LUNG CANCER SCREENING
Policy and People

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Disclosures
Douglas E. Wood

Spiration, Inc. – Medical advisor, research support (minor association <$10,000), no relevance to lung cancer policy

Immediate Past President, Society of Thoracic Surgeons

Chair, NCCN Lung Cancer Screening Panel

Vice-Chair, NCCN Non-Small Cell Lung Cancer Panel

Medical Advisory Board, Lung Cancer Alliance

Society of Thoracic Surgeons

- 6,700 Members
- > 80% of US CT Surgeons
- 20% of Membership outside US/Canada, representing 85 countries and 6 continents
- Residents, Medical Students, Allied Health, Other Physicians
- Leader in quality and clinical databases

STS Databases

STS National Database participants	1410
Adult Cardiac	1073
>90% of all US cardiac practices	
General Thoracic	230
Represents 800 surgeons	
Congenital	105
84% of hospital sites	
Audit accuracy	95%
Public reporting	
STS website	
Consumer Reports	
Hospital Compare	

STS Database Partnerships

- Duke Clinical Research Institute (DCRI)
- Centers for Medicare and Medicaid Services (CMS)
- National Quality Forum
- *Consumer Reports*
- American College of Cardiology
- US Food and Drug Administration
- State agencies/initiatives
- SCA/CCAS (Congenital Cardiac Anesthesia Society)
- Multiple industry relationships

National Recognition

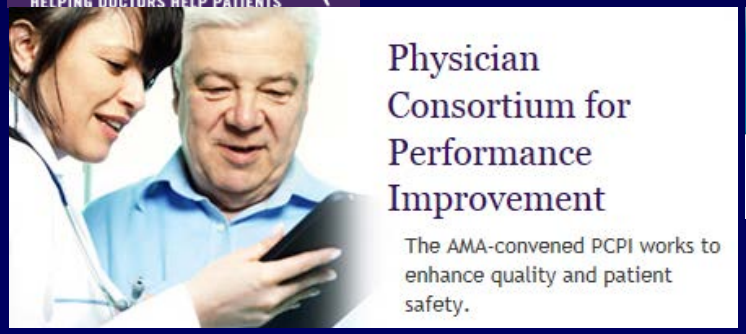
The Society of Thoracic Surgeons

AQA

NQF
The National Quality Forum

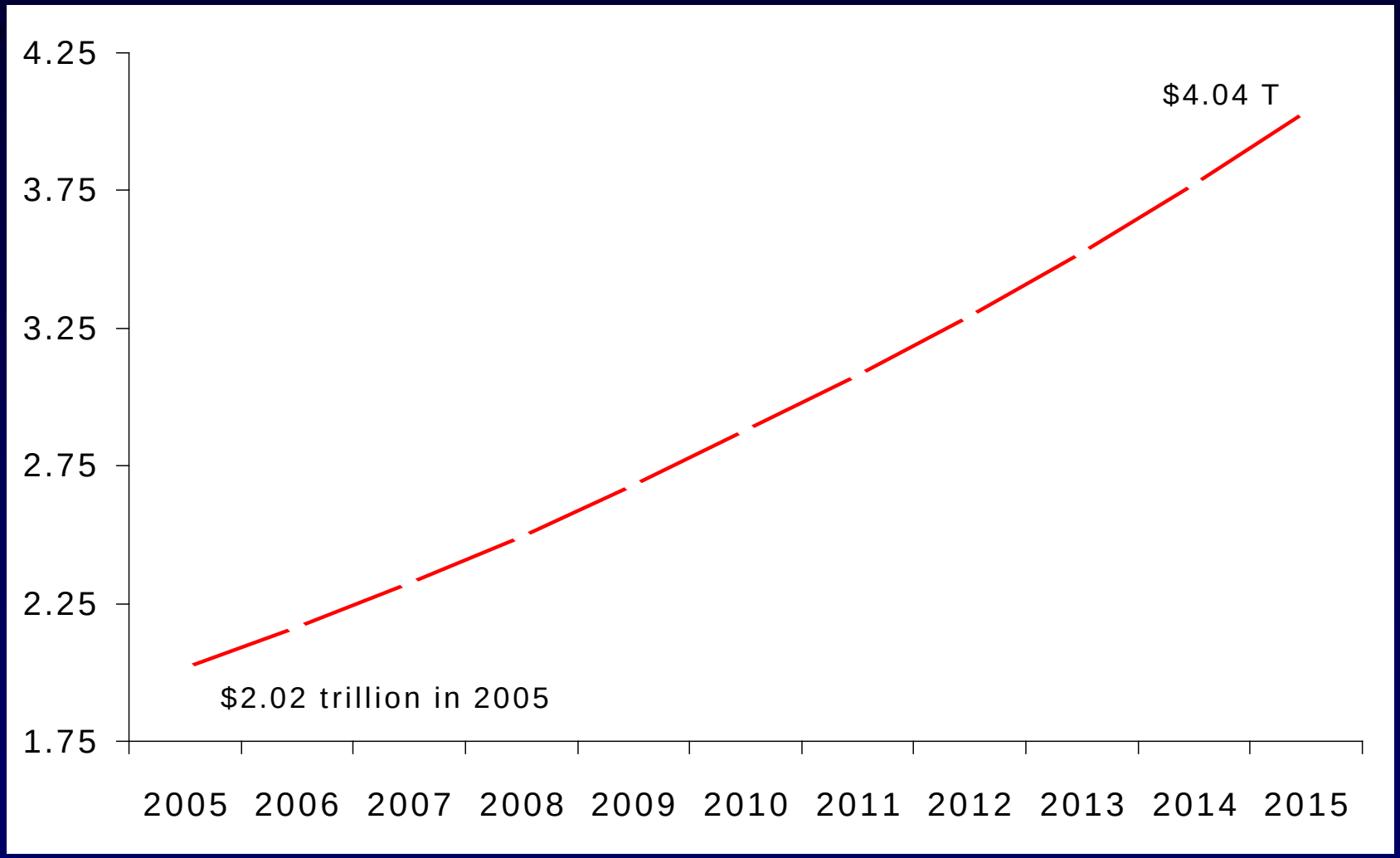
SCIP Surgical Care Improvement Project
A National Quality Partnership

AMA
HELPING DOCTORS HELP PATIENTS



Quality Alliance
Steering Committee
Better information. Better health care.

National Health Expenditures



Source: The Commonwealth Fund; Data from C. Borger et al., “Health Spending Projections Through 2015: Changes on the Horizon,” *Health Affairs* Web Exclusive (Feb. 22, 2006):w61–w73.

RECOMMENDATIONS SEPTEMBER 2012

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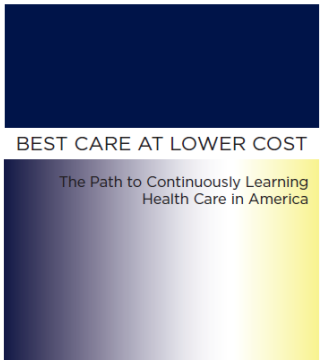
The Path to Continuously Learning Health Care in America

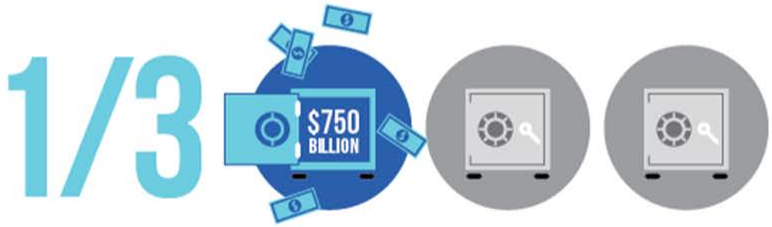
Recommendations



DECREASE WASTE AND INCREASE EFFICIENCY

Money should not be spent on unnecessary administration, inefficiencies, and care that doesn't improve health.

IN HEALTH CARE...



of health care expenditures don't improve health—an estimated $750 billion!

IN OTHER INDUSTRIES...

FACTORY ASSEMBLY LINES are continually monitored to improve quality, identify inefficiencies, and remove waste.

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ABIM FOUNDATION

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THE ANNALS OF THORACIC SURGERY

March 2013

SPECIAL REPORT

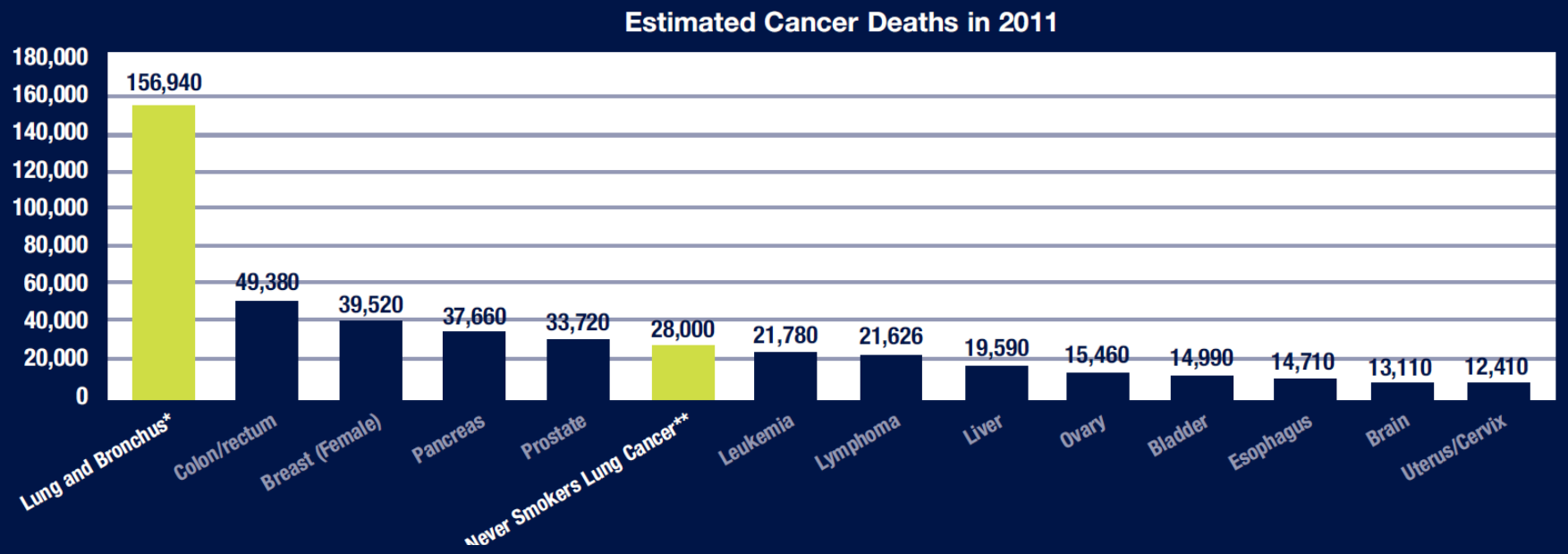
Choosing Wisely: Cardiothoracic Surgeons Partnering With Patients to Make Good Health Care Decisions

Douglas E. Wood, MD, John D. Mitchell, MD, DeLaine S. Schmitz, RN, MSHL, Sean C. Grondin, MD, MPH, John S. Ikonomidis, MD, PhD, Faisal G. Bakaeen, MD, Robert E. Merritt, MD, Dan M. Meyer, MD, Susan D. Moffatt-Bruce, MD, PhD, T. Brett Reece, MD, and Michael A. Smith, MD

THE SOCIETY OF THORACIC SURGEONS

Established 1964

Lung Cancer is the Leading Cause of Cancer Death in Every Ethnic Group



Lung Cancer is the Second Leading Cause of all Deaths in the United States

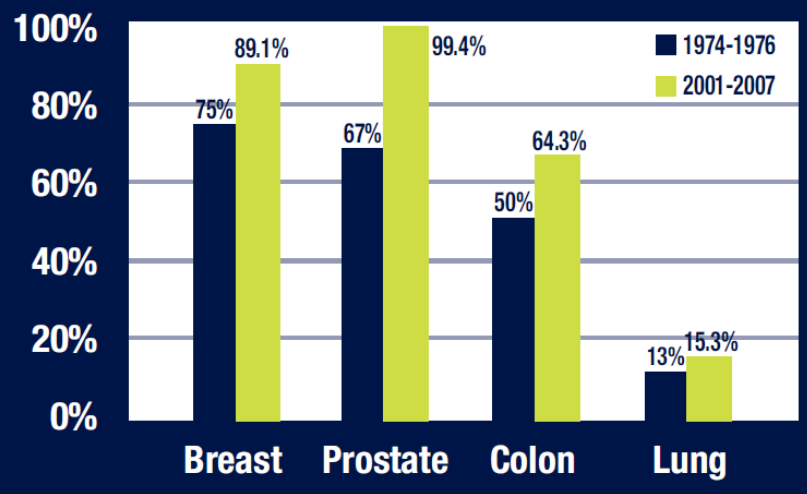
Actual Deaths in 2009

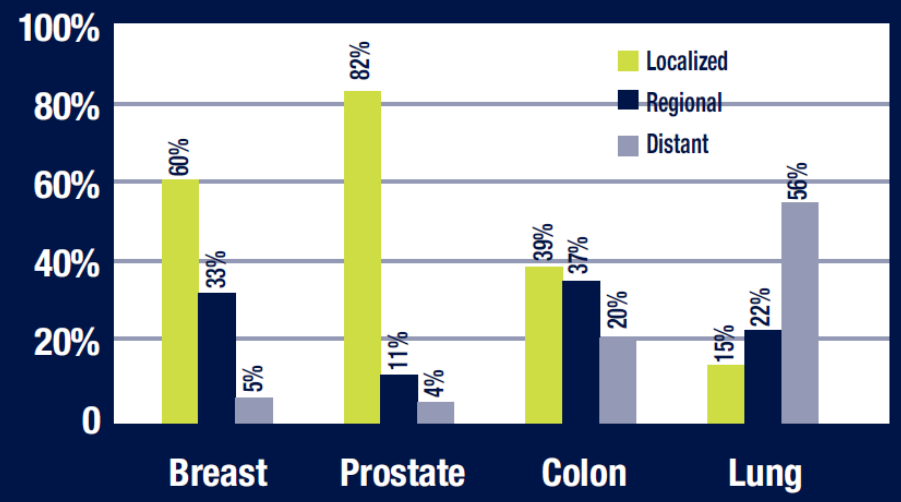
Heart disease	598,607	Breast cancer:	41,115	Homicide	16,591
Lung cancer	158,105	Suicide	36,547	Ovarian cancer	14,513
Lower respiratory disease	*137,082	Pancreatic cancer	35,872	Bladder cancer	14,315
Stroke:	128,603	Septicemia	35,587	Brain cancer	14,192
Accident:	117,176	Liver disease	30,444	Esophageal cancer	13,916
Alzheimers:	78,889	Prostate cancer	28,154	Kidney cancer	13,027
Diabetes:	68,504	Leukemia	22,697	Stomach cancer	11,139
Colorectal cancer	52,462	Lymphoma	21,626	HIV/AIDS	9,424
Pneumonia	50,774	Parkinson's disease	20,552	Melanoma	9,254
Kidney disease	48,714	Liver cancer	19,311	Lip/oral cancers	7,913

* Includes COPD, emphysema, asthma, bronchitis

Source: National Center for Health Statistics; http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_04_tables.pdf

Cancer Screening – Early Detection





Cancer screening coverage

- Breast
- Prostate
- Colon

Lung cancer disparities

- Elderly
- Low socioeconomic group
- Racial
- "Self-inflicted" disease

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Cancer Facts & Figures 2014

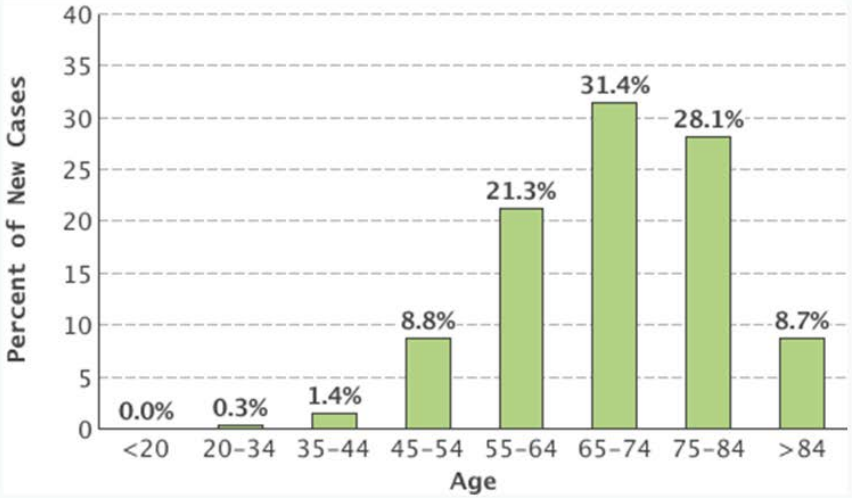
Cancer Disparities

An overarching objective of the American Cancer Society's 2015 challenge goals is to eliminate disparities in the cancer burden among different segments of the US population, defined in terms of socioeconomic status (income, education, insurance status, etc.), race/ethnicity, geographic location, sex, and sexual orientation. The causes of health disparities within each of these

Lung cancer patient disparities:

- **Older – 68% Medicare population**
- **Higher mortality amongst African-Americans**
- **Lower socioeconomic groups mortality 4-5 times greater**
- **Rural access to screening and treatment**

Percent of New Cases by Age Group: Lung and Bronchus Cancer

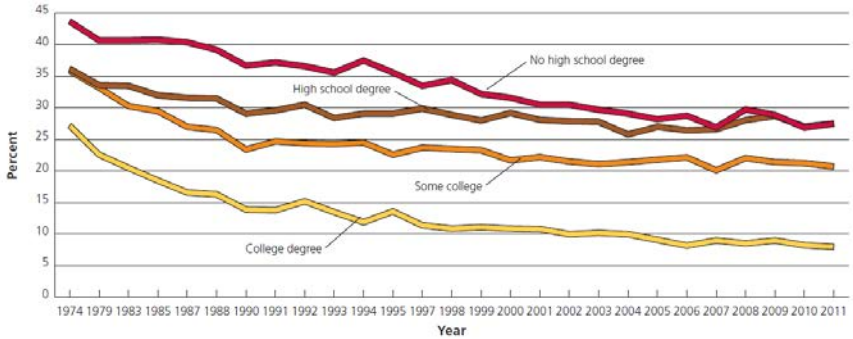


Lung and bronchus cancer is most frequently diagnosed among people aged 65 –74.

Median Age At Diagnosis
70

SEER 18 2006–2010, All Races, Both Sexes

Figure 1C. Cigarette Smoking* Trends†, Adults 25 and Older, by Education, US, 1974-2011



*Adults 25 and older who have smoked 100 cigarettes in their lifetime and are current smokers (every day or some days). †Estimates are age adjusted to the 2000 US standard population using four age groups: 25-34 years, 35-44 years, 45-64 years, and 65 years and over.

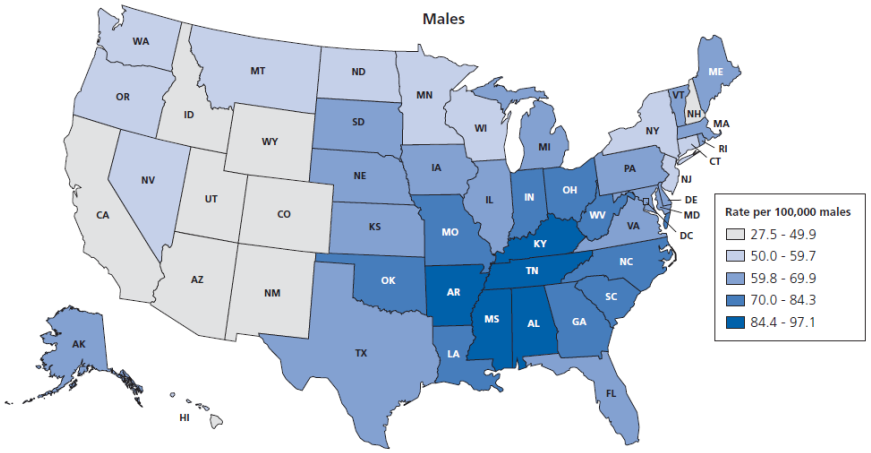
Source: 1974-2007: National Center for Health Statistics, Health, United States, 2007. With Chartbook on Trends in the Health of Americans. Hyattsville, Maryland, 2008. 2008-2010: National Health Interview Survey Public Use Data Files, National Center for Health Statistics, Centers for Disease Control and Prevention, 2011.

American Cancer Society, Surveillance Research, 2013

*Rates adjusted to the 2000 US standard population.

Source: US Mortality Data, National Center for Health Statistics, Centers for Disease Control and Prevention.

Geographic Patterns in Lung Cancer Death Rates* by State, US, 2006-2010



ELSEVIER

The Journal of Thoracic and Cardiovascular Surgery

Available online 9 December 2013

In Press, Corrected Proof — Note to users

General thoracic surgery

Balancing curability and unnecessary surgery in the context of computed tomography screening for lung cancer

"…a balance needs to be maintained between the benefits and potential harms of the screening, and this requires a well-designed screening protocol that specifies the indications for diagnostic tests as well as for surgical interventions."

http://dx.doi.org.offcampus.lib.washington.edu/10.1016/j.jtcvs2013.11.001

ELSEVIER

The Journal of Thoracic and Cardiovascular Surgery

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Balancing curability and unnecessary surgery in the context of computed tomography screening for lung cancer

31,646 baseline + 37,861 annual repeat LDCT

492 surgical resections (1.6% of baseline scans)

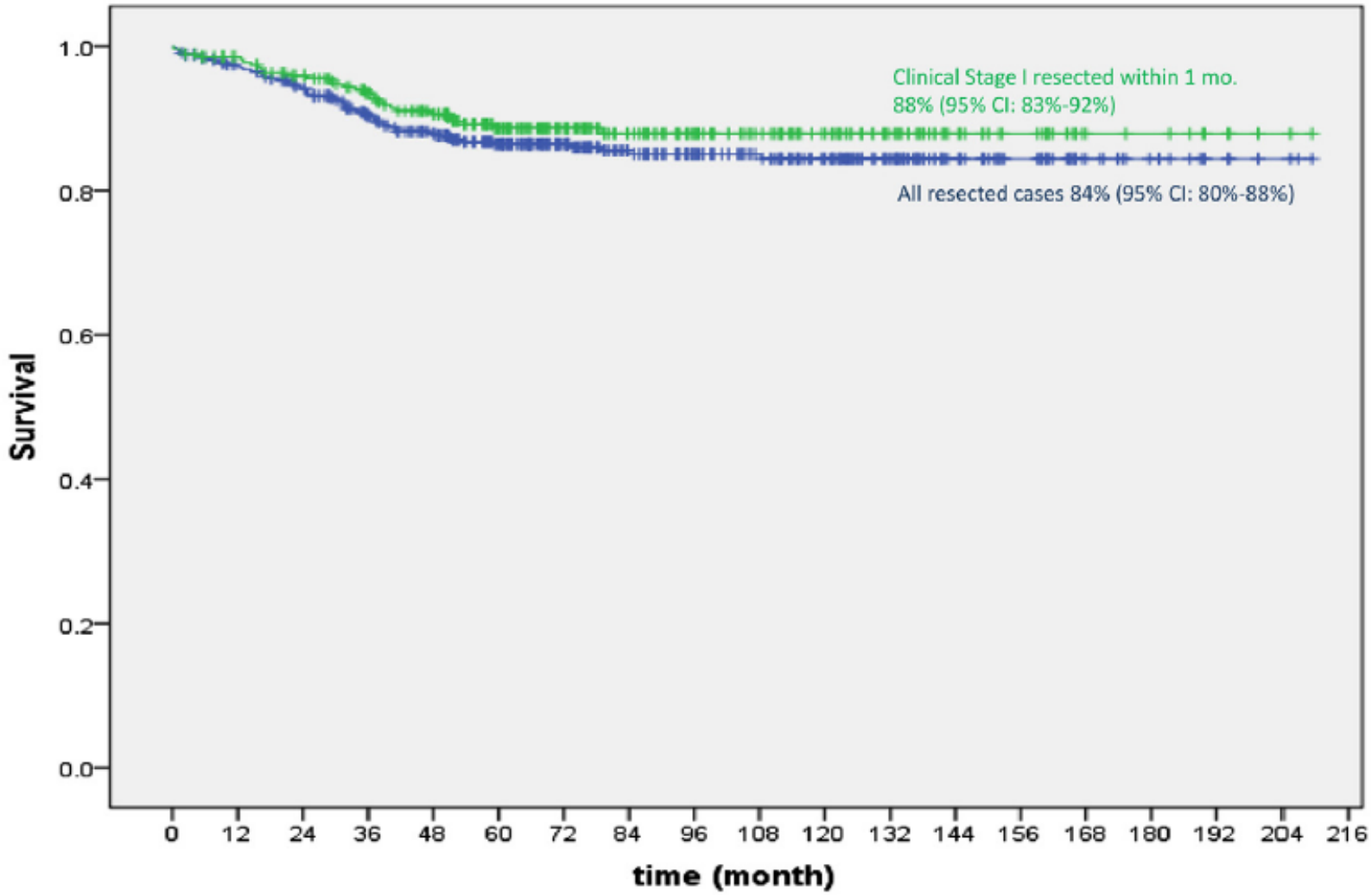
437 cancers (89% of resections)

- **15 year survival 84%**

54 patients (0.17% of baseline scans) had resections for benign disease

- **89% sublobar (minimal resection)**
- **46% minimally invasive**

http://dx.doi.org.offcampus.lib.washington.edu/10.1016/j.jtcvs2013.11.001



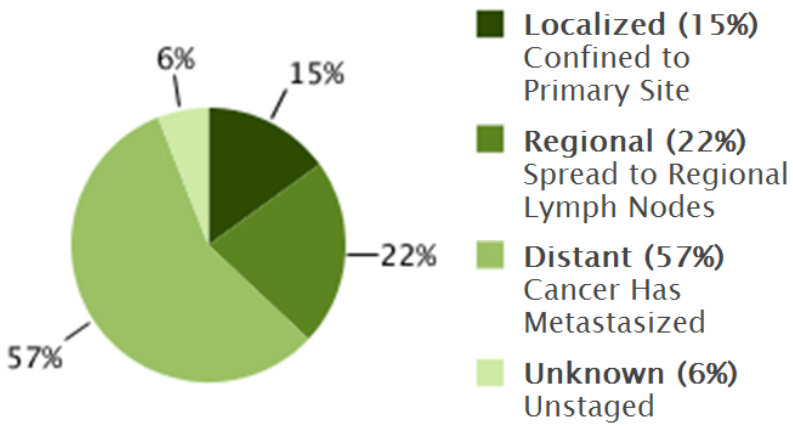
No. at risk

All cases	428	401	378	339	310	259	211	171	146	127	104	74	47	33	19	12	6	3	0
Resected within 1 mo.	273	259	246	225	202	164	134	109	90	76	62	44	29	21	11	9	5	2	0

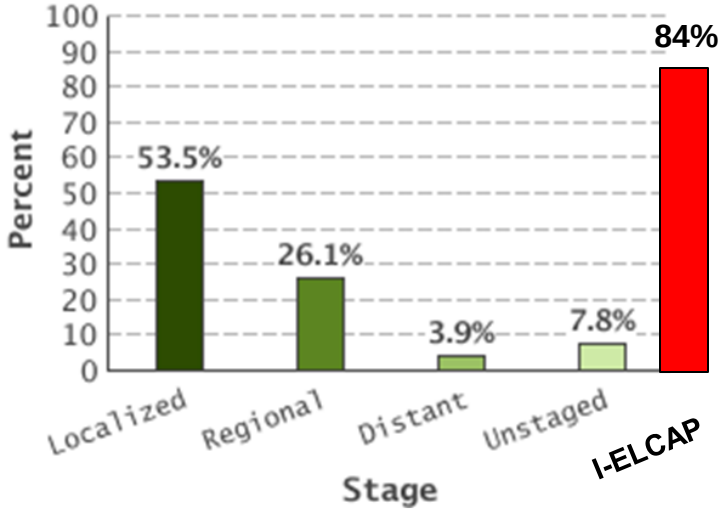
http://dx.doi.org.offcampus.lib.washington.edu/10.1016/j.jtcvs2013.11.001

Percent of Cases & 5-Year Relative Survival by Stage at Diagnosis: Lung and Bronchus Cancer

Percent of Cases by Stage



5-Year Relative Survival



SEER 18 2003-2009, All Races, Both Sexes by SEER Summary Stage 2000

http://seer.cancer.gov/statfacts/html/lungb.html

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NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

Lung Cancer Screening

Version 1.2014

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NCCN Guidelines Version 1.2014 Panel Members
Lung Cancer Screening

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& Epidemiology	¥ Patient advocacy
ф Diagnostic radiology	≠ Pathology
Ξ Pulmonary medicine	* Writing committee

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Lung Cancer Screening

RISK ASSESSMENT[a,b]

- Smoking history[c]
  - Present or past
- Radon exposure[d]
- Occupational exposure[e]
- Cancer history[f]
- Family history of lung cancer
- Disease history (COPD or pulmonary fibrosis)
- Smoking exposure[g] (second-hand smoke)
- Absence of symptoms or signs of lung cancer (if symptoms, see appropriate NCCN Guidelines)

RISK STATUS

High risk:
- Age 55-74 y and
- ≥30 pack year history of smoking and
- Smoking cessation <15 y

(category 1)
or
- Age ≥50 y and
- ≥20 pack year history of smoking and
- One additional risk factor (other than second-hand smoke)

(category 2B)

→ See Screening and Findings (LCS-2)

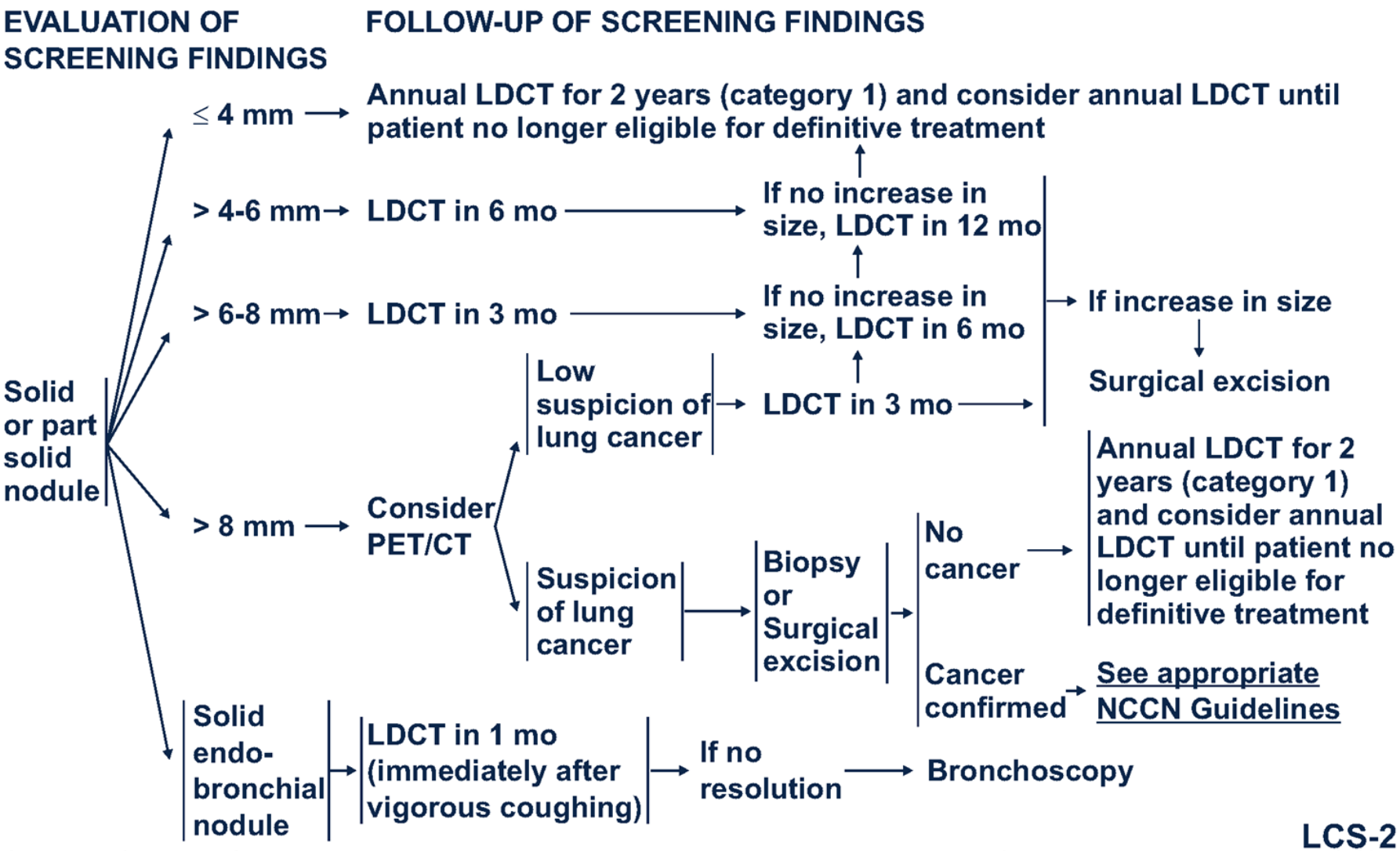
Moderate risk:
- Age ≥50 y and
- ≥20 pack year history of smoking or second-hand smoke exposure[g]
- No additional risk factors

→ Routine lung cancer screening not recommended

Low risk:
- Age <50 y and/or
- <20 pack year history of smoking

→ Routine lung cancer screening not recommended

NCCN Guidelines Version 1.2013 Lung Cancer Screening



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ORIGINAL RESEARCH | Annals of Internal Medicine

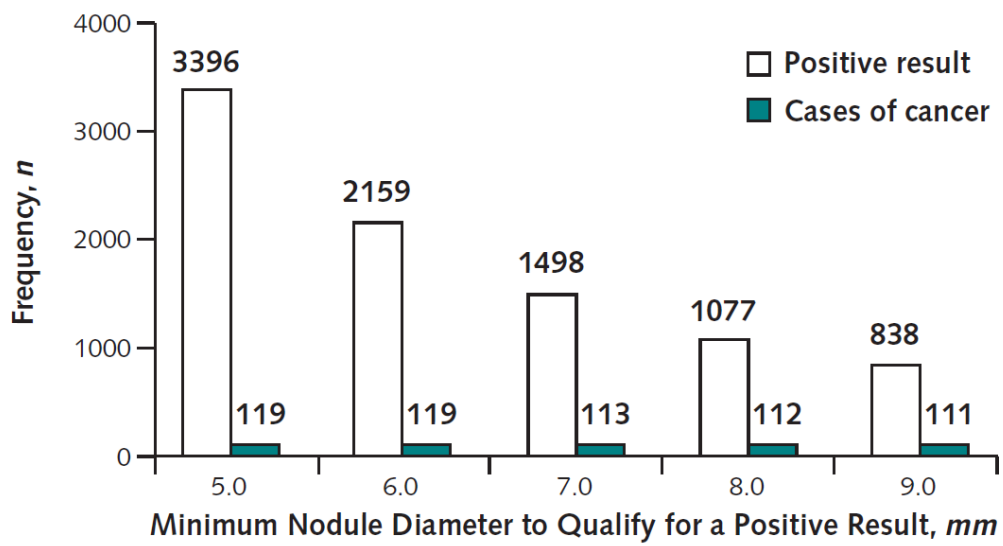
Definition of a Positive Test Result in Computed Tomography Screening for Lung Cancer

A Cohort Study

Claudia I. Henschke, PhD, MD; Rowena Yip, MPH; David F. Yankelevitz, MD; and James P. Smith, MD, for the International Early Lung Cancer Action Program Investigators*

Ann Intern Med. 2013;158:246-252.

Figure. Frequency of a positive result and cases of lung cancer diagnosed within 12 mo of baseline enrollment.



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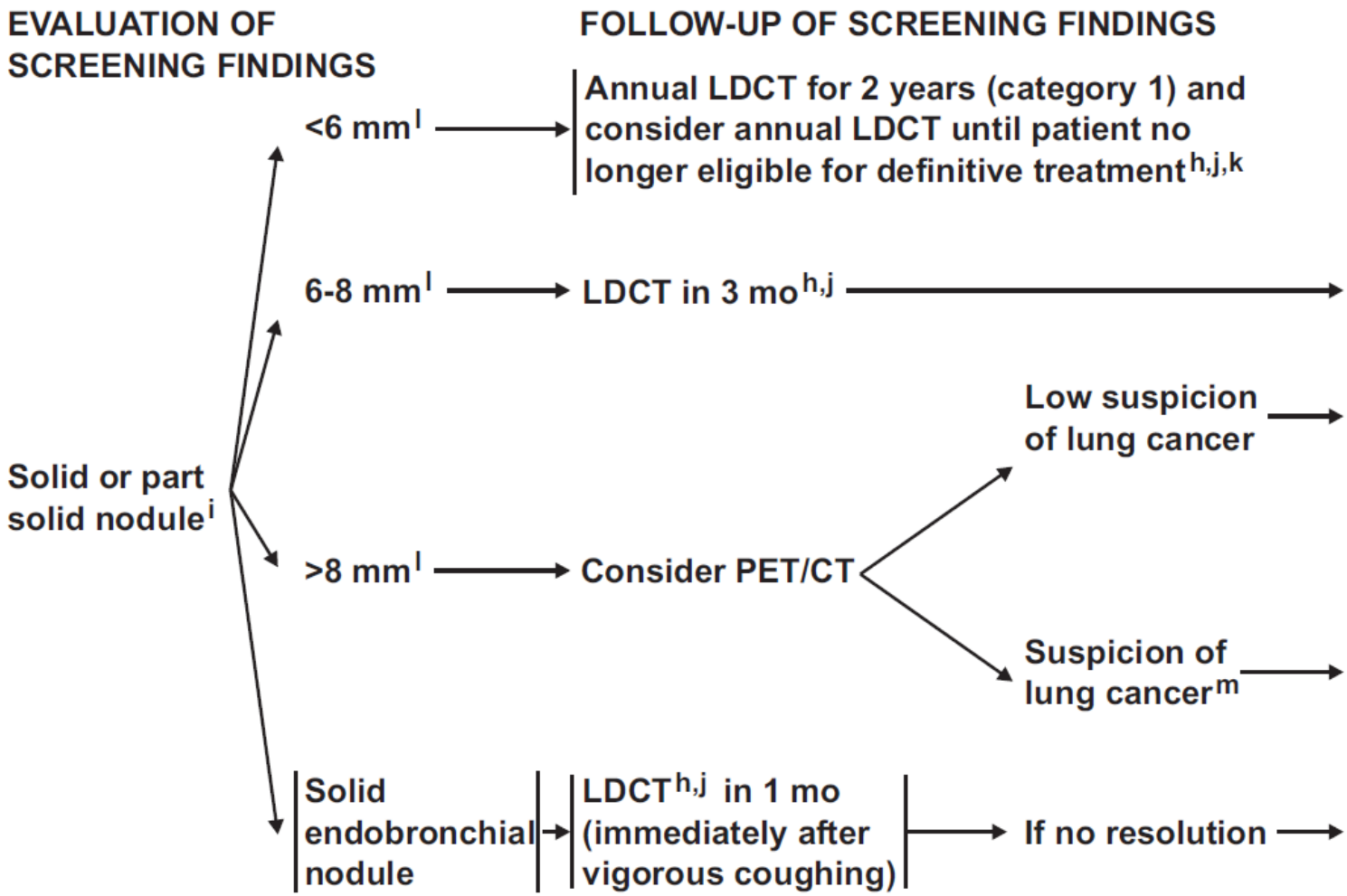

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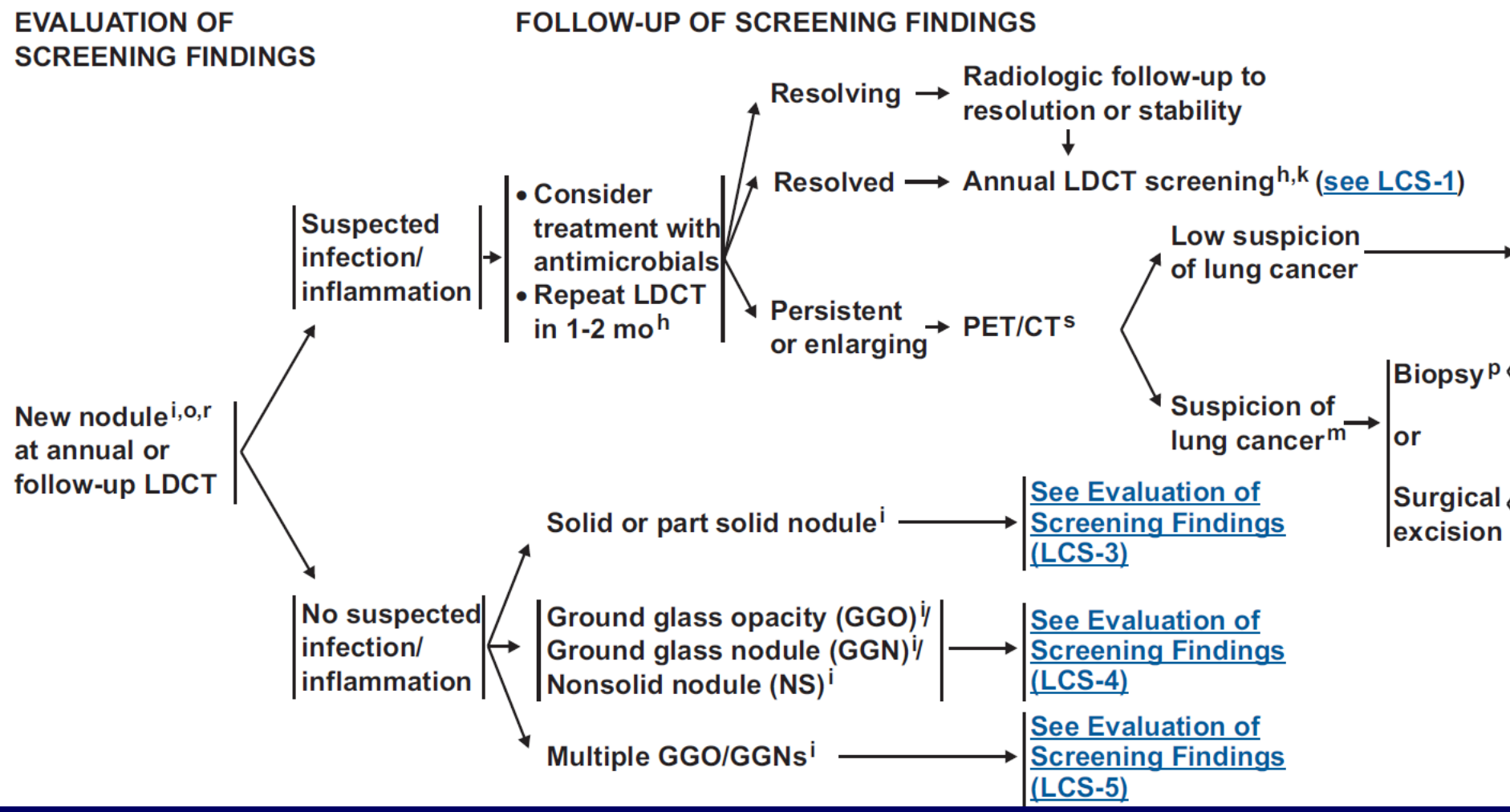

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NCCN Guidelines Version 1.2014
Lung Cancer Screening

RISKS/BENEFITS OF LUNG CANCER SCREENING*

RISKS

- Futile detection of small aggressive tumors or indolent disease
- Quality of life
  - Anxiety of test findings
- Physical complications from diagnostic workup
- False-positive results
- False-negative results
- Unnecessary testing and procedures
- Radiation exposure
- Cost
- Incidental lesions

BENEFITS

- Decreased lung cancer mortality
- Quality of life
  - Reduction in disease-related morbidity
  - Reduction in treatment-related morbidity
  - Improvement in healthy lifestyles
  - Reduction in anxiety/psychosocial burden

Shared decision-making