

QUANTITATIVE IMAGING WORKSHOP XX:

*Annual chest CT screening—visualizing the
full impact of 20-plus years of smoking*

November 2-3, 2023 | Virtual

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kV 120
mA 250
Medium Body
5.000ms/55.00 1.375
Tilt: 0.0
0.6s /HE 11:28:38/03.21
V:350 L:40

LightSpeed VCT SYSWCT
Ex: 15216
Sp: 4
SN 12.75
In: 5+C
DFOV 33.6cm

kV 120
mA 250
Medium Body
5.000ms/55.00 1.375
Tilt: 0.0
0.6s /HE 11:28:38/03.21
V:350 L:40
P 143
LightSpeed VCT SYSWCT
A 144

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Goals of Annual Chest CT Screening: Visualizing the Full Impact of 20-plus Years of Smoking

- Routinely quantitate imaging signatures of early lung cancer on screening thoracic CT images.
- Extract additional clinically-relevant imaging information to quantitate status of lung or cardiovascular disease.
- Define technical, clinical or policy directions that ensure screening for all individuals at-risk for these diseases.
- Advocate for solutions that overcome disparities in managing clinical information detected by LDCT.

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Findings from QIW XIX

- Two recent reports analyze data from two separate large screening cohorts totaling 79,000 participants undergoing LCS found frequency of emphysema detection between 23.8% and 31%, respectively.
- Re-enforcing preventive interventions such as enhanced smoking cessation and increased physical activity that are already recommended in this setting could be evaluated for benefit in screening participants found to have asymptomatic emphysema?
- Defining an efficient road map for integration of quality quantitative evaluations into clinical workflows is critical to generate sufficient evidence of benefit to validate emerging QI tools?
- Standardizing reporting potentially with using structured data elements could accelerate the process in optimizing downstream screening management.

Mulshine JL et al. AnnalsATS Volume 20 Number 4 | April 2023

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Discerning Signatures of Thoracic Disease Progression

- Evaluating disease progression over time (Δt) elucidates critical thoracic disease drivers.
- Using large carefully curated longitudinal databases help elucidate more precisely the impact of disease pathogenesis?
- New computational analyses may enhance recognition of nuanced manifestations (informative QI signatures) of disease progression.

Tobacco Exposure, Host Response & the Big Three: Helping a Smoker Move Forward Not Despair

- Convey to screening subjects that their immune response to inhaled toxins (such as tobacco) drives progression of thoracic disease, cancer and cardiovascular disease
- Can this reality be communicated in ways that engage screening participants rather than overwhelm
- Can we develop analyses that allow screening participants to see progress in controlling the rate of progression of pre symptomatic tobacco-related thoracic disease?

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How to Leverage AI to Move This Field Forward?

- Demonstrate how quantitative imaging can improve precisions and reliability of AI.
- Clarify expectations about the potential benefits of AI in the screening setting.
- Educate about the critical need for large high quality thoracic CT imaging collections for which clinical outcomes are known to enable validation of the utility of AI tools?
- Communicate to screening subjects about compelling “use cases” to motivate data donation with AI tool validation.

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Global Cardiovascular Disease Consortium

- Five modifiable risk factors (BP, BMI, Smoking, Diabetes, Non-high-density lipoprotein cholesterol) account for 57.2% of cardiovascular risk in men and 52.6% in women.
- Also account for 22.2 % of deaths in men and 19.1 % in women.
- Most impactful risk factor is blood pressure (120/60) reduction.

Global Cardiovascular Disease Consortium. NEJM 389: 1273-1284, 2023

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Coronary Calcium & Lung Cancer Screening: What is Ready for Prime Time?

- Moving from one-time risk to monitoring CV status with annual coronary calcium evaluation on thoracic CT.
- How to move this into screening workflow: optimal acquisition, standardized reporting and harmonized management?
- What other cardiac imaging information is available and relevant?
- What clinical trial structures can accelerate evidence development?

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Intersection of Additional CT Screening Findings and Clinical Implementation: How to Effect Change

- Central role of health policy in revising screening reimbursement.
- Does evidence support meaningful benefit.
- How to efficiently prove investment yield?

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Payer Quality Metrics for Lung Cancer Screening – What Progress Is Being Made on this Essential Tool?

- Payer quality metrics generate \$billions in funds to payers each year. These include mammography, osteoporosis and other key quality metrics.
- What are the goals of payer quality metrics for LCS?
- What are some alternative metrics?
- What progress is being made in developing metrics?

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Why Is Cost-Sharing So Often Incorrectly Billed For Preventive Services?

- Although the Affordable Care Act requires coverage without cost-sharing for many preventive services for most people, cost-sharing is often incorrectly billed. This “sludge” discourages patients and providers.
- What are the rules?
- Why is there so often confusion?
- What should advocates do to fix the system?

Clinical Breakout - Thoracic CT Results: How to Simply Communicate Voluminous Amounts of Information

- How to harmonize reporting of additional imaging information that is routinely available on low dose CT beyond nodule information.
- Is there a preferred reporting structure for pulmonary and coronary findings that will harmonize communication about screening scan results beyond nodule information?
- Can a strategy to stratify information by layers for the different target audiences provide screening participants and clinicians with the relevant complementary information they require?

Thoracic CT results: How to Simply Communicate Voluminous Amounts of Information?

- If you were undergoing initial lung cancer screening how would be best to learn about not only lung cancer status, but also how smoking and aging may have affected your heart and lungs?
- How should all this information be organized so you could share with family or friends as well as care provided?
- Will all this information bankrupt me and my family?

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How Do We Frame the Screening Conversation?

- How to communicate results in productive rather than off-putting fashion?
- What are critical considerations in communicating such information relative to ongoing annual follow-on imaging results?
- How to partner with the screening participant and other relevant stakeholders to support transitioning from disease management to proactive personalized preventive management?

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Technical Breakout - Acquiring Screening Thoracic CT Information for Optimal QI Interrogation of Tobacco-Injury

- Session will review the status of the technical white paper on imaging low dose CT screening scans to optimize acquiring quantitative pulmonary information.
- Discussion will also address more complete data extraction from thoracic CT screening images to reliably and precisely monitor disease and health status in screening setting where imaging technology and analysis tools such with AI continue to rapidly evolve?

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The Workshop Exists Because of a Dedicate Community Which We Now Acknowledge

- Prevent Cancer Foundation & American Lung Association
- Bristol Myers Squibb, GO2 Foundation
- Dedicated Steering Committee
- Accomplished Workshop faculty
- Committed Workshop Staff, including the gracious efforts of Adrienne Harkness and Liz Hall
- The talents of BlueRidge Event Production
- All Workshop participants

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