



# QUANTITATIVE IMAGING WORKSHOP XVII:

*Leveraging CT to Accelerate Detection of Lung  
Cancer, COPD and Cardiovascular Disease*

October 28-30, 2020 | Virtual



# Overview: QIW XVII

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- Professor, Rush University
- Associate Director, Institute for Translational Medicine
- Co- chair, Small Nodule Profile, QIBA
- Vice Chair, Scientific Director, Prevent Cancer Foundation
  
- No relevant conflicts of interest

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# Leveraging CT ...

- Vision of QIW-Leveraging Early Thoracic Imaging for either early detection or response assessment to catalyze better outcomes in early thoracic disease management
- Start with lung cancer due to ELCAP, NLST, NELSON data
- Move to other major tobacco-related diseases routinely visualize on thoracic CT done for lung cancer screening
  - + Coronary artery disease
  - + COPD spectrum

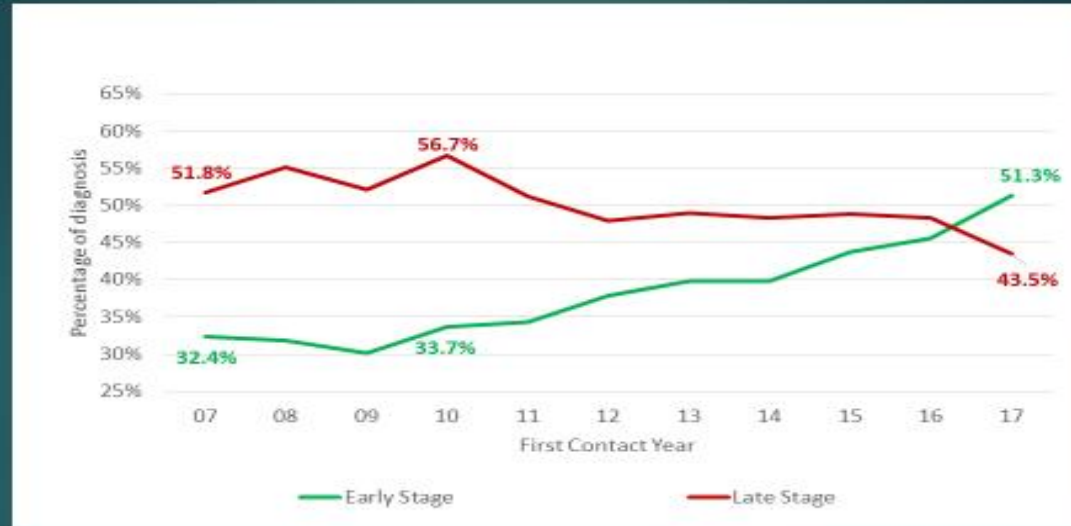


# Status of Lung Cancer Screening

- Mature follow-up from 2 definitive RCTs validate that LDCT saves lives with modest harms (NLST and NELSON)
- Additional support from mature international studies suggest additional mortality reduction accrues to screenees with ongoing annual screening
- Efficiency of CT screening work-up improved with integration of volumetric assessment of detected lung cancers as per NELSON and UKLS
- Quality measures are being developed and validated to ensure robust analysis of change to support annual screening (QIBA Conformance Process)

# Stage Shift in Screening Referrals in NYC

## Lung Cancer Stage Distribution by Year at Mount Sinai



Center for Thoracic Oncology



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# Structure of Workshop

## Blocks Topics\*

- 1) Introduction-Award-Plenary Address
- 2) ACS Roundtable/QIBA Metrology Imaging
- 3) Insuring Health Equity with Early Lung Cancer Innovations
- 4) Thoracic Imaging Lung Cancer/ COPD Interface-Clinical
- 5) Thoracic Imaging Lung Cancer/ COPD Interface-Imaging Optimization
- 6) ELCART (Early Lung Cancer Action Research and Therapy) Status and Plans
- 7) Strategy for Incentivizing Lung Cancer Uptake

*\* Breakout sessions daily at 11AM for an hour*

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**QUANTITATIVE  
IMAGING  
WORKSHOP**  **prevent  
cancer**  
FOUNDATION

# Promoting Trust Between Patients and Physicians in the Era of Artificial Intelligence

- *Trust*
  - *Competency*
  - *Motive*
  - *Transparency*

**“By affirming the foundational importance of trust to health outcomes and engaging in deliberate systems transformation, the benefit of AI could be realized while strengthening patient- physician (subject-clinician) relationships.”**



# Ensuring Equity in Access to Screening Benefit

- Leveraging screening/ advanced computational approaches to manage personalized management and to extend screening services to all, especially vulnerable populations
- Develop screening and related tools with input from vulnerable populations

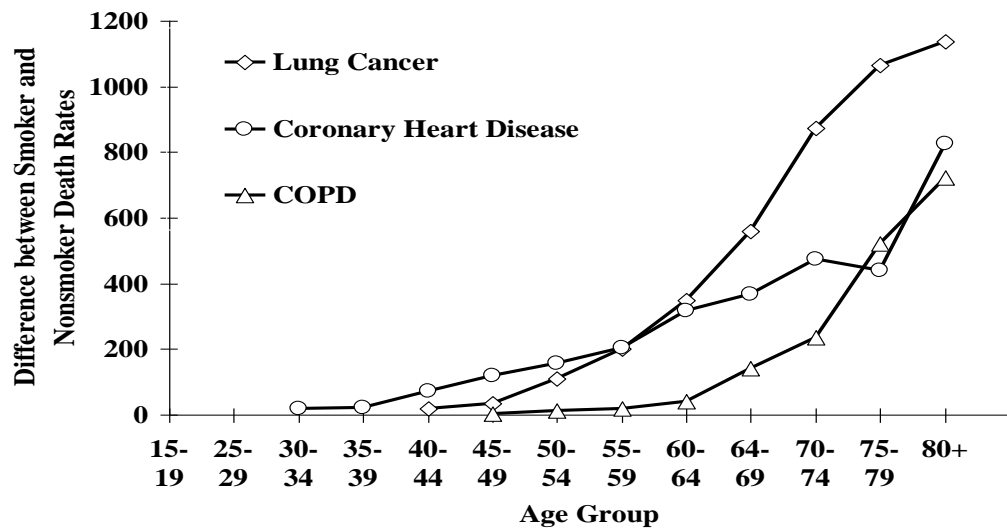


# Thoracic CT routinely detects evidence of significant lung injury

- Systematic characterization of specific, significant lung injury will assist consistent detection and also will facilitate defining effective interventions to intercept the clinical progression of these entities
- Expert advice may define interventions that may be beneficial now as well as to recommend specific research opportunities to evolve new tailored preventive measures for specific findings such as more intensive smoking cessation approaches, enhanced physical activities directed at early pulmonary rehabilitation, improved diet for lung cancer prevention, more tailored respiratory vaccination approaches or the use of aerosol steroids to pre-empt emergency hospitalization for COPD progression

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## Cause Specific Mortality Rates

*CPSII Data, Thun et al. 1997*

- CAD, Lung Cancer, COPD account for 44% of the mortality from the top 25 causes of premature death
- Lung cancer accounts for only 26% of this mortality burden
- To address NCD Crisis we need integrated care of all thoracic tobacco-induced diseases

Mulshine JL Am J Publ Health, 10, 2018

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# Advantages of Treating Screen-detected Lung Ca

- The smaller-volume screen-detected lung cancers allow more limited thoracic resections resulting in quicker surgical recovery with lower hospitalization costs
- With progress in early lung cancer drug trials (ADAURA), systematic approach to prospectively identifying “aggressive” screen-detected lung cancer may further enhance screening mortality benefit for Stage IA patients

# Incentives to Foster Screening Dissemination

New patterns of federal reimbursement have supported other cancer screening services and that approach may also assist in the quality as well as the uptake rate in implementing lung cancer screening



# Breakout Topics

- I Defining and Managing CT Screening Findings of Early Lung Diseases
  
- II Approach to Advancing Combined Modality Therapy for Early Stage Screen-Detected Disease— Adjuvant/ Neoadjuvant Therapy

# Goals for Breakouts

- What gap have we defined that must be addressed for the field to progress?
- What emerging technology or other innovation provides a strategic opportunity for progress?
- How can screening implementation be simplified or quality assured to reduce the burden of implementation while achieving optimal clinical benefit?
- What are key goals for the coming year?