The National Photonics Initiative presents:

Achieving the Goals of the National Cancer Moonshot through Adoption of New and Enhanced Technologies and a Transformed IT Health System

Thursday, June 30 at 2pm EDT

Presenters

Tom Baer - Chairman, National Photonics Initiative Cancer Moonshot Task Force

Lauren Leiman - Senior Director for External Partnerships, Cancer Moonshot Task Force, Office of the Vice President

Carolyn (Bo) Aldige - President and Founder, Prevent Cancer Foundation

Shandi Barney - Vice President and Sector Lead, Radiation Therapy, Advanced Medical Technology Association (AdvaMed)

James Mulshine - MD, Acting Dean, Graduate College, Rush University

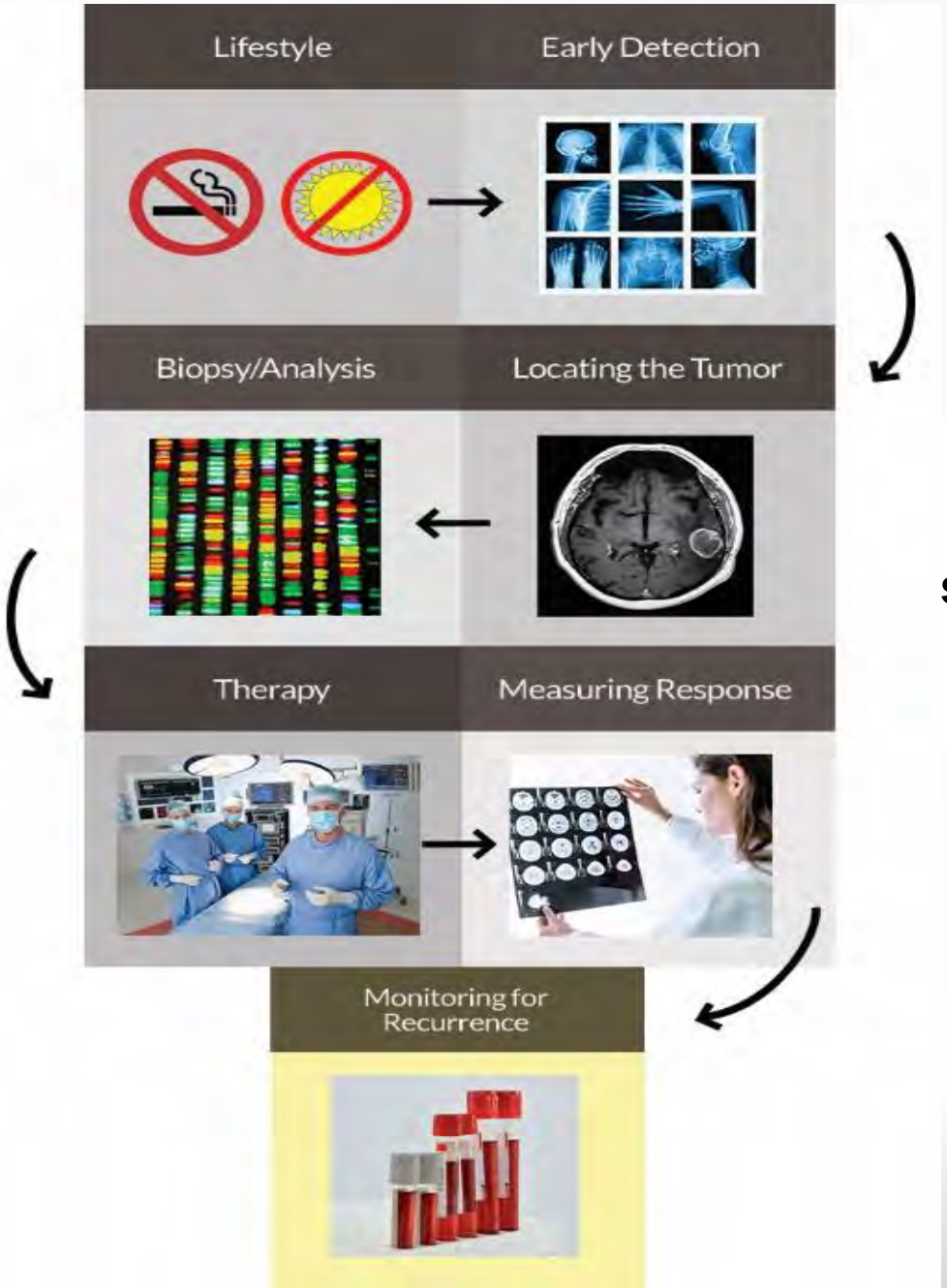
Joelle Fathi - Program Director, Swedish Tobacco Related Disease and Lung Cancer Screening Program, Swedish Cancer Institute

Jerry SH Lee - PhD, Deputy Director for Cancer Research and Technology Cancer Moonshot Task Force, Office of the Vice President

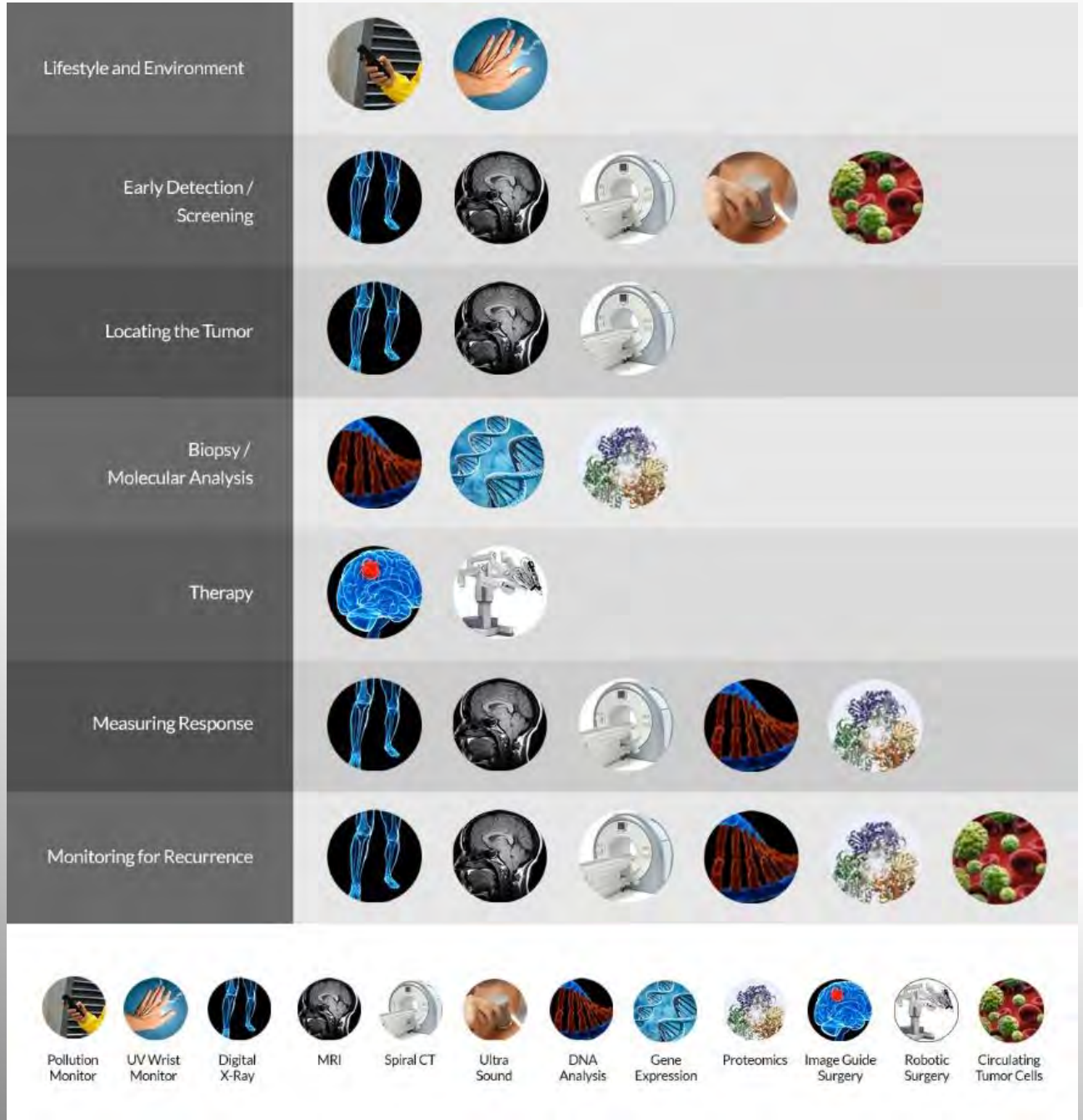
Lauren Leiman
Senior Director for External Partnerships, Cancer Moonshot Task Force, Office of the Vice President

Tom Baer

Chairman, National Photonics Initiative Cancer Moonshot Task Force



Technologies impact patients across the cancer treatment spectrum from prevention and early detection to treatment



Examples of technologies that could significantly improve outcomes in the cancer management

Carolyn (Bo) Aldige
President and Founder,
Prevent Cancer Foundation

prevent cancer FOUNDATION

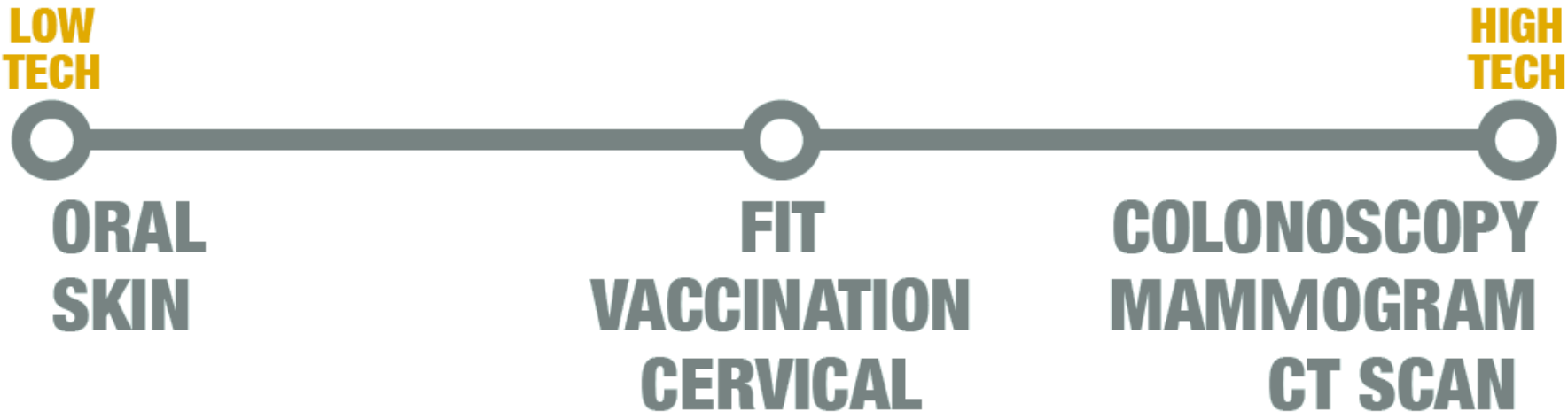
SEVEN steps to cancer prevention

1. Don't smoke tobacco
2. Protect your skin from the sun
3. Eat a healthy diet
4. Maintain a healthy weight and be physically active
5. Avoid risky behaviors
6. Get immunized (HPV & hepatitis B)
7. Know your family medical history and get regular cancer screenings.

www.PreventCancer.org

prevent cancer FOUNDATION

INTERVENTIONS



www.PreventCancer.org

Shandi Barney

Vice President and Sector Lead, Radiation Therapy, AdvaMed

The value of medical technology in the fight against cancer

- The medical technology industry plays a vital role in all stages of cancer care including:
  - Disease research and drug development, screening, diagnosis, staging and prognosis, therapy selection, therapy and disease monitoring
- Medical technology allows for treatments and cures that are less invasive and more precise
- Appropriate use of diagnostics, imaging and radiation therapy ensures more effective allocation of health care spending

Diagnostics and imaging

- Diagnostic tests are the forefront of medical innovation, providing vital insights into patient health
- Diagnostics provide critical insight at every stage of cancer care
  - Prevention, detection, diagnosis, treatment and successful management
- Diagnostic testing can reduce costs by catching cancer in its early stages, reducing unnecessary treatments and potentially preventing reoccurrences
- The goal of diagnostics is to match the right patient with the right treatment at the right time
  - i.e. companion diagnostics

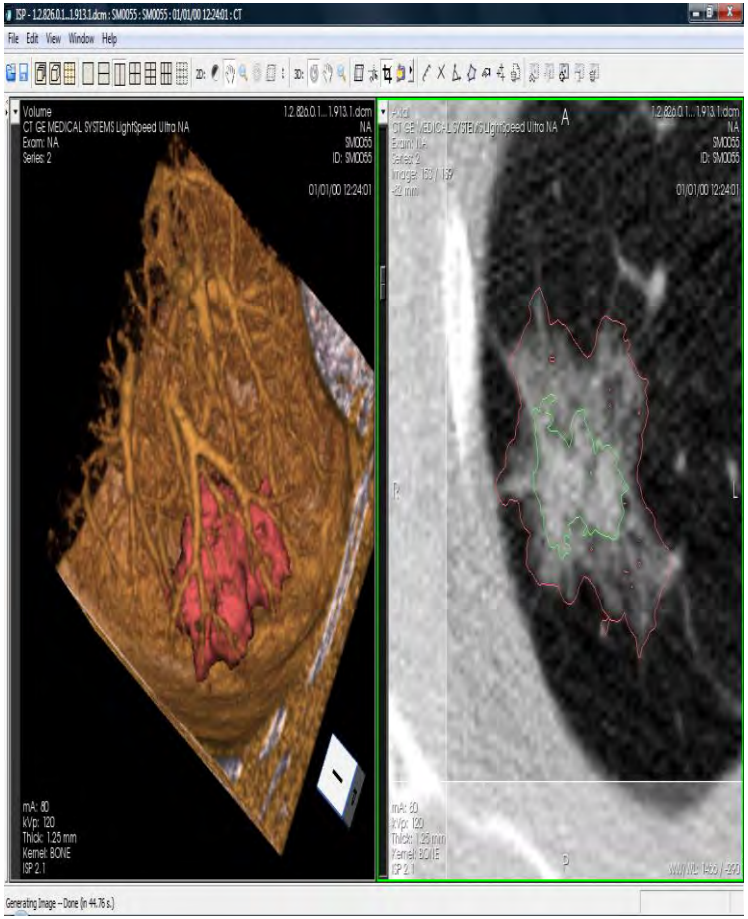
Radiation therapy

- RT provides targeted, localized tumor control, preserving healthy tissues and organs
  - Treatments continue to be more precise reducing the chance of complications, readmissions and reoccurrences
- RT can be used alone or in combination with other treatments and is one of the most common cancer treatments.
  - 50%-60% of all cancer patients receive RT at some point during their care
- RT can be curative or palliative with relatively few side effects
- RT comes in many different forms: brachytherapy, 3D conformal, IMRT, IGRT, radiosurgery and proton therapy

James Mulshine
MD, Acting Dean,
Graduate College,
Rush University

Cancer Moonshot: Enabling Early Cancer Detection Using Quantitative Imaging
Case Study- Detecting Lung Cancer Early

- Lung cancer constitutes about 30 percent of cancer deaths due to late detection
- Low dose CT imaging (LDCT) regularly detects early, localized cancers - significantly reducing lung cancer mortality
- LDCT imaging acquires 3-D datasets which can be compared over time using software tools that can characterize changes in size of suspicious lung nodules; results in 95 percent sensitive and 98 percent specific lung cancer detection
- Full thorax imaging datasets in high risk smoke exposed populations can also allow post hoc image analysis for co-morbid conditions (i.e. COPD and CAD) that could influence cancer management



Cancer Moonshot: Developing Quantitative Imaging as a Scalable Platform to Harness Massive Data for Enabling Curable Cancer Outcomes

- **Infrastructure is required to store and distribute full imaging datasets from screening visits** to reliably compare nodule volume imaged over time intervals and to ensure all screening is performed with properly functioning equipment and effective image acquisition settings so that observed image changes are due to clinical factors related to the cancer and not measurement artifacts

- **Use of reference objects (phantoms) in the field of view and analyzed in real-time (using cloud-based monitoring) can allow for unprecedented precision** in quantitative measurements of disease signatures with existing tools and can be scaled at sustainable cost

- **National cloud-based infrastructure could ensure consistent quality and universal access not only for quantitative imaging but for other emerging precision cancer medicine tools** (genomics, proteomics, etc.) providing a complementary portal to existing electronic health care records to rapidly enable 21st century cancer care for all Americans in a feasible, effective, economical and flexible approach

Joelle Fathi

DNP, MN, BSN, ANP-BC, CTTS

Swedish Tobacco Related Diseases and Lung Cancer Screening Program

Swedish Cancer Institute, Seattle

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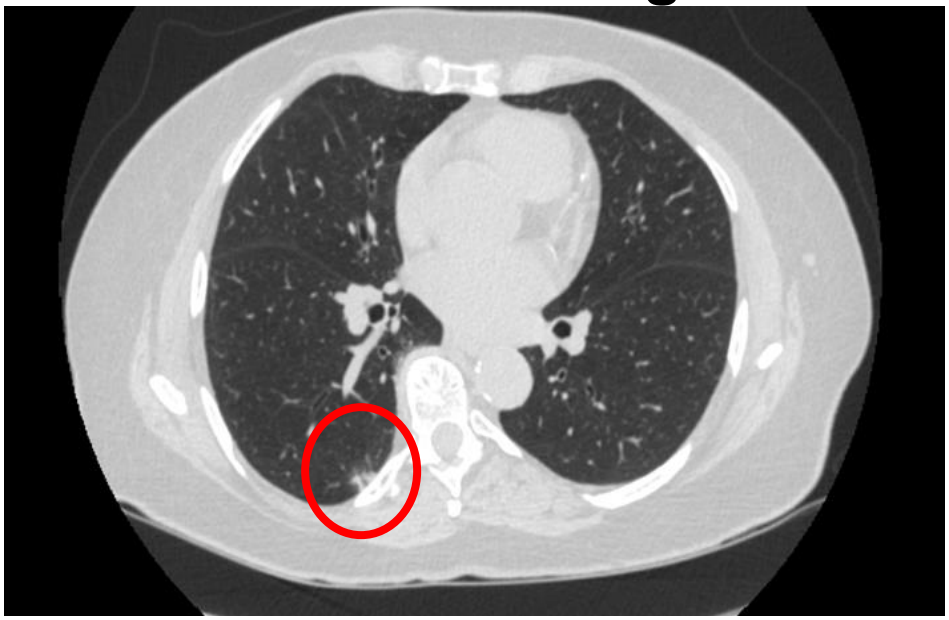
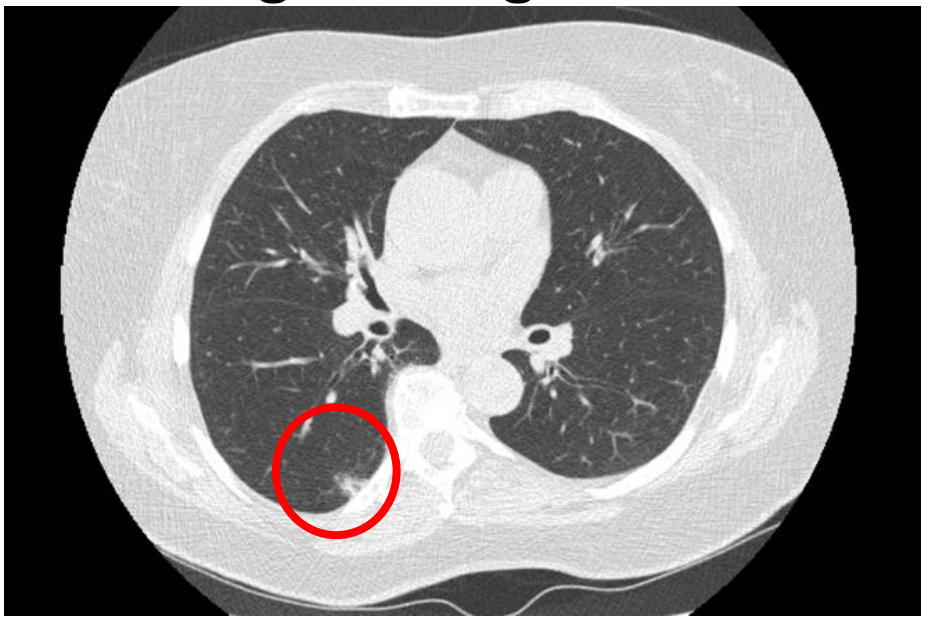
Technology Facilitates Early Detection of Cancer, Patient Engagement and Compliance

Initial Finding



Stage I Lung Cancer



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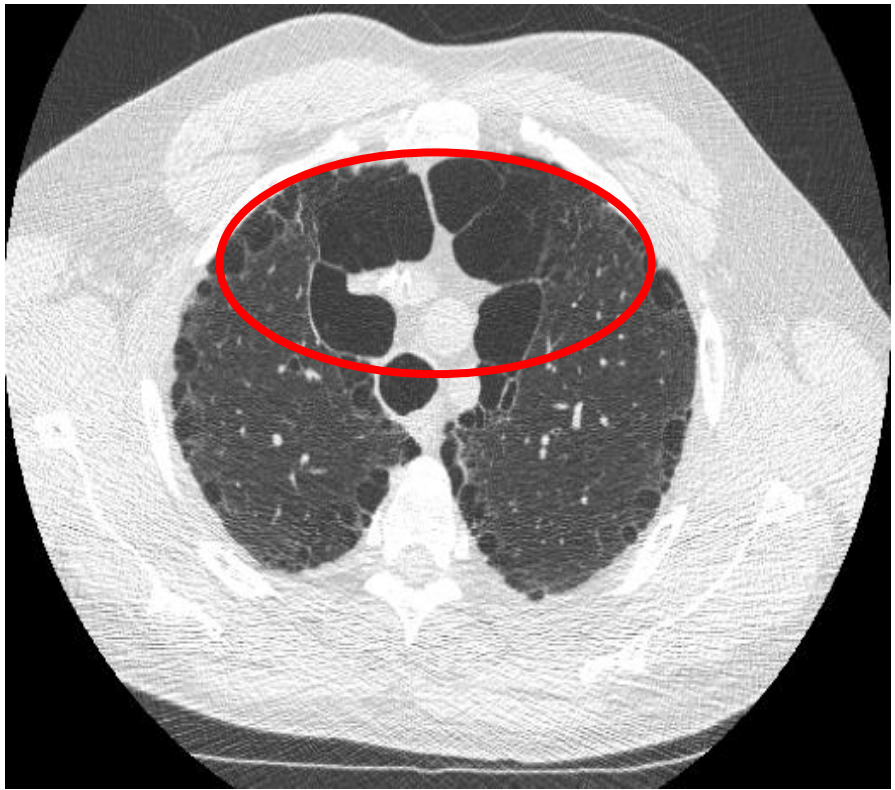
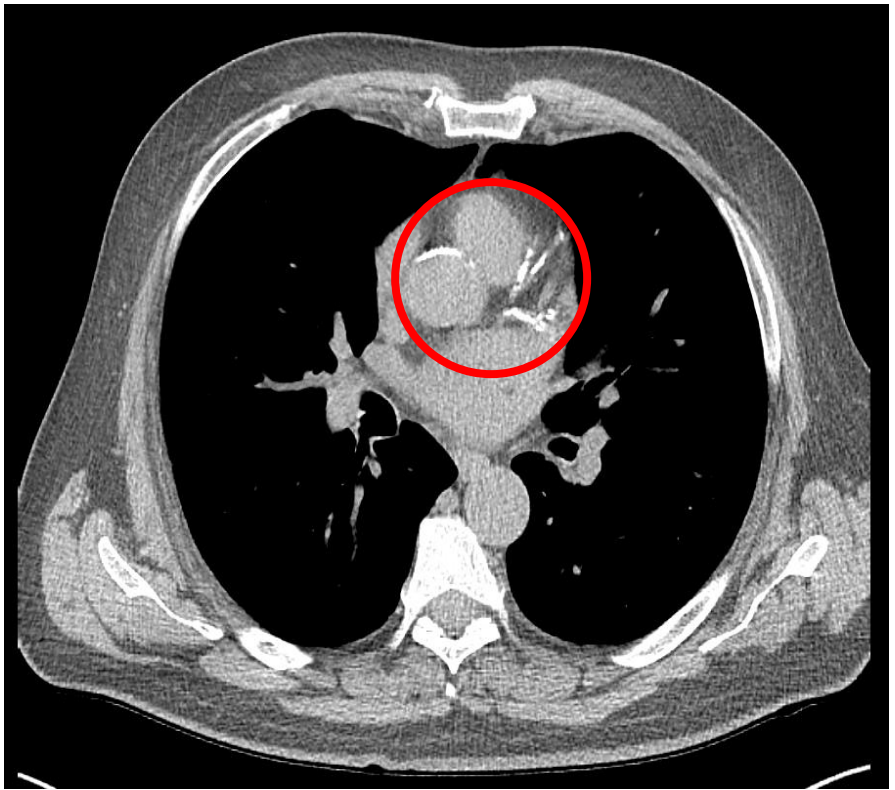
Screening Technology: A Means for Detection of Disease and Modifiable Risks

Emphysema



Coronary Disease



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Seeing is Believing:
Imaging Influences Behavior and Lifestyle Changes

- The ability to see abnormalities creates teachable moments for patients
- Treatment methods for tobacco use are well established, evidence based and deliver the greatest chances of long-term quit success and cancer risk reduction
- Healthcare providers have a fundamental responsibility and opportunity to treat tobacco dependence in the setting of cancer screening and cancer care
- "Tobacco treatment should be delivered as compassionately and aggressively as cancer care"

Hanna, N., Mulshine, J., Wollins, D., Tyne, C. Dresler, C, ASCO, 2015

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Technology Facilitates Reach to Providers and High Risk Patients in Remote (Rural) Areas

- **Provider-to-provider consultation via audio-video conferencing i.e. telehealth encounter**

- **Improving patient outcomes through critical access to expert cancer care, new technology, clinical research trials and medical advancements via remote telehealth encounters**

Jerry Lee

Deputy Director for Cancer Research and Technologies for the Cancer Moonshot Task Force, Office of the Vice President

Contact Us

Emily Pappas – National Photonics Initiative

External Relations

202.448.5208

epappas@podesta.com

www.LightOurFuture.org