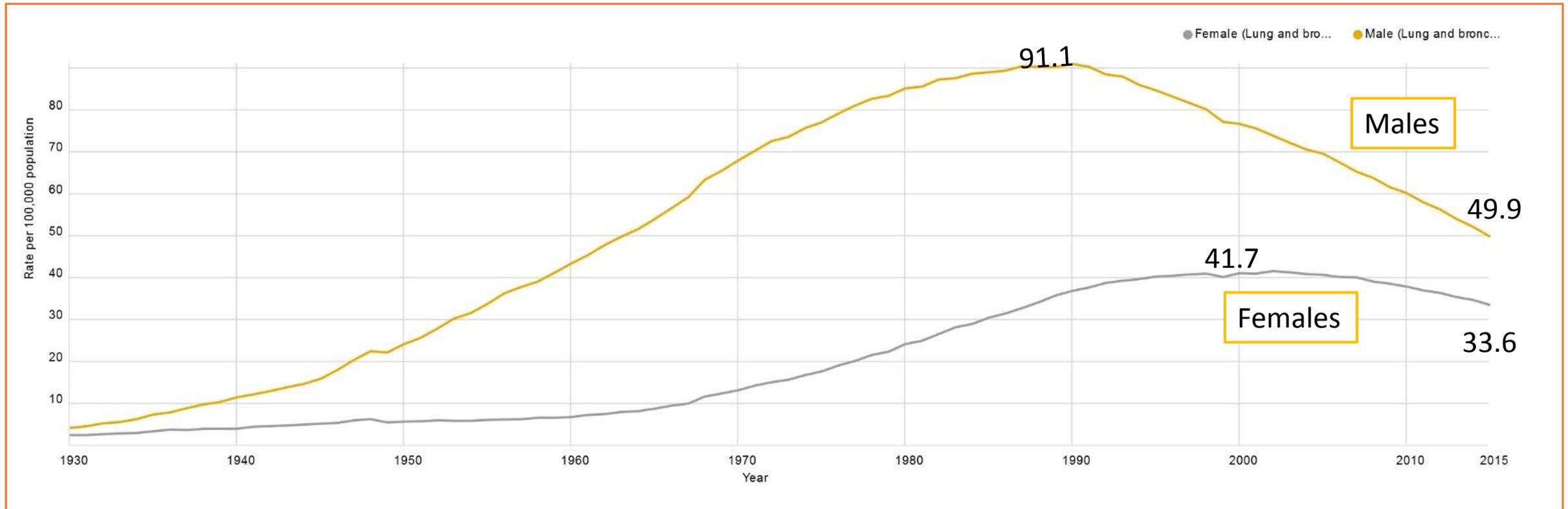
Source: American Cancer Society, 2018

# Trends in U.S. Lung Cancer Incidence Rates, by Sex, 1975-2014, per 100,000, age adjusted to the 2000 US standard population.



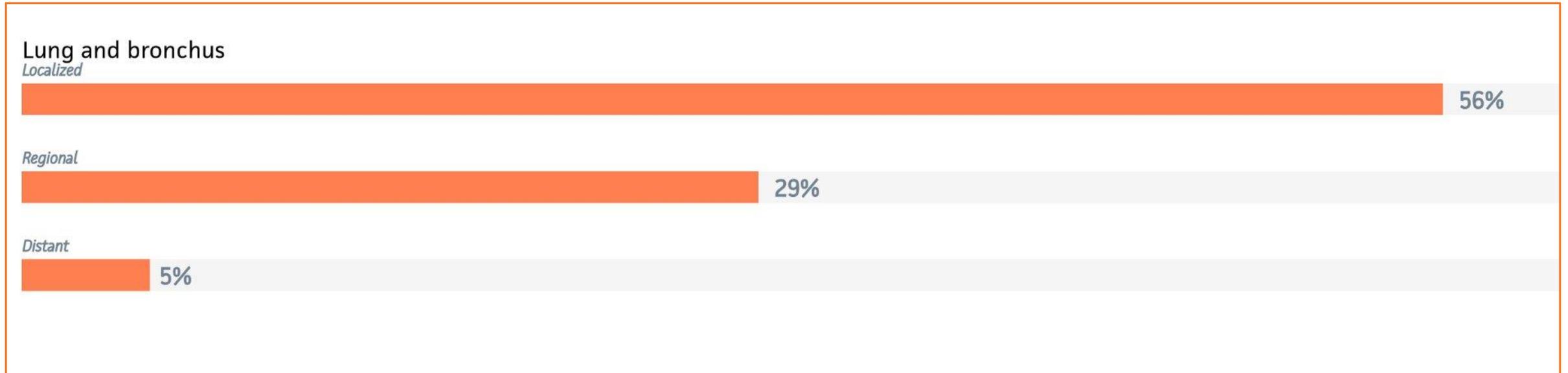
Source: Surveillance, Epidemiology, and End Results (SEER) 9 registries, National Cancer Institute, 2017

# Trends in U.S. Lung Cancer Mortality Rates, by Sex, 1930-2015, per 100,000, age adjusted to the 2000 US standard population.



Source: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2017

# 5-year relative survival, 2007-2013, Among cases diagnosed from 2007 to 2013, followed through 2014



# For many years, we have fought a losing battle in our efforts to prevent lung cancer deaths in current and former smokers



Trends in 5-year relative survival, 1975-2013; Year range indicates diagnosis years; all cases followed through 2014.

1975-77

Lung and bronchus



12%

1987-89

Lung and bronchus



13%

2007-13

Lung and bronchus

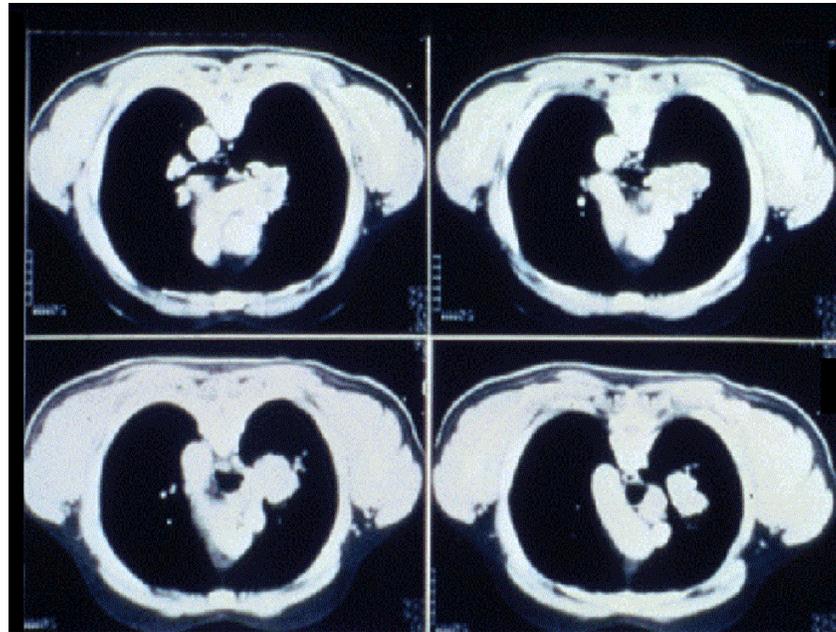


20%

Source: Surveillance, Epidemiology, and End Results (SEER) 9 registries, National Cancer Institute, 2017

# Lung Cancer Screening with Low Dose Spiral CT, *Lancet* 1999

- In the New York ELCAP, low-dose CT was associated with a **5-fold difference** compared with chest X-ray in the detection of early stage, resectable lung cancers.



Henschke CI, et al. Early Lung Cancer Action Project: *Lancet*. 1999;354:99-105.

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

The National Lung Screening Trial Research Team\*

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

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

The National Lung Screening Trial Research Team\*

ABSTRACT

### BACKGROUND

The aggressive and heterogeneous nature of lung cancer has thwarted efforts to reduce mortality from this cancer through the use of screening. The advent of low-dose helical computed tomography (CT) altered the landscape of lung-cancer screening, with studies indicating that low-dose CT detects many tumors at early stages. The National Lung Screening Trial (NLST) was conducted to determine whether screening with low-dose CT could reduce mortality from lung cancer.

### METHODS

From August 2002 through April 2004, we enrolled 53,454 persons at high risk for lung cancer at 33 U.S. medical centers. Participants were randomly assigned to undergo three annual screenings with either low-dose CT (26,722 participants) or single-view posteroanterior chest radiography (26,732). Data were collected on cases of lung cancer and deaths from lung cancer that occurred through December 31, 2009.

### RESULTS

The rate of adherence to screening was more than 90%. The rate of positive screening tests was 24.2% with low-dose CT and 6.9% with radiography over all three rounds. A total of 96.4% of the positive screening results in the low-dose CT group and 94.3% in the radiography group were false positive results. The incidence of lung cancer was 645 cases per 100,000 person-years (1060 cancers) in the low-dose CT group, as compared with 572 cases per 100,000 person-years (941 cancers) in the radiography group (rate ratio, 1.13; 95% confidence interval [CI], 1.03 to 1.23). There were 247 deaths from lung cancer per 100,000 person-years in the low-dose CT group and 309 deaths per 100,000 person-years in the radiography group, representing a relative reduction in mortality from lung cancer with low-dose CT screening of 20.0% (95% CI, 6.8 to 26.7;  $P=0.004$ ). The rate of death from any cause was reduced in the low-dose CT group, as compared with the radiography group, by 6.7% (95% CI, 1.2 to 13.6;  $P=0.02$ ).

### CONCLUSIONS

Screening with the use of low-dose CT reduces mortality from lung cancer. (Registered by the National Cancer Institute; National Lung Screening Trial ClinicalTrials.gov number, NCT00047585.)

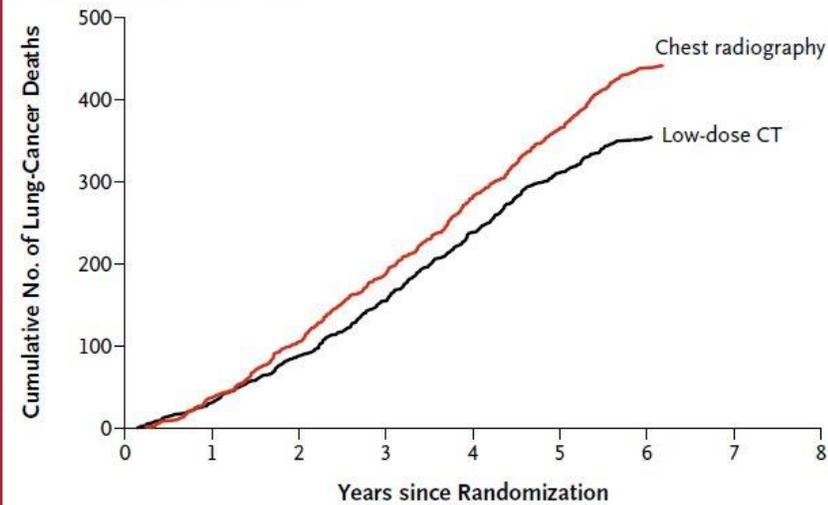
The members of the writing team (who are listed in the Appendix) assume responsibility for the integrity of the article. Address reprint requests to Dr. Christine D. Berg at the Early Detection Research Group, Division of Cancer Prevention, National Cancer Institute, 4130 Executive Blvd., Suite 3113, Bethesda, MD 20892-7346, or at [bergc@mail.nih.gov](mailto:bergc@mail.nih.gov).

\*A complete list of members of the National Lung Screening Trial research team is provided in the Supplementary Appendix, available at [NEJM.org](http://NEJM.org).

This article (10.1056/NEJMoa1102877) was published on June 29, 2011, at [NEJM.org](http://NEJM.org).

*N Engl J Med* 2011; copyright © 2011 Massachusetts Medical Society.

## B Death from Lung Cancer



There were **20% fewer lung cancer deaths**, and **6.7% fewer all cause deaths**, in the LDCT arm compared with the CXR arm.

Number needed to screen to prevent 1 lung cancer death = 320

# Eligibility Criteria for the National Lung Screening Trial Mirrors Most Screening Guidelines

<b>Age</b>	55-74, or 77 (Medicare) or 80 (USPSTF)
<b>Smoking history</b>	30 pack years. (A pack year is the equivalent of 1 pack of cigarettes per day per year. 1 pack per day for 30 years or 2 packs per day for 15years would both be 30 pack-years).
<b>Former smoker</b>	Must have quit within 15 years
<b>General health exclusions</b>	Metallic implants or devices in the chest or back Requirement for home oxygen supplementation Poor health, limited longevity

# We now have lung cancer screening guidelines...., mostly they are similar (differences highlighted)

Organization	Age to start	Age to stop	Shared/informed decisions?
ACS	55 NLST*	74, or once 15 years since year quite is reached	Yes
USPSTF	55 NLST	80, or once 15 years since year quit is reached	Yes
CMS	55 NLST	77, or 15 yrs	Yes
NCCN	55 NLST	No stopping age	Yes
NCCN 2 (Higher Risk)*	50	No stopping age	Yes

AAFP Insufficient evidence to recommend for or against lung cancer screening

\*NLST Criteria: Current or former smoker (quit within 15 years) ages 55-74 with 30 pack year or greater smoking history  
 \*NCCN High Risk: Current or former smoker  $\geq$  50 years with  $\geq$  20 pack year history and one additional risk factor (asbestos, radon, family history, etc.)

# Current Status of LDCT Screening in the U.S.

**CATCH LUNG CANCER EARLY**  
WITH LOW DOSE CT LUNG CANCER SCREENING

LUNG CANCER IS THE LEADING CAUSE OF CANCER-RELATED DEATH IN THE UNITED STATES.



Early detection is a proven, successful strategy for fighting many forms of cancer. That is why Space Coast Cancer Center is proud to offer Lung Cancer Screening with low-dose computed tomography (CT) for people at high risk for lung cancer at our Titusville Cancer Center.

Patients can be referred by their physician or self-referred. Screening is not covered by insurance and there are eligibility criteria. Space Coast Cancer Center follows the National Comprehensive Cancer Center guidelines.



**Titusville Cancer Center**  
855.894.HOPE(4673) • [www.SpaceCoastCancer.com](http://www.SpaceCoastCancer.com)

Space Coast Cancer Center is also pleased to offer smoking cessation classes. Please call for more information.




**Are you at risk for lung cancer?**

Lung cancer is a major disease that kills over 160,000 people annually; more than those who die from breast, prostate and colorectal cancers combined. The key defense for survival is early detection. As recently recommended by the U.S. Preventive Services Task Force – long-term and former heavy smokers having an annual, low-dose lung CT can save lives by detecting cancer early when it's most treatable.

**Qualifications for a Lung Cancer Screening:**

- Anyone who is between the ages of 55 and 79 years, with no signs or symptoms of lung cancer.
- Any current or former smoker with a 30-pack-year history.\*
- Anyone who has quit smoking within the past 15 years.

\*The pack-year history is defined by the number of years you smoked multiplied by your usual number of packs of cigarettes per day. For example, someone who has smoked about 2 packs per day for 15 years has 30 pack-years of smoking. A person who has smoked one pack per day for 30 years also has 30 pack-years of smoking.

**What to expect during your Lung Cancer Screening:**

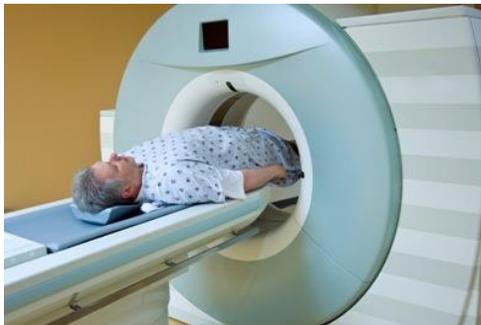
- Initial office consult and risk assessment
- Low-dose CT Scan (without contrast)
- Same-day results

Schedule your appointment online at [www.nyrp.com](http://www.nyrp.com) or call (212) 590-2900.

**Only \$250**



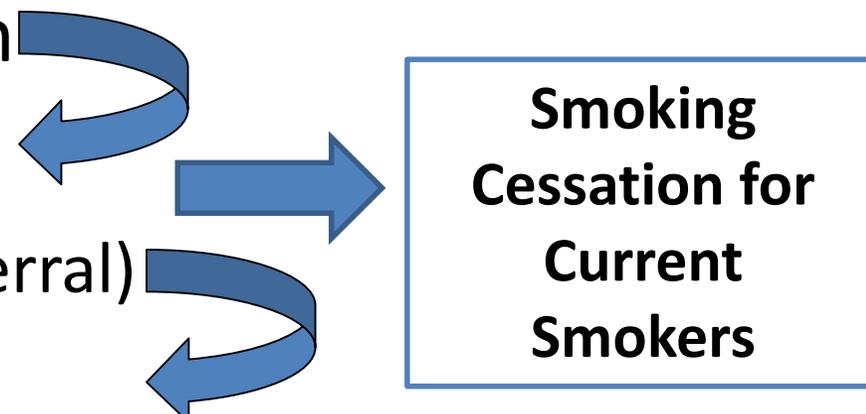
- The USPSTF “B” rating means that the Affordable Care Act requires coverage of lung cancer screening with no out-of-pocket costs
- CMS also covers LDCT screening and the shared decision making visit



# From the CMS Coverage Decision—Referring Clinicians & Patients

- *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, qualified non-physician practitioner (meaning a physician assistant, nurse practitioner, or clinical nurse specialist).
- **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
  - **Shared decision making**
  - 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 or cessation
  - If appropriate, the furnishing of a written order for lung cancer screening with LDCT.

# Screening is a Cascade of Events

- A target population
  - Referring MD's
    - (information & referral)
  - The Test
    - High quality image
    - High quality interpretation
    - High quality evaluation of positive results
    - Management of patients in surveillance for small pulmonary nodules
- 
- The diagram illustrates a process flow. On the left, there are three bullet points: 'A target population', 'Referring MD's (information & referral)', and 'The Test'. A large blue arrow points from the 'Referring MD's' bullet point to a rectangular box on the right. The box contains the text 'Smoking Cessation for Current Smokers'. Two curved blue arrows are positioned between the first two bullet points and the box, one above and one below the main arrow, suggesting a feedback loop or interaction between the target population and the referring MD's.

# Uptake of lung cancer screening has been slow....why?



A cancer screening flop: Few smokers seek free lung scans

By MARILYNN  
MARCHIONE  
May. 16, 2018



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# How do we explain low rates of lung cancer screening (1)?

- **In the U.S. we do not have organized screening**
- **Primary care clinicians are the gatekeepers to lung cancer screening**
  - Insufficient time
  - Not experienced in risk assessment
  - EHRs typically do not have accurate smoking history information, nor do they accurately calculate pack years
  - Primary care providers are unfamiliar with the obligations of their role in discussing and referring patients to lung cancer screening
  - Additional obligation of tobacco treatment
  - PCP antipathy to current and former smokers is well established
  - High rates of post-screening nodule surveillance is an additional challenge

## How do we explain low rates of lung cancer screening (2)?

- Pathway to screening may be through Pulmonology or Radiology....these pathways are not generally locally established, and in some instances, contested
- Radiology has been slow to embrace lung cancer screening
  - CMS was slow to establish a reimbursement rate
  - Capacity is limited (sometimes as few as only several exams a day or less)....CT machines generally are booked for higher reimbursement procedures
  - Radiologists have been imaging the lung with CT for many years...screening is new and novel
- Adults at risk are not well informed about lung cancer screening
- Stigma, nihilism, and fatalism may be a factor

## How do we explain low rates of lung cancer screening (3)?

- Cost of post-screening nodule surveillance and subsequent screening after a positive test result may be a deterrent.
- *Of note, over 50% of smokers meeting USPSTF recommendations for LDCT screening were uninsured or Medicaid insured*
- Finally, while there are data to suggest that the provider community has been slow to embrace lung cancer screening, *there are no data that suggests that patients are shunning the opportunity to be screened for lung cancer*

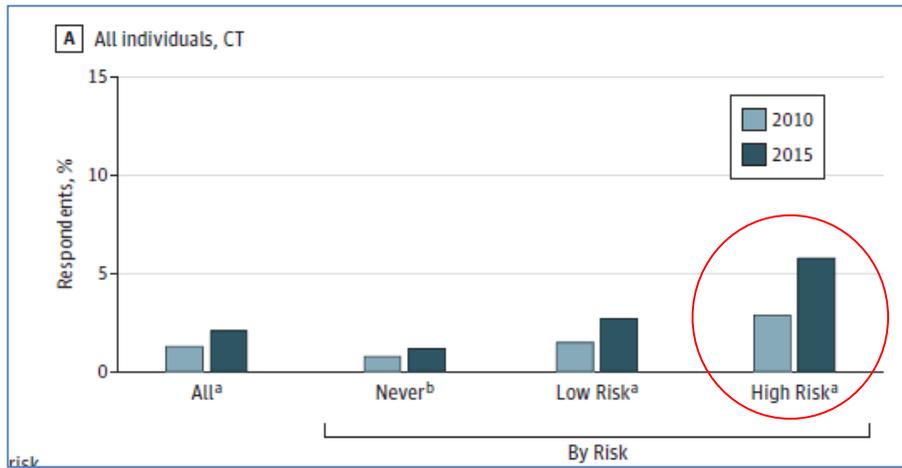
# Before Diagnosis: Lung Cancer Screening

## Part 1: Shared Decision Making

Robert J. Volk, PhD  
Professor and Deputy Director  
Department of Health Services Research  
The University of Texas MD Anderson Cancer Center



# Few smokers are being screened for lung cancer

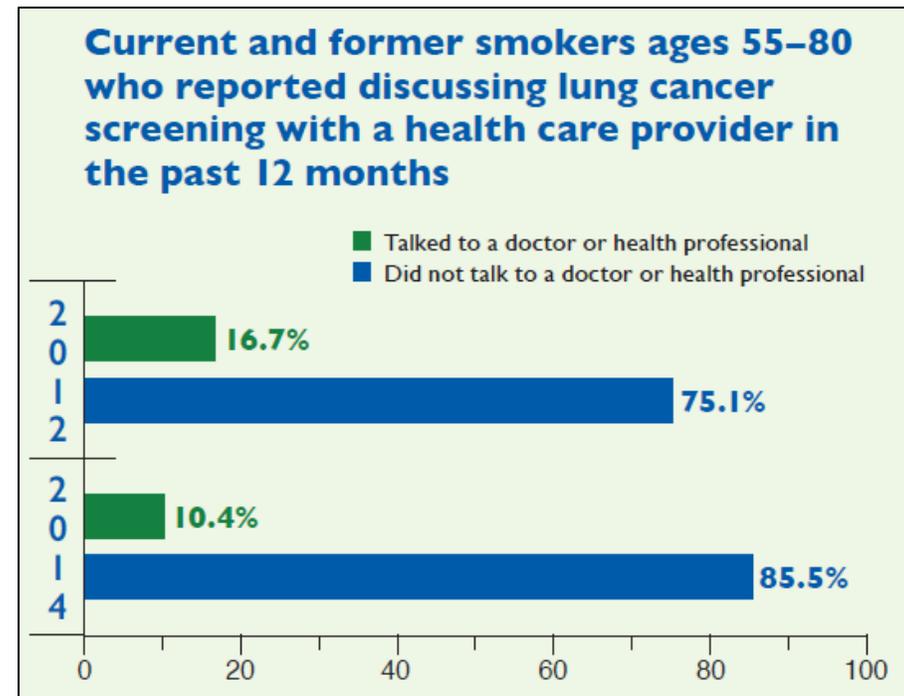


Screening is low (among “eligible” smokers):

- 2010: 2.9%
- 2015: 5.8%

Discussions about LCS between smokers and health care providers are infrequent:

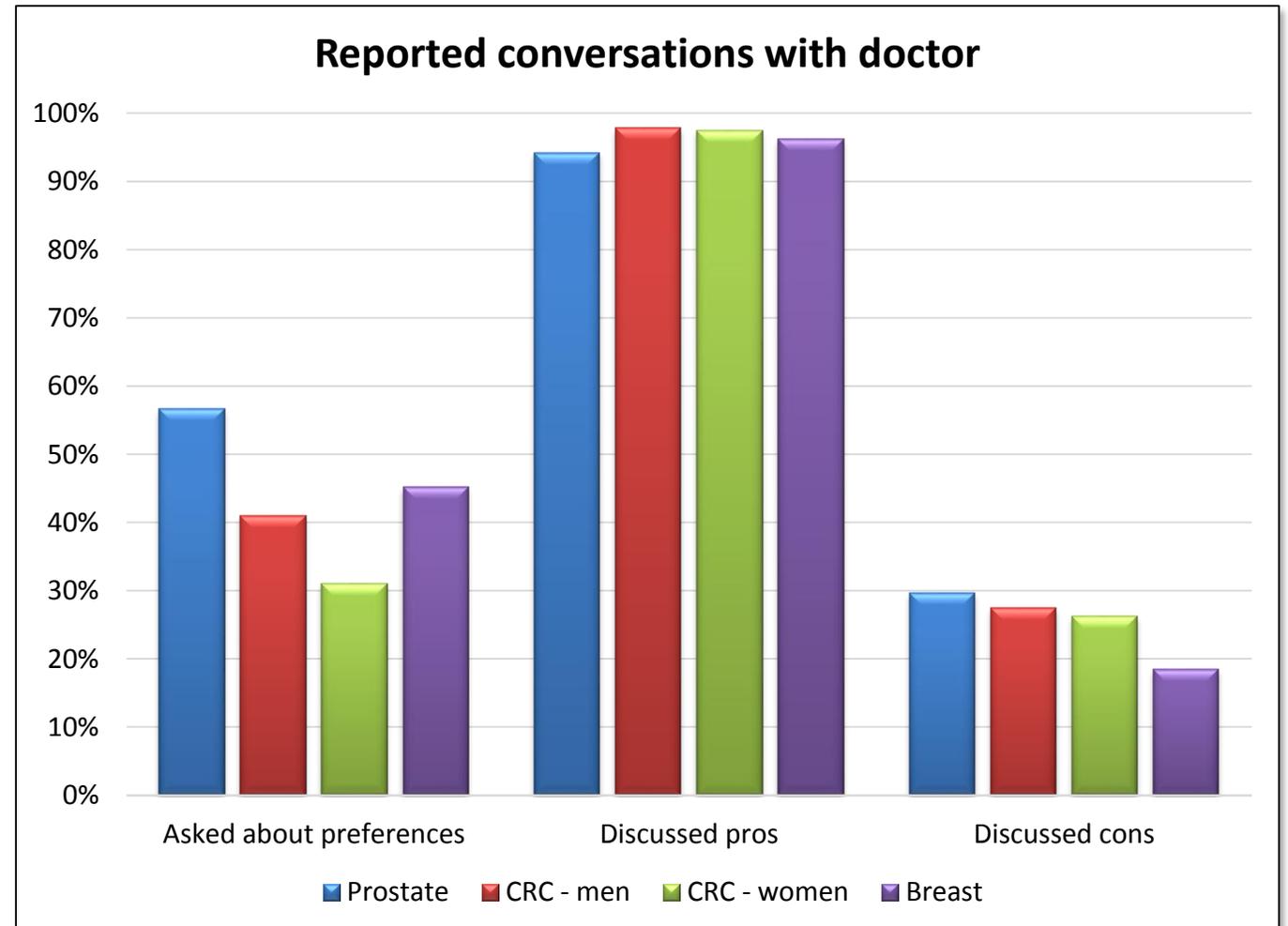
- 2012: ~17%
- 2014: ~10%



# Conversations with patients about cancer screening are not optimal

## The DECISIONS Study

- 2006 – 2007
- Surveyed 1082 adults 50+ years of age from general U.S. population.
- Reported discussions about cancer screening tests.



# Patients want to participate in medical decision making

## 2002 General Social Survey

- Nationally representative sample of English-speaking adults (n=2,765).
- Asked about preferences for health care decision making, ranging from patient-directed to physician-directed.

• *“I prefer to leave medical decisions to my doctor”*

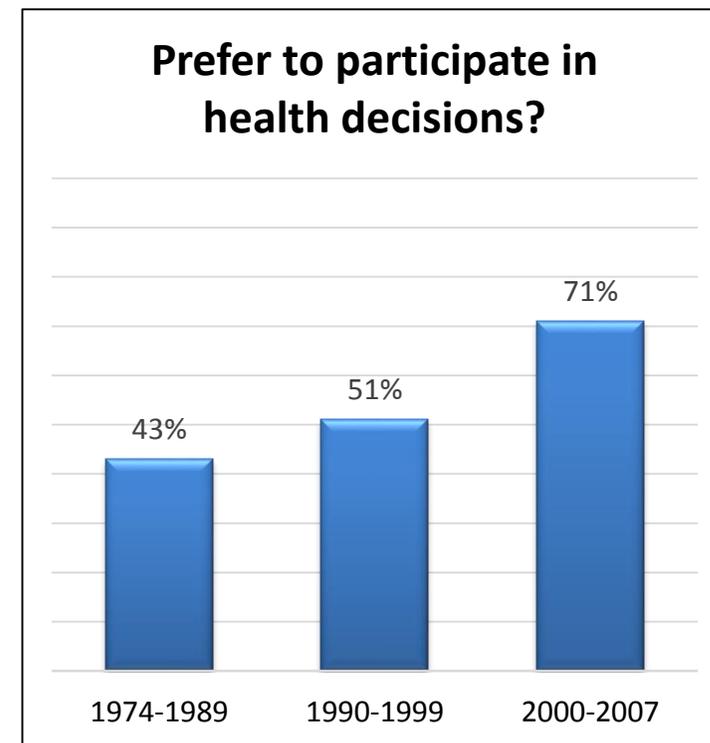
• **52% agree**

(older, lower education, male, non-white, poorer health status)

– *“I prefer my doctor offers me choices and asks my opinions”*

– **96% agree**

(no ethnicity or education differences)



Increasing historically!

# Shared decision making defined

- Shared decision making is a model of patient-centered care that enables and encourages people to play a role in the medical decisions that affect their health. It operates under two premises:
- First, consumers armed with good information can and will participate in the medical decision making process by asking informed questions and expressing personal values and opinions about their conditions and treatment options.
- Second, clinicians will respect patients' goals and preferences and use them to guide recommendations and treatments.
- The aim of shared decision making is to ensure that patients understand their options and the pros and cons of those options and patient's goals and treatment preferences are used to guide decisions ([www.ahrq.gov](http://www.ahrq.gov)).

# Why shared decision making matters

- Increasing emphasis on patients as partners in their care
- Patients want to be involved in their care (information vs “final say” authority)
- Better short-term outcomes (cognitive/affective)
- Potential to impact long-term patient outcomes
- Potential to decrease practice variation
- Potential to decrease costs
- Greater legal protection when certified patient decision aids are used (“informed consent squared”)
- A better process!
- It’s the right thing to do!

# CMS Beneficiary Eligibility Criteria

## **2. Shared decision making, including:**

- Use of 1 or more decision aids, to include...
  - Benefits, harms, follow-up diagnostic testing, over-diagnosis, false positive rate, total radiation exposure.

Documented in the medical record

# Points to Discuss with your Patients

1. LDCT is the only recommended screening approach for lung cancer.
2. Screening is not a substitute for quitting smoking. The most important way to lower your chance of dying from lung cancer is to stop smoking.
3. Screening should be done annually until the patient no longer needs to be screened or no longer meets the screening criteria.
4. Screening is a process. An abnormal LDCT scan does not necessarily mean cancer. Additional testing may be needed to determine a diagnosis.
5. Review the evidence about the benefits and harms of screening with your patients.

# Communicating Evidence to Patients: *Benefits*

## Verbatim Message

1. Really tough to explain!

**Benefits:** How did LDCT scans compare with chest x-rays in reducing deaths from lung cancer per 1,000 people screened?

	LDCT	Chest x-ray	
Deaths from lung cancer over 6.5-year followup period	18 in 1,000	21 in 1,000	3 in 1,000 fewer deaths from lung cancer with LDCT
Deaths from all causes over 6.5-year followup period	70 in 1,000	75 in 1,000	5 in 1,000 fewer deaths from all causes with LDCT

\*About the NLST: more than 50,000 smokers participated; participants had up to three annual screenings; average followup was 6.5 years.

2. About **320** people need to be screened to prevent 1 death from lung cancer (compares favorably to CRC screening and breast cancer screening).

## Gist Message

1. Not smoking is the best way to lower your chances of developing and dying from lung cancer.
2. LCS can find cancer early when the chance for cure is greater.
3. LCS may lower your chances of dying from other causes, but the research isn't clear on this point.
4. Most people diagnosed with lung cancer through LDCT screening will die from the disease.

# Communicating Evidence to Patients: *Follow-up Diagnostic Testing*

## **Verbatim Message**

1. If 1,000 people are screened every year for 3 years, 18 will go on to have a diagnostic procedure (among those with a false positive result).
2. Fewer than 1 of these 18 people will have a major complication from the procedure (eg, infection, bleeding in the lung, collapsed lung).

## **Gist Message**

1. Some people with an abnormal scan need a biopsy.
2. It is possible the biopsy can harm you, but these harms are rare.

# Communicating Evidence to Patients: *Overdiagnosis of Lung Cancer*

## **Problems:**

1. Patients don't understand the concept.
2. Patients often confuse overdiagnosis with false positives.
3. It is unclear how important overdiagnosis is to patients in making a screening decision.
4. The magnitude of overdiagnosis in LCS is unclear.

## **Verbatim Message**

1. About 10-20% of lung cancers diagnosed with LDCT will not progress to cause death.

## **Gist Message**

1. It is possible you will be diagnosed with a lung cancer that would never have harmed you. We don't know how likely that might be.

# Communicating Evidence to Patients: *False Positives (“false alarms”)*

## **Verbatim Message**

1. If 1,000 people are screened every year for 3 years, about 356 will have a false alarm (about 1 in 3, or 36%).
2. Using new criteria for what is considered an abnormal finding, the rate of false alarms is much lower.

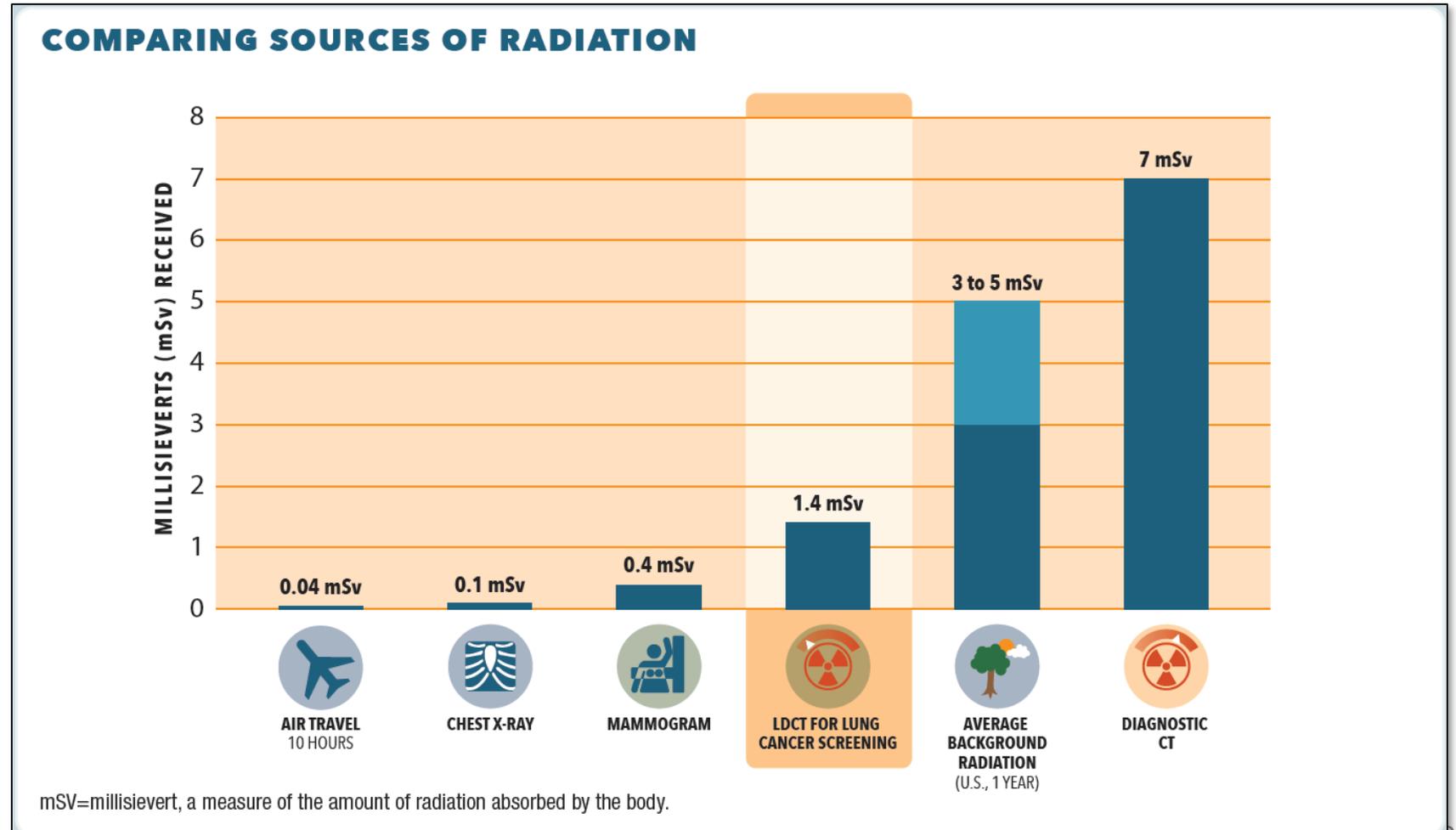
## **Gist Message**

1. Most people with an abnormal LDCT scan do not have lung cancer.
2. False alarms are common. Because you need to be screened every year, you should be ready to have a false alarm at some time.

# Communicating Evidence to Patients: *Radiation Exposure*

## Gist Message

We don't know how being screened every year and having additional scans if something abnormal is found might harm a patient.



# Decision Aids for LCS

American Thoracic Society  
PATIENT EDUCATION



DECISION AID  
FOR LUNG CANCER SCREENING  
WITH COMPUTERIZED  
TOMOGRAPHY (CT)



We help the world breathe™  
TOLERABILITY • CRITICAL CARE • SLEEP

## Is Lung Cancer Screening Right for Me?

A decision aid for people considering lung cancer screening with low-dose computed tomography

If you have smoked for many years, you may want to think about screening (testing) for lung cancer with low-dose computed tomography (LDCT). Before deciding, you should think about the possible benefits and harms of lung cancer screening. This decision aid will help prepare you to talk with your health care professional about whether lung cancer screening is right for you.

**What are the facts about lung cancer?**

- Lung cancer is the leading cause of cancer death in the United States. Each year, about 220,000 people are diagnosed with lung cancer and 150,000 people die from lung cancer.
- About half of the people diagnosed with lung cancer are 70 years of age or older. The typical age of death from lung cancer is 72 years.

**Who should be screened for lung cancer?**

The United States Preventive Services Task Force (USPSTF) is made up of experts in preventive medicine. Without pay, they review the current research to make recommendations about clinical preventive services such as screening, counseling, and preventive medications.

The USPSTF recommends lung cancer screening for individuals who:

- Are 55 to 80 years old
- Do not have any signs or symptoms of lung cancer (diagnostic testing may be recommended for people who do have signs or symptoms of lung cancer)
- Have not had lung cancer before
- Currently smoke or quit less than 15 years ago
- Are or were heavy smokers (30 pack-years history such as those who smoked 1 pack per day for 30 years or 2 packs per day for 15 years)

The USPSTF does not recommend lung cancer screening for individuals who:

- Have a condition that greatly limits how long they may live
- Are not willing to have surgery for lung cancer

**What is lung cancer?**

Lung cancer happens when abnormal cells form in the lungs and grow out of control. These cells can form a tumor and can spread to other parts of the body. Lung cancer is often diagnosed once it has spread outside the lungs. About 9 out of every 10 people with lung cancer die from the disease because it is found after it has spread.

**Possible signs and symptoms of lung cancer**

- A new cough that does not go away or gets worse
- Chest pain that is often worse when you breathe deeply, cough, or laugh
- A hoarse voice
- Unexplained weight loss and loss of appetite
- Coughing up blood or rust-colored sputum or phlegm
- Shortness of breath
- Infections such as bronchitis and pneumonia that do not go away or keep coming back
- Wheezing

Many patients with lung cancer do not have any symptoms when the cancer first starts. But, if you have any of these early cancer symptoms, you should see your doctor.

**Calculating pack-years\***  
(20 cigarettes = 1 pack)

Number of years smoked  
Average number of packs smoked per day  
Pack-years

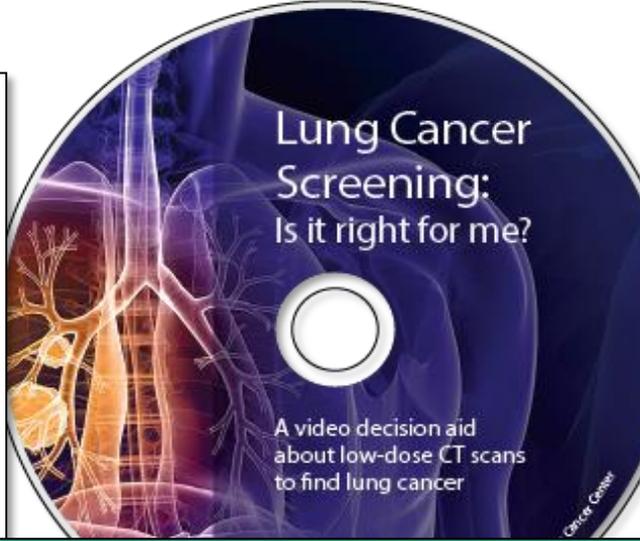
\* Your health care professional can help you determine the number of pack-years you have smoked.



Agency for Healthcare Research and Quality  
Advancing Excellence in Health Care • www.ahrq.gov

## Lung Cancer Screening: Is it right for me?

A video decision aid about low-dose CT scans to find lung cancer



## CHOICE

Should I start having yearly screening for lung cancer?

(copyright 2015 | University of North Carolina at Chapel Hill)




### 1000 PEOPLE SCREENED

**BENEFITS ADDED by Screening**

- 3 FEWER DEATHS from lung cancer compared to the NOT SCREENED group.
- However, 18 PEOPLE STILL DIE from lung cancer in a group of 1000 people who were screened.

**HARMS ADDED by Screening**

- 365 PEOPLE experienced a FALSE ALARM.
- 25 of those false alarms led to a BIOPSY.
- 5 PEOPLE developed a SERIOUS COMPLICATION from a biopsy.
- 4 PEOPLE had OVER DETECTED and unnecessarily treated "tumors".

### YOUR DECISION

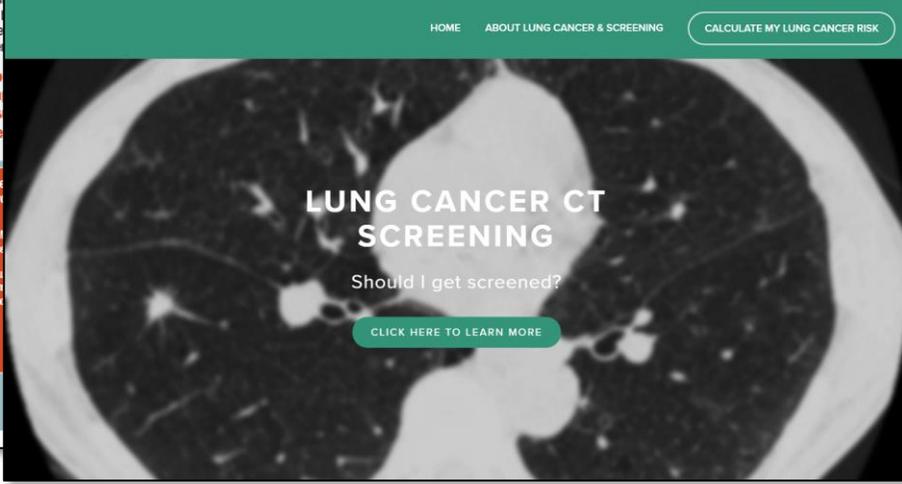
benefits vs. harms



## LUNG CANCER CT SCREENING

Should I get screened?

CLICK HERE TO LEARN MORE



shouldiscreen.com © U Michigan

<https://effectivehealthcare.ahrq.gov/decision-aids/lung-cancer-screening/home.html>

CHOICE: Reuland, BMC MIMD, 2018.

<https://www.thoracic.org/patients/patient-resources/resources/decision-aid-lcs.pdf>

# Impact of cancer screening decision aids on patient choice

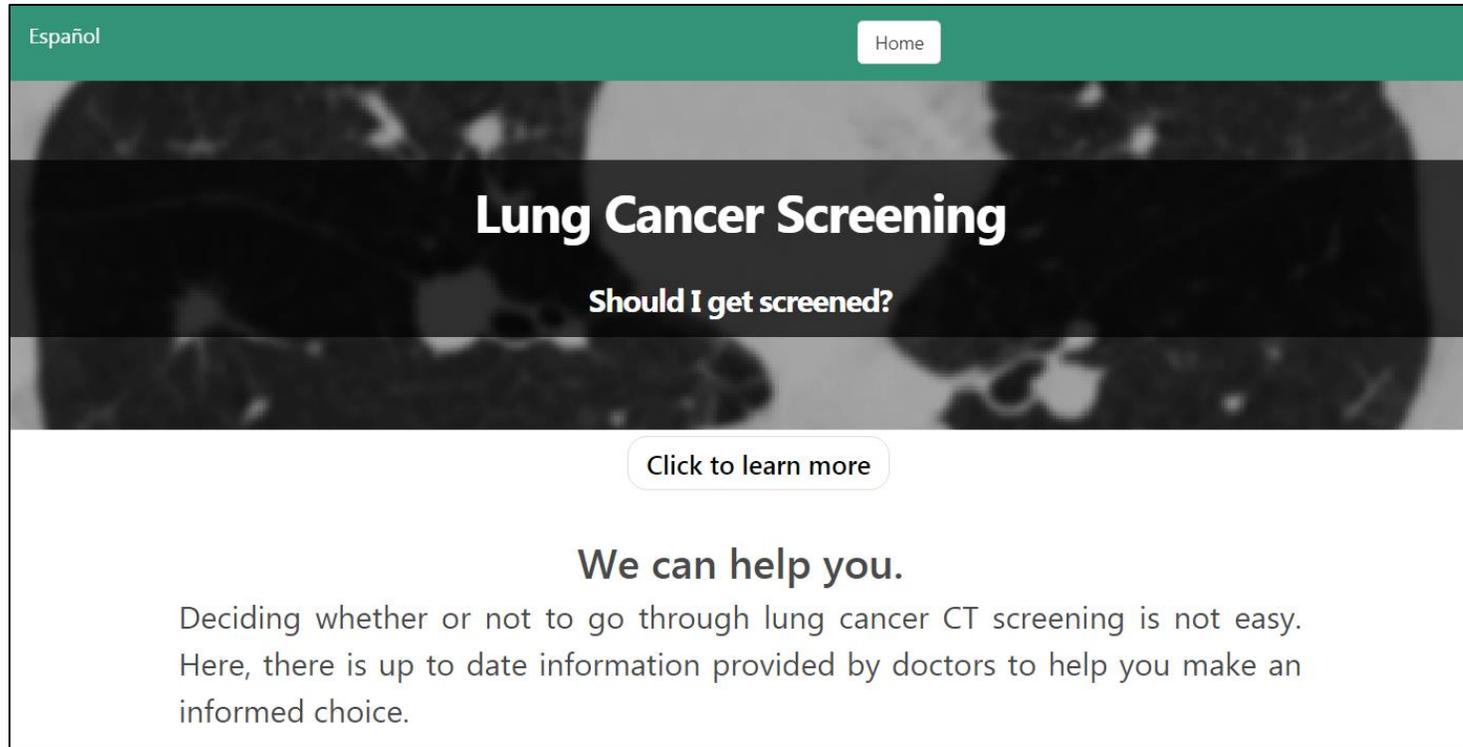
Cancer screening aid	Impact on screening behavior compared to usual care
Prostate cancer screening	Reduction 12%
Colorectal cancer screening	Increase 30%
Lung cancer screening	Unknown
Breast cancer screening (“younger” women, “older” women)	Unknown
Other cancer screening	Unknown

LCS rates for patients receive decision support vary widely:

- Over 90% in pulmonary setting
- ~50% in primary care setting

Because screening rates are so low nationally, any decision support should lead to an increase in screening.

# shouldiscreen.com



Español Home

## Lung Cancer Screening

Should I get screened?

[Click to learn more](#)

**We can help you.**

Deciding whether or not to go through lung cancer CT screening is not easy. Here, there is up to date information provided by doctors to help you make an informed choice.

## Modules

- Things you should know about lung cancer screening
- What are the benefits and harms of screening?
- How does lung cancer CT screening compare with other kinds of screening?
- Lung cancer and its causes
- Pack year calculator
- Smoking cessation resources

# shouldiscreen.com – Benefits and Harms

## Things you should know about lung cancer screening

### WHAT ARE THE BENEFITS OF SCREENING?

For people who are eligible for screening and decide to get screened, the chances of finding cancer early is higher. Finding cancer early generally means that there are more treatment options available. A recent study showed that after 6.5 years, among those who were eligible for screening, those who were screened with CT were 20% less likely to die from lung cancer compared to those who were not screened with CT.

### FALSE ALARMS

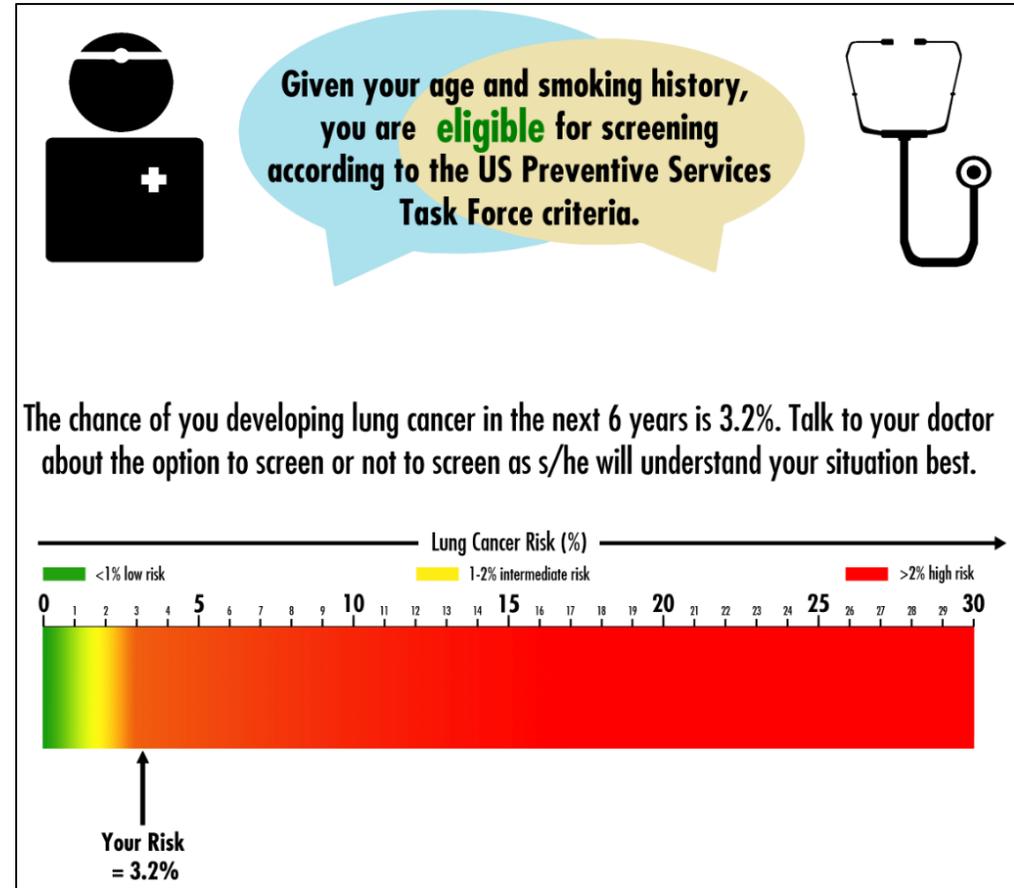
Screening works by finding lung nodules, some of which are cancer, but the vast majority (over 96%) of nodules detected on screening are **not** cancer. These false positive findings outnumber cancers 25 to 1. False positive findings have the potential to cause anxiety. However, understanding that the vast majority of lung nodules found on CT screening do **not** represent cancer helps most patients avoid significant anxiety while they wait for follow-up testing.

# shouldiscreen.com – LC Risk Calculator



## Lung Cancer Risk Calculator

Do you want to know if you should be screened? Use our calculator to see your personalized lung cancer risk.

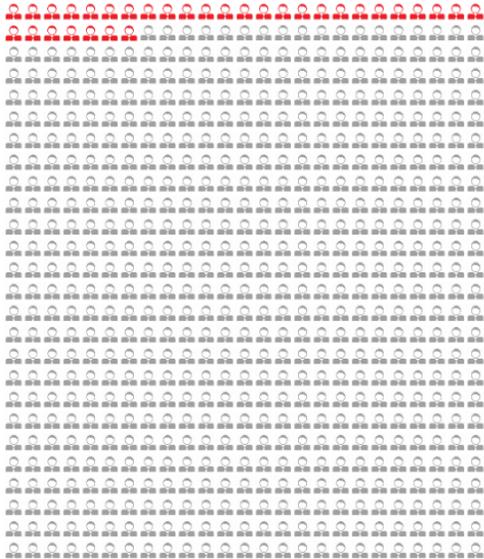


# shouldiscreen.com – LC Risk Calculator

Compared to other people like you, there will be 6 fewer deaths out of 1000 in the next 6 years if you get screened.

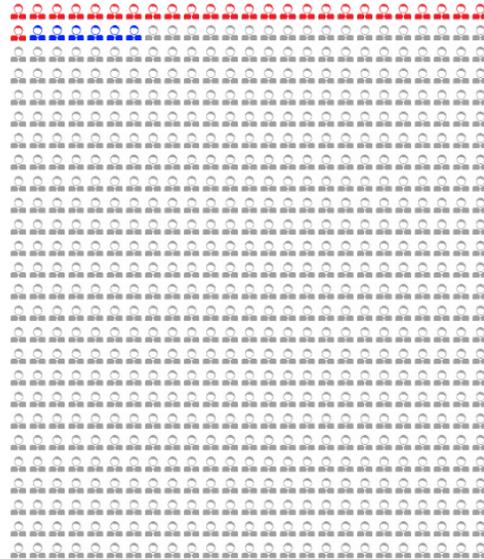
## NOT SCREENED

32 deaths from lung cancer



## SCREENED

26 deaths from lung cancer  
6 fewer lung cancer deaths due to screening



## BENEFITS



6 in 1000

fewer people like you will die from lung cancer among those who were screened compared to those who were not screened.

## HARMS

- 365 in 1000 people who were screened found a lung nodule that was not cancer.
- 18 in 1000 had an invasive procedure, such as biopsy or surgery, due to a lung nodule that was not cancer.
- 3 in 1000 had a major complication from invasive procedures.
- ◆ Of the lung cancers found by screening, about 1 in 10 would have never harmed you (overdiagnosis). This may lead to unnecessary treatment and complications.

# Lung Cancer Screening: Is it right for me?

- DVD format and web-enabled video
- Approx. 9 minute video
- Content:
  - Eligibility criteria
  - Overview of screening
  - Magnitude of benefits/harms (visual display)
  - Values clarification
- Messaging: Importance of smoking cessation!
- Meets certification standards



# SDM Model for Deliberation about LCS

## Step 1: Choice Talk

Help patient understand a decision needs to be made.

- *LCS is a choice.*
- *Preferences matter.*

## Step 2: Option Talk

Provide more detail about the LCS decision.

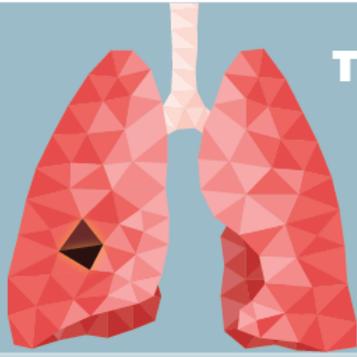
- *Check understanding.*
- *Clearly state options.*
- *Present information about benefits/harms.*

Use a decision aid!

## Step 3: Decision Talk

Consider the patient's preferences and decide together about LCS.

- *Explore issues of importance.*
- *Assess readiness.*
- *Offer more info to undecided.*
- *Decision can be reviewed again later.*



## The importance of shared decisionmaking

Lung cancer screening with low-dose computed tomography (LDCT) reduces mortality from lung cancer. There are also potential harms associated with lung cancer screening, including a high-false positive rate and the associated need for diagnostic followup, known and unknown risks of additional testing associated with incidental findings, cumulative radiation exposure, and overdiagnosis. Shared decisionmaking is a collaborative patient-centered process in which patients and clinicians make decisions together, within the context of the best evidence and recommendations and based on the patient's values and preferences.

### Tips To Promote a Shared Decision

Below is a five-step process for shared decisionmaking that includes exploring and comparing the possible benefits and harms of each option through meaningful dialogue about what matters most to the patient.

**STEP 1:** Seek your patient's participation in the decisionmaking process.

**STEP 2:** Help your patient explore and compare the potential benefits and harms of lung cancer screening, and assess your patient's level of understanding. (See the teach-back examples in the box to the far right.)

**STEP 3:** Assess your patient's values and preferences about lung cancer screening.

**STEP 4:** Reach a decision about lung cancer screening with your patient.

**STEP 5:** Evaluate your patient's feelings about the decision by having a followup discussion.

### Ordering Information



*Lung Cancer Screening with Low-Dose Computed Tomography (LDCT): Tools for Primary Care Clinicians*, is a free multicomponent resource to support decisionmaking about lung cancer screening in the primary care setting. For electronic copies of this multicomponent resource, visit [www.effectivehealthcare.ahrq.gov/LCS/](http://www.effectivehealthcare.ahrq.gov/LCS/)

### Talking Points

Below are specific points to address during the clinical encounter.

- » Lung cancer screening can be effective if patients 1) follow the screening protocol, 2) undergo diagnostic followup procedures after a positive screening result, and 3) receive treatment, which has potential harms.
- » Screening does not mean that smoking is OK. Smoking still causes lung cancer, cardiovascular disease, and other lung disease.
- » Screening can lead to early treatment that can prevent some, but not all, lung cancer deaths.
- » False-positive results ("false alarms") are common, and additional scans or invasive procedures may be needed. Less commonly, major complications of invasive procedures can occur, including bleeding, infection, or a collapsed lung.
- » Lung cancer screening may find lung cancer that would not have ever caused symptoms or harmed the patient in his or her lifetime if the cancer had not been found. This could lead to treatment of people who do not really need treatment.
- » Screening and followup testing exposes patients to radiation. The harms associated with cumulative radiation exposure are unknown.
- » Screening should stop if the patient 1) exceeds the upper age criterion, 2) no longer wants screening, 3) has a worsening health condition that limits their life expectancy or increases the risk of complications from lung surgery, or 4) has not smoked for 15 years.

### Teach-Back Examples

*"I know I have given you a lot of information. Tell me in your own words what you have heard."*

*"What are your thoughts about lung cancer screening?"*

*"Let's stop right there for a moment. What questions or comments do you have about the information I have given you?"*

### Referral Information

To find a radiology imaging facility that meets the CMS eligibility criteria, please visit:



[www.cms.gov/Medicare/Medicare-General-Information/MedicareApprovedFacilities/Lung-Cancer-Screening-Registries.html](http://www.cms.gov/Medicare/Medicare-General-Information/MedicareApprovedFacilities/Lung-Cancer-Screening-Registries.html)



AHRQ Publication No. 16-EHC007-11  
March 2016

# Before Diagnosis: Lung Cancer Screening

## Part 1: Implementation and Patient Case Study

LDCT National Pilot Project at Cabin Creek Health Systems

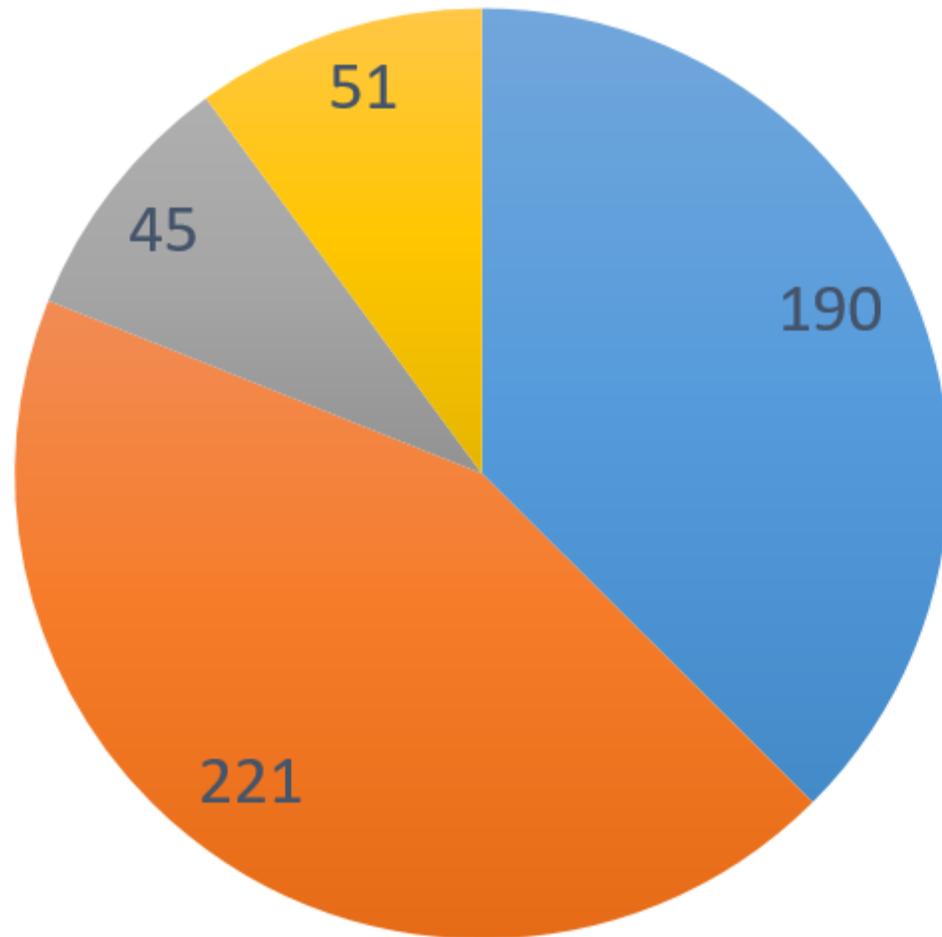
Luann Jeffries

Breathing Center Assistant  
Cabin Creek Health Systems



# Patients with a Tobacco History

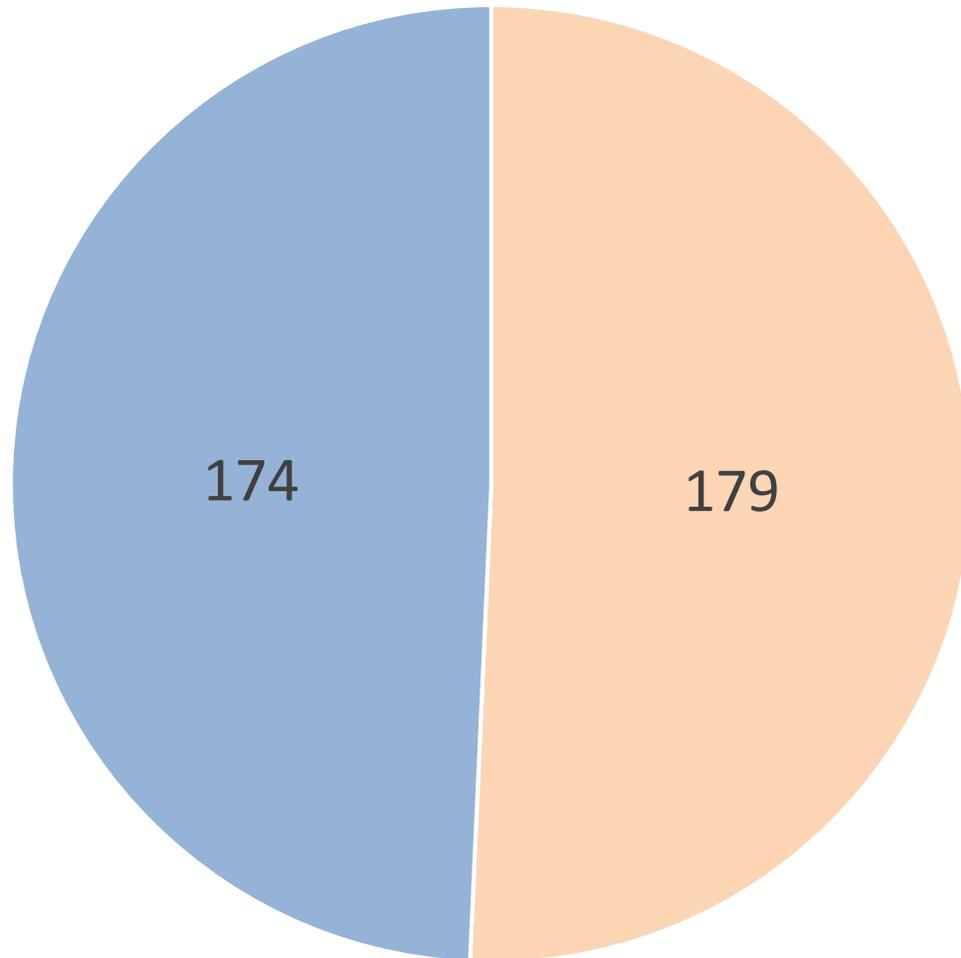
n=507



- Male Current Smokers
- Female Current Smokers
- Male Former Smokers
- Female Current Smokers

# Patients Screened at Cabin Creek

n=353



■ Eligible ■ Ineligible

- Eligible:
- Age 55-77
  - 30+ pack/year history
  - Smoked in last 15 years
  - Asymptomatic

## LDCT Ordering Guidelines

### Requirements for LDCT screening:

1. DOB (must be age **55-77**)
2. Pack/years of smoking (must be >30) **Cigars DON'T count**
3. Current smoking status needs to be documented.
4. If a former smoker, years since the patient stopped smoking. (must be <15)
5. A statement that the patient is asymptomatic.
6. It is a shared decision making visit.
7. Smoking cessation info provided if a current smoker.
8. No **diagnostic** CT within the past year.

### Screening

No symptoms that indicate lung ca  
Symptoms i.e. SOB, cough w/out blood are ok

### Diagnostic

Weight loss, blood, xray prompted the order. History of lung cancer only if pt is still being followed by oncologist.  
Current cancer i.e. prostate, stomach.

### How to calculate pack years

Formula -- PPD x yrs smoked.

Examples 1 ppd for 30 yrs = 30 pk yrs

½ ppd for 60 y = 30 pk yrs

2 ppd for 15 y = 30 pk yrs

Pts sometimes quit for a period of time. Subtract that out to get correct pk yrs.

**6 month follow-ups** are to be scheduled as **LDCT SCREENING**

**LDCT Order Set in Athena – PLEASE USE**

**CPT G0297 – ICD10 – Z87.891 – personal history of tobacco use**

# Do these patients qualify for LDCT?

- 65 year old female
- 1 pk/day for 10 years, 2 pk/day for 20 years
- Quit smoking 2005
- Current kidney cancer

- 67 year old female
- 1 pk/day for 30 years
- Current smoker
- Coughing up blood

- 53 year old male
- 1 pack/day for 40 years
- Current smoker
- Asymptomatic

- 59 year old male
- 1 pack/day for 35 years
- Current smoker
- Non-productive cough

## Social History +

Smoking status

Current every day smoker

as of 6/26/18

Smoking - how much

1 PPD

1ppd 40 yrs, .5 ppd 21 yrs =51.5 pk yrs

Tobacco-years of use

61

NOTE

Has smoked since age

15

NOTE

Chewing tobacco

1/day

occ.

Occupation

retired daycare provider

NOTE

Are you currently employed

Yes No

NOTE

Education

12

NOTE

Diet

Regular

NOTE

Exercise level

None

NOTE

**Granny TEST**  
76yo F 03-09-1942 #189857 E#189857

**Needs Attention** OTHER MEASURES (16) (+)

View by cjacques1 ▾

- LDL-C Screening** e  
Needs data
- LDL-C Control** e  
Past due
- CT screening for lung cancer** (x)  
Past due  
 Low-dose computed tomography (CT)  
screening performed
- Due every 1 year  
Adult Preventive Care Guidelines
- NOTE
- [EDIT SETTINGS](#) | [VIEW INFO](#)
- MIPS ACI: Patients view or download their health info  
Needs data
- Medicare annual wellness visit

**Last Visit with Family Medicine**

**Est. Pt Follow UP, 06-14-2018**  
Performed by Charles Hm Jacques, MD, Family Medicine, (304) 595-5006

**benign hypertension**  
Provided **hypertension education**

**Outstanding Orders**

**Preferred Specialty**  
No outstanding orders

**Other Specialties**

**note to return to work/school (submitted)** 09-07-2017  
RACHEL SHERMAN,MA Supervised Psychological Trainee, Clinical Psychology

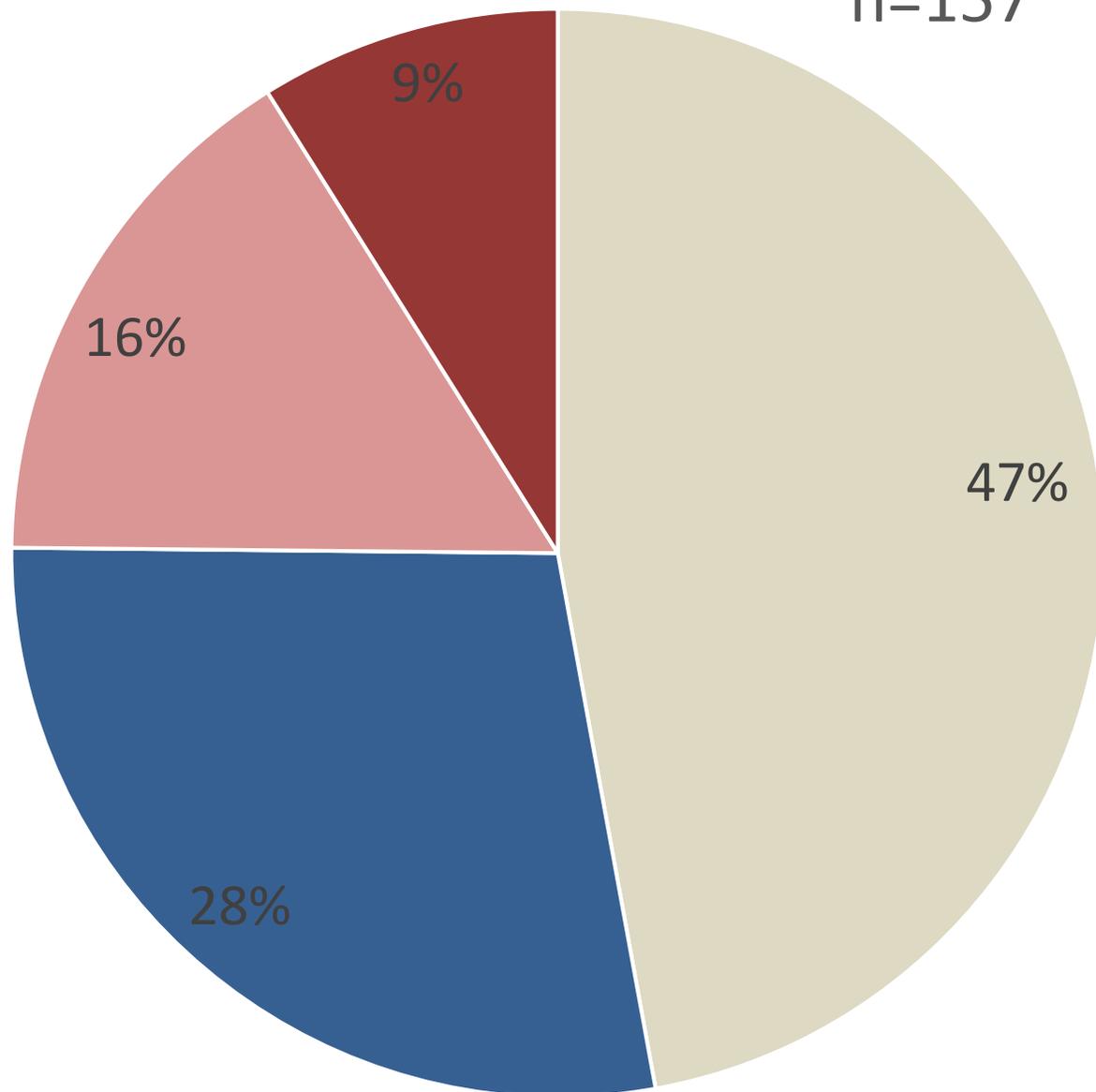
**Follow Up**

**Tickler for 08-16-2018**  
rharpold | CLENDENIN | follow up for diabetes and htn

**Recent Activity**

# Breakdown of L-RADS Findings for Cabin Creek

n=157

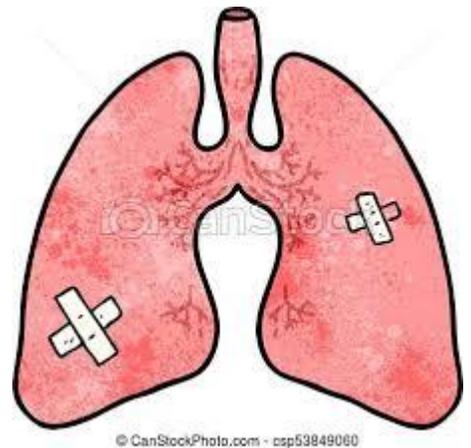


- Negative (L-RAD 1)
- Benign appearance or Behavior (L-RAD 2)
- Probably benign (L-RAD 3)
- Suspicious (L-RAD 4)

**25% of screened patients had L-RAD 3 or L-RAD 4 findings!!**

# How to follow up Lung Rads findings:

- Lung Rads 1 – No nodules or definitely benign nodules. LDCT repeat in 1 yr.
- Lung Rads 2 - Nodules w/very low chance off CA. LDCT repeat in 1 yr.
- Lung Rads 3 - Probably benign findings-short term f/up suggested 6 month LDCT.
- Lung Rads 4A – Additional diagnostic testing needed 3 month LDCT; PET may be used if a <8mm solid component.
- Lung Rads 4B – Additional diagnostic testing CT or PET asap.



# Patient Case

- 59 year old w/88 pk year history. Pt was referred by physician for a screening LDC. LDCT showed Lung Rads 4B. PET performed 1 week later and pt referred to a CT surgeon. Lung mass unresectable and started radiation & completed it (3 month scan to rad). Staging 4. Also seeing a pulmonologist.
- We noticed pt didn't follow-up with Pulmonologist or had f/up CT. Pt has insurance but couldn't afford the copays & had transportation problems.
- PAF contacted. They assisted patient to qualify for presumptive disability getting some financial aid & MCD secondary until he gets full disability. ACS # provided to the patient as they can help with transportation issues.
- Treatment concerns... Pt gets screening but if need further treatment patient may not have family/friend to help.

# Discussion Questions for Group

- How would we most effectively have a conversation with this patient about benefits and risks of screening that is both balanced and appropriate for their education level/understanding? How do you avoid overwhelming the patient? Who should have this conversation with the patient?
- What transportation/financial resources exist for patients like this, when screening is covered, but follow up screening and treatment coverage/access are the barrier? How can we best prepare for managing these cases?

**Thank you for participating in this ECHO Clinic.  
Don't forget to complete your online survey/assessment!**

**Join us Next Month for  
Lung Cancer Patient Support ECHO Session 2  
Before Diagnosis: Lung Cancer Screening-Diagnostic Follow up**

**July 26, 2018**

**9:00 am ET**

**Presenters:**

Joelle Fathi, DNP, RN, ARNP

Maria Chong, MD (Radiologist)

Deborah Klein, MD (Primary Care)

Case Presentation: **Volunteer Needed**

