

Lung Cancer

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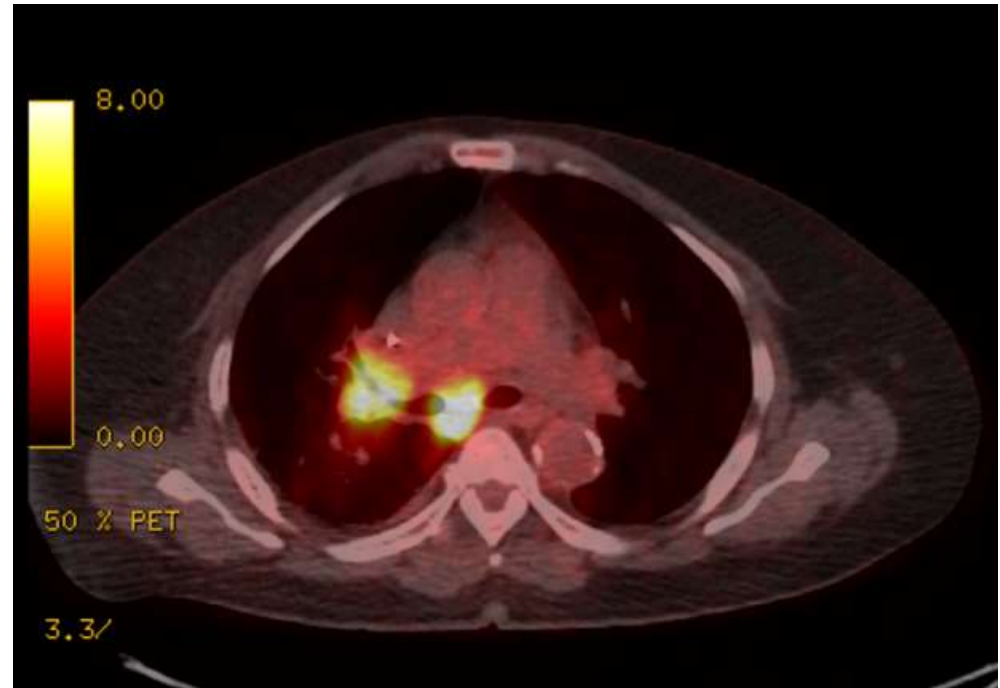
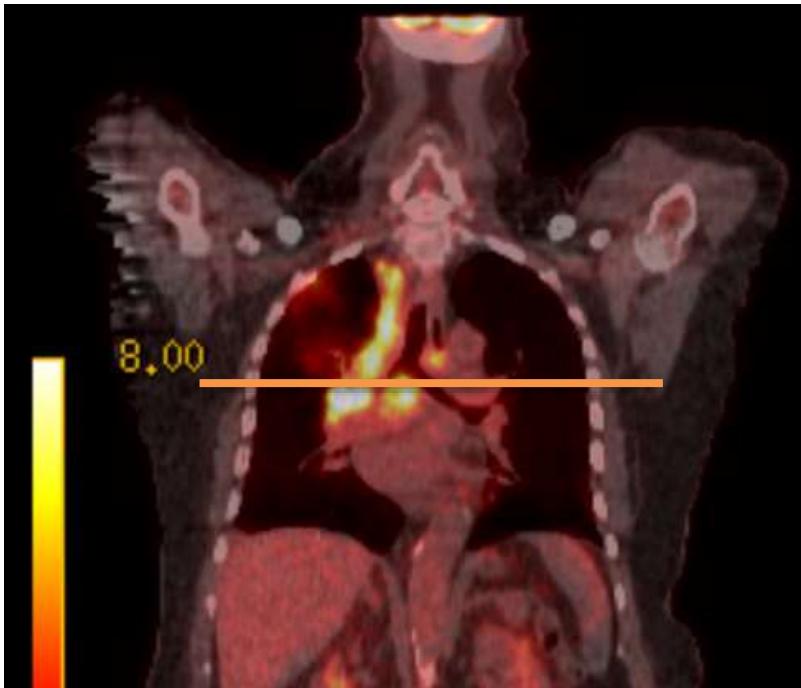
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CANCER SURVIVOR DAY

What is Lung Cancer?

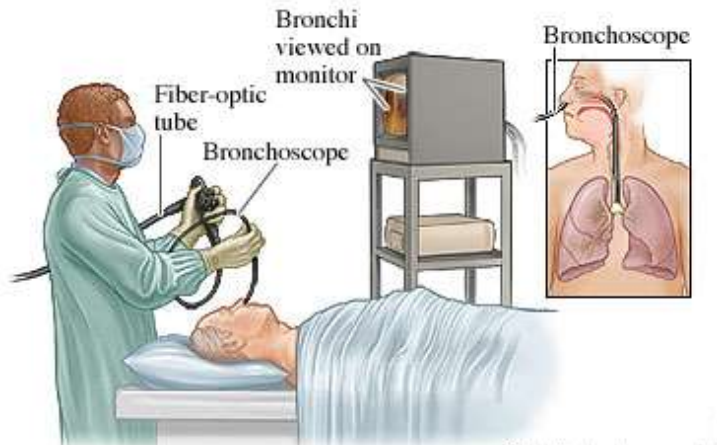
Lung cancer occurs when abnormal cells grow out of control in the lung. Lung cancer can start anywhere in the lungs and spread to other parts of the body.

Mediastinal (central chest) and endobronchial cancer



Indications for Bronchoscopy

- Inspection of the airways
- Biopsy of airway lesions (endobronchial biopsy)
- Biopsy of lung lesions (transbronchial biopsy)
- Biopsy of chest lymph glands using real time ultrasound guidance (EBUS)

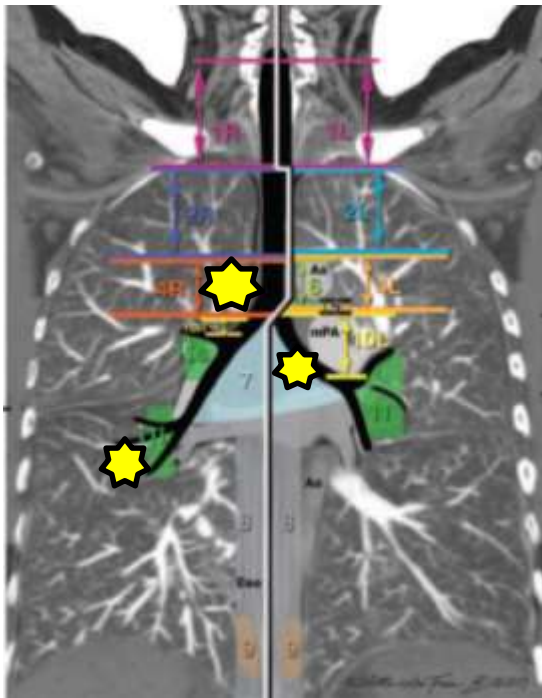


BRONCHOSCOPY TEAM

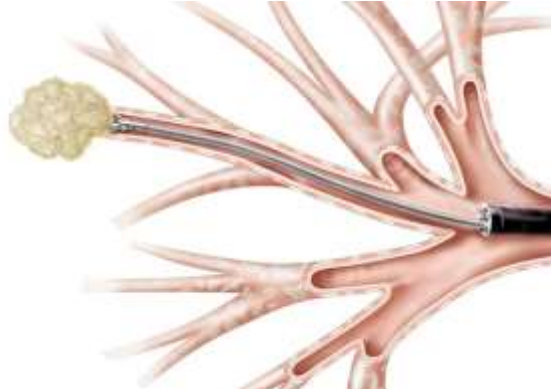
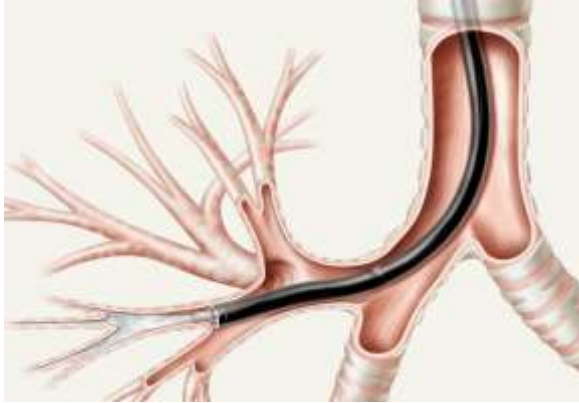


Bronchoscopist, Anesthesiologist, Nurse, Assistant, Pathologist
for review of aspirate specimens

Common locations of lung cancer that are targeted by bronchoscopy



1. Mass near the airway
2. Mass in the lung
3. Mass in the bronchus

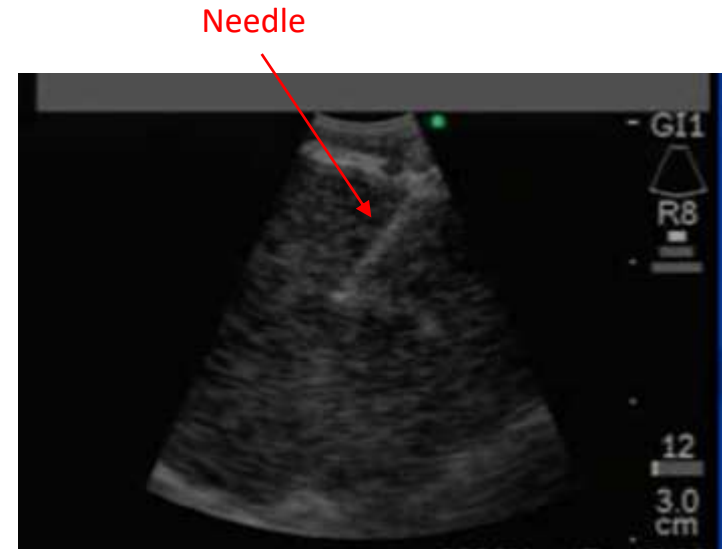
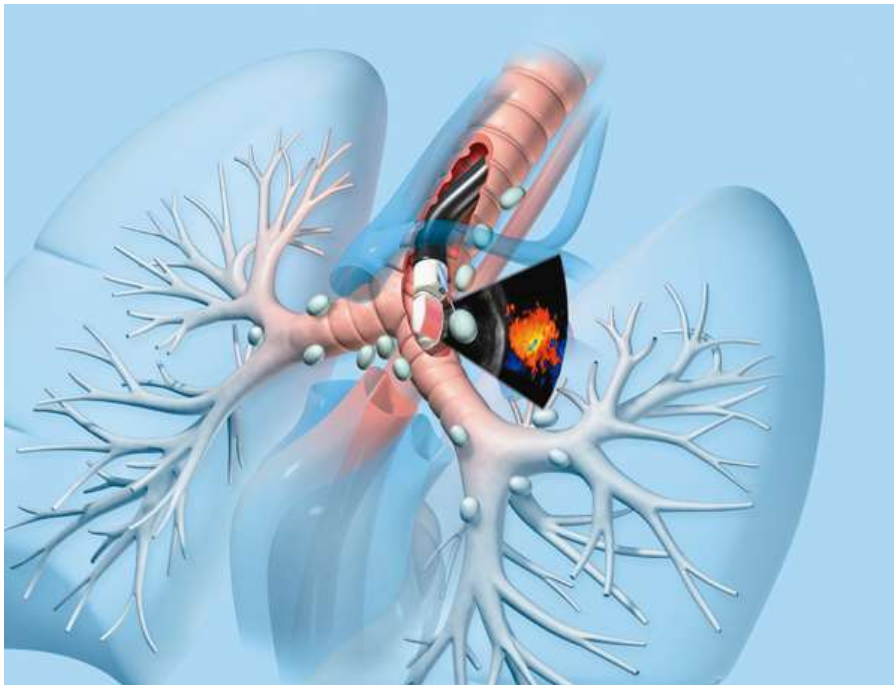


1. Lavage (BAL)
2. Brush
3. Transbronchial needle aspiration
4. Forceps biopsy

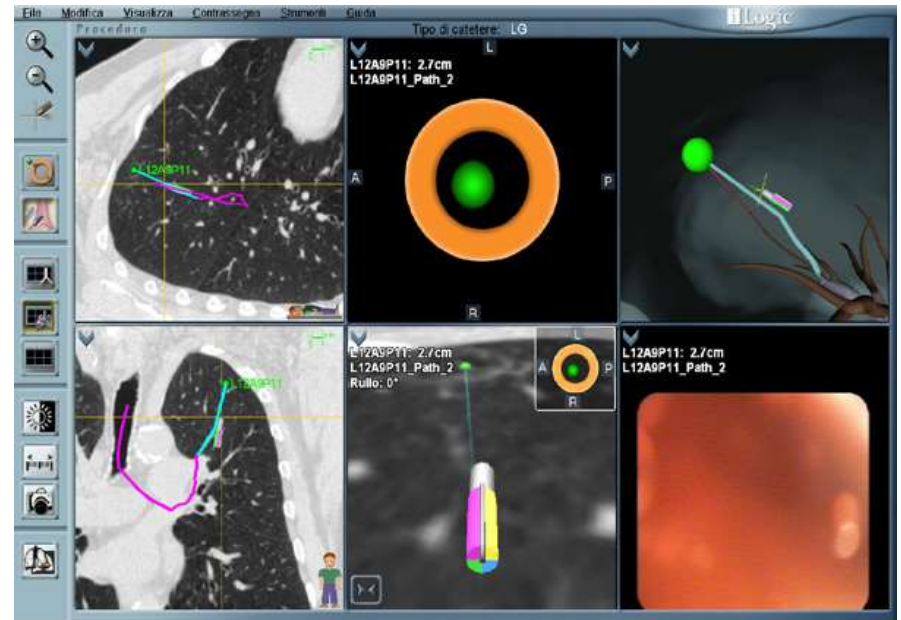
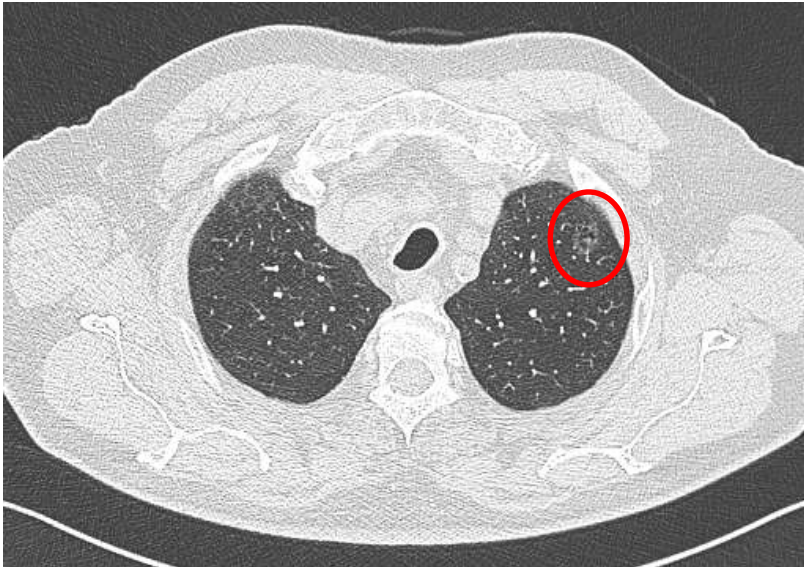
Endobronchial Bronchoscopic UltraSound (EBUS)

- EBUS is an effective, non-surgical approach to biopsy lesions in the Mediastinum (center of chest)
- Real time Ultrasound allows localization of structures (masses, cysts, lymphglands) behind the airway wall
- EBUS is useful in lung cancer staging (determine if cancer has spread to center of chest)
- Rapid onsite pathology may yield a preliminary diagnosis (cancer cells).
- Diagnostic success rate is comparable and in some cases better than surgical mediastinoscopy
- Outpatient procedure and quick recovery

EBUS (use of real time US at time of biopsy)

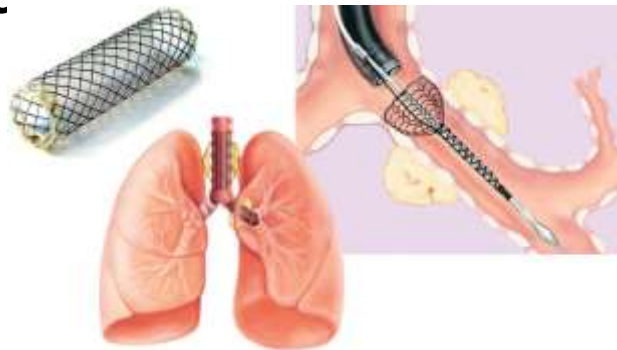


Electro Magnetic Navigational (EMN) Bronchoscopy Biopsy of small peripheral lesions



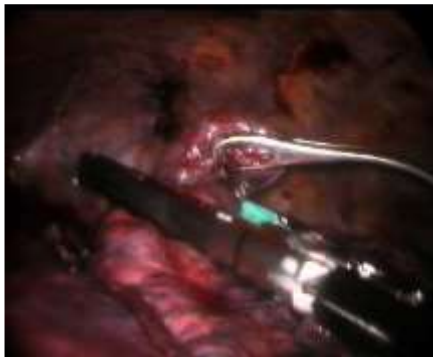
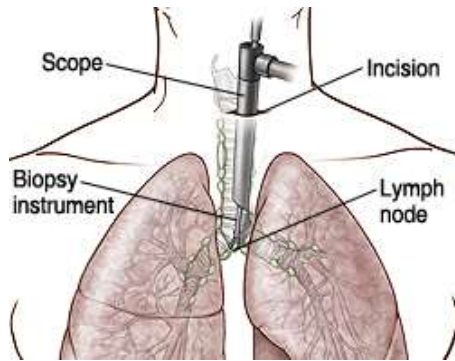
Interventional bronchoscopy

- Cryo
- Laser
- Stent



Thoracic Surgery

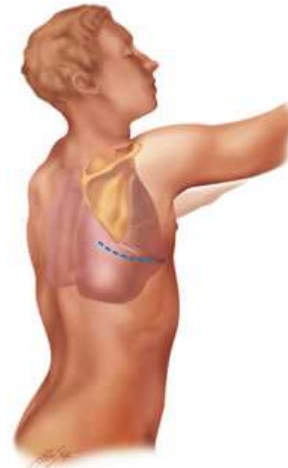
Mediastinoscopy / Sternotomy
(mediastinal mass resection or biopsy)



Thoracotomy

(pneumonectomy, lobectomy or wedge resection)

Conventional



VATS

Minimally invasive



Potential pitfalls of bronchoscopy

- Non-diagnostic results (repeat or surgery)
- Aspiration
- Vocal cord injury
- Pneumonia
- Pneumothorax (lung puncture and air leak)
- Bleeding

Health benefits of quitting smoking

20 minutes after quitting:

- Blood pressure goes down.
- Pulse rate drops.
- Body heat of hands and feet goes up.

8 hours after quitting:

- Carbon monoxide level in blood drops to normal.
- Oxygen level in blood goes up to normal.

24 hours after quitting:

- Chance of a heart attack goes down.

48 hours after quitting:

- Nerve endings in the lung start growing again.
- Ability to smell and taste gets better.

2–3 weeks after quitting:

- Blood flow gets better.
- Walking becomes easier.
- Lung strength gets better.

1–9 months after quitting:

- Coughing, sinus congestions, fatigue, feeling tired, shortness of breath all get better.

1 year after quitting:

- Risk of heart disease goes down to half that of a person who still smokes.

In 5–15 years:

- Risk of having a stroke goes down to that of a person who never smoked.
- **Risk of lung cancer is reduced by 50% when compared to a person who continues to smoke**

Resources to help you quit smoking

Attend smoking cessation classes at a KP medical center near you

- Visit kp.org/classes/mas for dates, times, and locations, or call (301) 816-6565.

Online smoking cessation class:

- Visit kp.org/webclasses to register

Wellness telephone coaching:

- Call to schedule phone sessions that are convenient for you at (866) 862-4295.

EMMI programs:

- Web-based sessions that help make facts simpler to grasp. Visit kp.org/doctor and register for “Thinking about quitting”

Community resources:

- American Lung Association at lungusa.org
- American Cancer Society at cancer.org
- CDC at cdc.gov/tobacco
- National Network of Tobacco Cessation Quitlines at 1-800-QUIT NOW
- Nicotine-anonymous.org

Online resources:

- Kp.org/quitsmoking
- Smokefree.gov (NCI)
- Quitnow.com (ACS)

Handheld applications for your smartphone

- Quitpal
- Quitnow

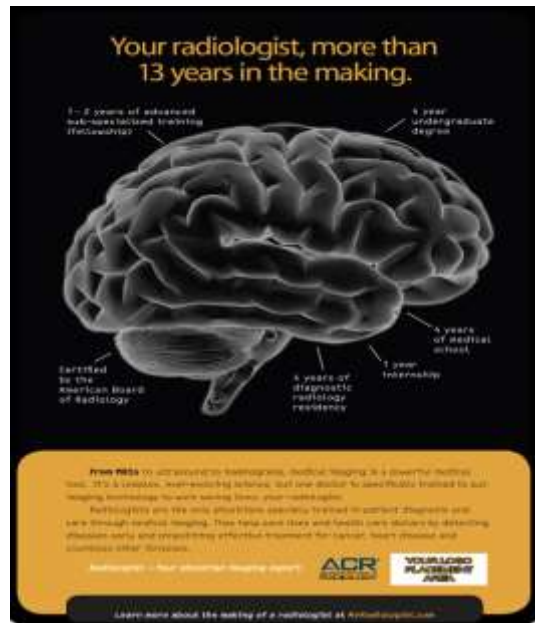
Imaging tests

- Very helpful in taking care of people/helping to diagnose cancer
- No scan is perfect
- A scan **cannot** diagnose lung cancer (need tissue sample)
- **Combine** chest x-ray and scan results with medical history, blood tests, physical examination, and biopsy

What are Imaging Tests?

- Pictures of the inside of your body
- Imaging tests help doctors:
 - Find lung cancer / cancer recurrence
 - Determine if it has spread
 - Determine if treatment is working

WHO IS OBTAINING and INTERPRETING YOUR IMAGING TESTS?

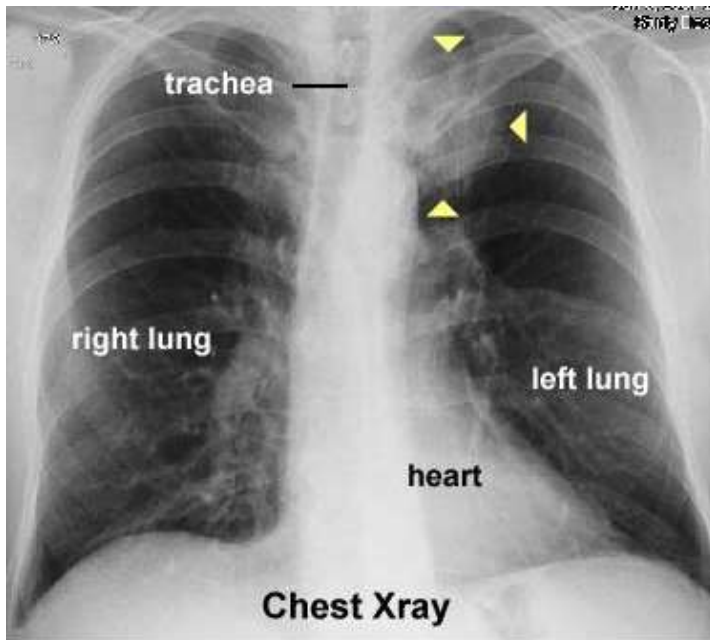


- Technologist (RT) obtains images
- Diagnostic Radiologist (MD) interprets/consults

Staging IMAGING tests

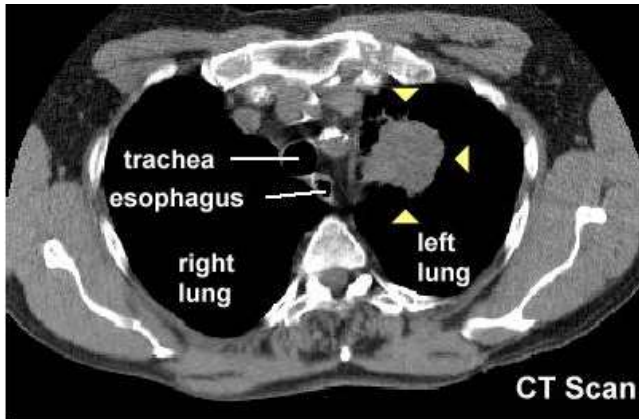
- Staging tests look for evidence that cancer has spread beyond your lungs
- Help you and your doctor determine appropriate treatment
- Not every test is appropriate for every person— talk to your doctor about what is right for you!
- Staging tests include:
 - CT scans
 - Magnetic resonance imaging (MRI)
 - Positron emission tomography (PET)
 - Bone scans

Chest x-ray



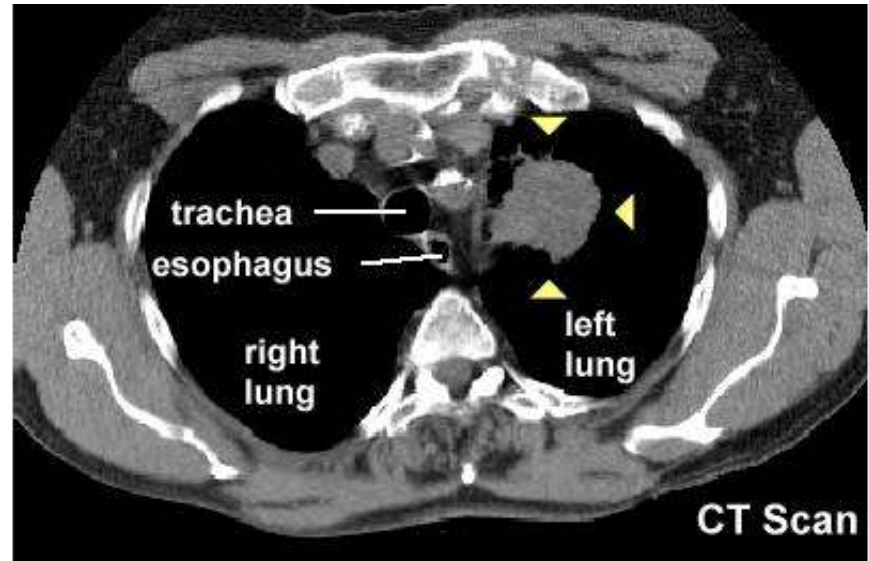
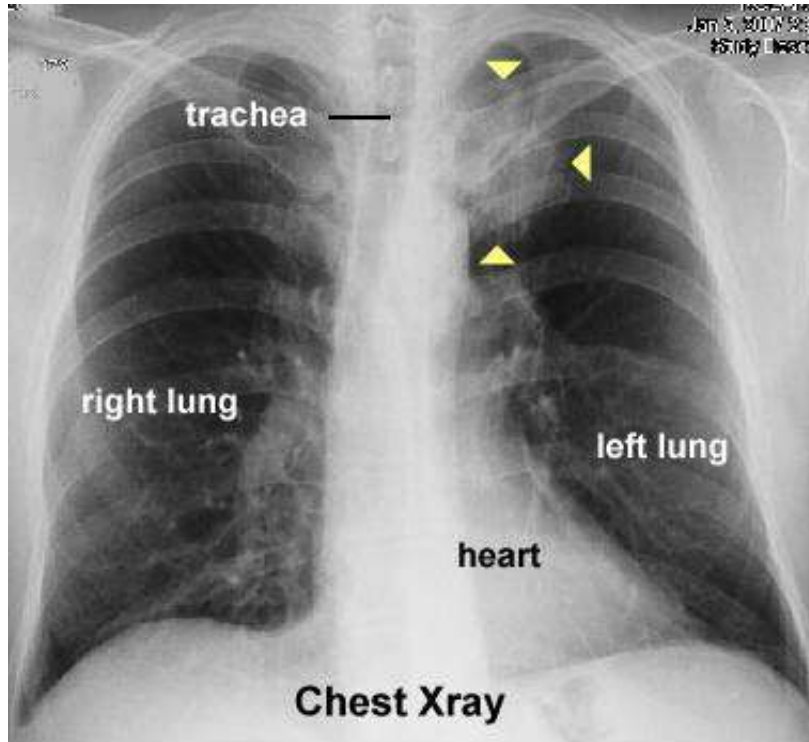
- Image of your lungs using a small amount of radiation to reveal findings, either normal or an abnormal mass or nodule

CT-Scan



Left Upper Lobe Cancer

- 3-D picture inside the body
- Reveals small lesions that X-ray may not detect
- Size and location of tumor and/or metastases, used for staging
- Sometimes 'contrast' is used, a special intravenous dye to provide better detail

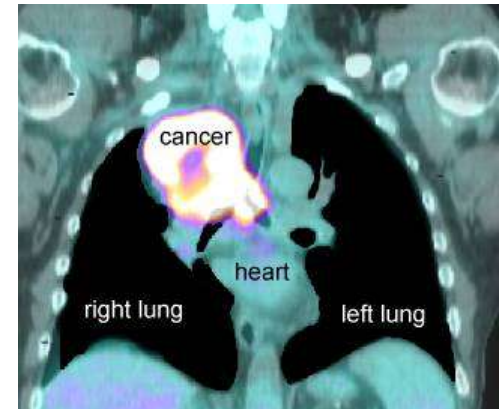


Left Upper Lobe Cancer

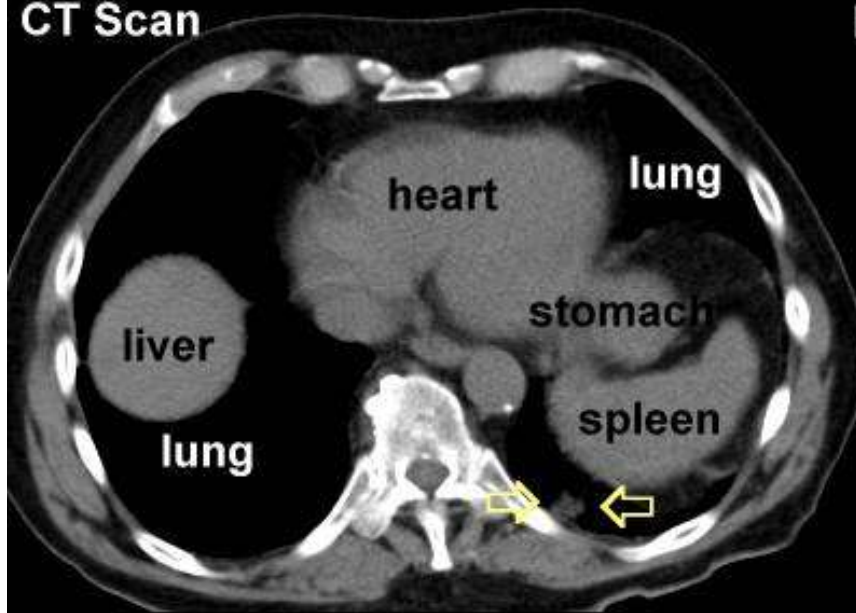
note how much more obvious the tumor is on the CT scan compared to chest Xray

Pet scan

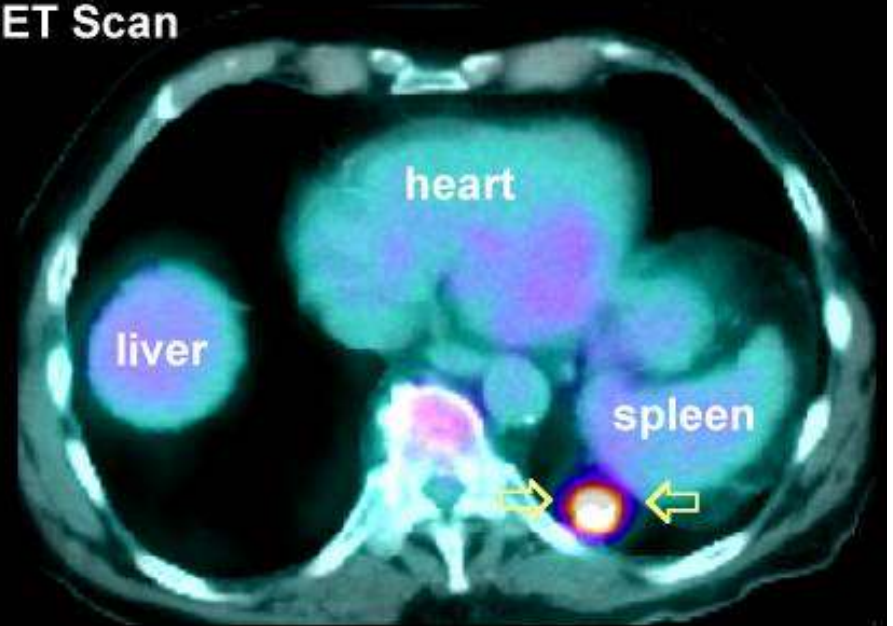
- Creates pictures of organs and tissues inside the body
 - Radioactive sugar substance
 - Cancer uses a lot of energy, more radioactivity is absorbed
 - Radioactivity shows up as a “hot spot” on image



CT Scan



PET Scan



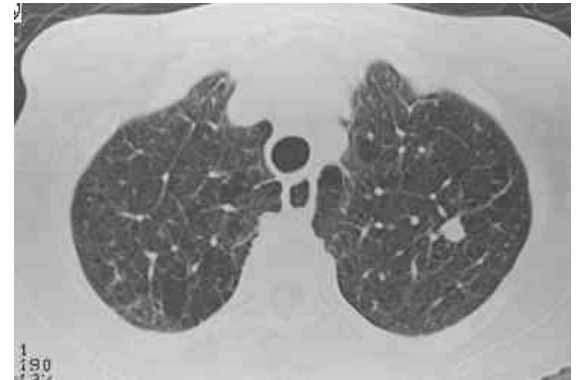
Lung metastasis difficult to see on CT but very visible on PET

Screening for lung cancer

- Usually, first screen based on symptoms
 - Worsening cough, chest discomfort, shortness of breath, others that persist, say longer than 3 weeks, particularly if symptoms persist despite treatment
- Annual screening with low-dose computed tomography (LDCT)

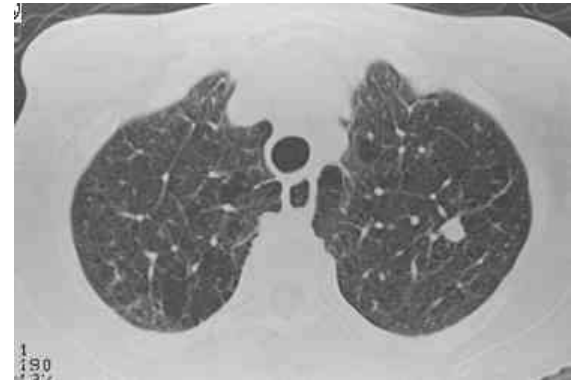
Who should be screened?

- Recommended yearly LDCT Screening for people who:
 - Have a history of heavy smoking, > 30 pack-years (more than 1 pack per day x 30 years, 2 packs a day for 15 years, or 1.5 packs a day x 20 years, etc.)
 - Smoke now or have quit within the past 15 years, *and*
 - Are between 55 and 80 years old



Found a Lung Nodule on CT ?

- Almost all small nodules (< 1 cm) are benign
- Repeat CT at regular intervals
- If nodule is
 - same or smaller-> stop checking
 - growing -> biopsy
- If a lung cancer is found, >95% are curable!



Risks of screenings

- False-positive result
- Overdiagnosis– can lead to treatment that isn't needed
- Radiation (minimal risk)

Thinking about getting screened? Talk to your doctor!

Reduce your risk from lung cancer

- Avoid smoking!
- Avoid secondhand smoke!
- Plead with friends and loved ones to quit smoking!
- If you have a heavy smoking history, ask about screening!

DEPARTMENT OF IMAGING SERVICES: THANK YOU!

- Bruce Wollman, MD Associate Medical Director for Regional Clinical Services
- Ainsley MacLean, MD and Vivek Mathur, MD Regional Medical Directors for Imaging Services
- Wilbur Chang, MD Assistant Regional Medical Director for Imaging Services
- Mohammad Malik, Regional Director for Imaging Services
- Michele Davis, Senior Manager Radiology Quality and Compliance
- Alicia McCullough, CT/MR Regional Manager
- Beth Werner, Ultrasound Service Manager
- Delena Benjamin, Diagnostic Radiology Service Manager
- Mike Ofori-Darkwa, Nuclear Medicine/PET Services Manager
- Fariba Eslamipour, Regional Mammography Coordinator
- Gunay A. Ali, Regional Mammography Coordinator

ROLE OF CHEMOTHERAPY

NON SMALL CELL LUNG CANCER

- Stage I disease > 4cm – adjuvant therapy decreased risk for recurrence
- Stage II Usually given after surgery 5-20% risk reduction
- Stage III A and IIIB given along with radiation (concurrent chemoradiation)
- Stage IV palliative chemotherapy

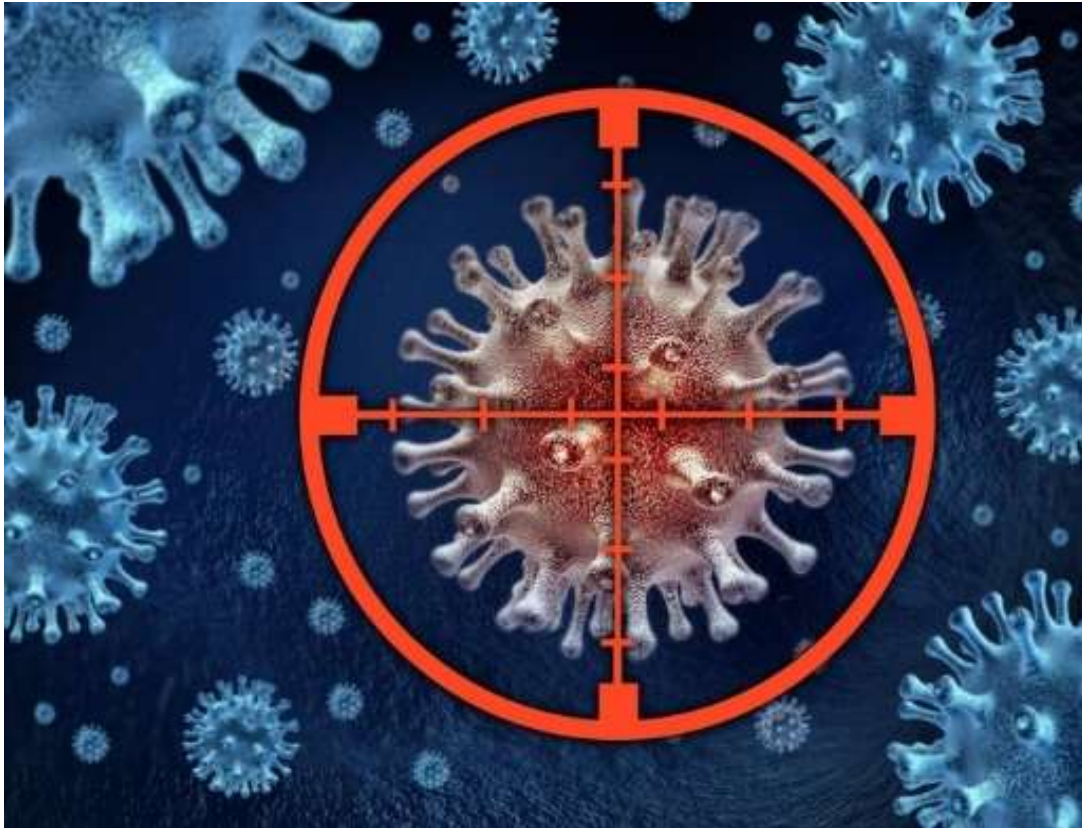
SMALL CELL LUNG CANCER

Localized – Chemotherapy and Radiation

Extensive stage – Palliative chemotherapy

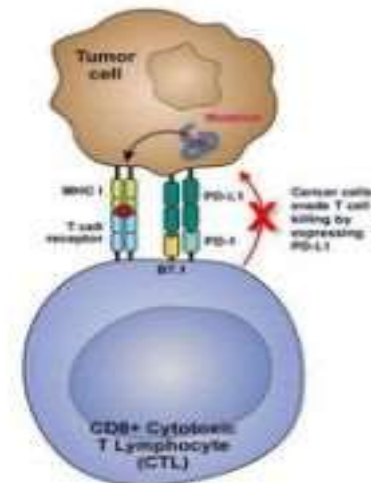


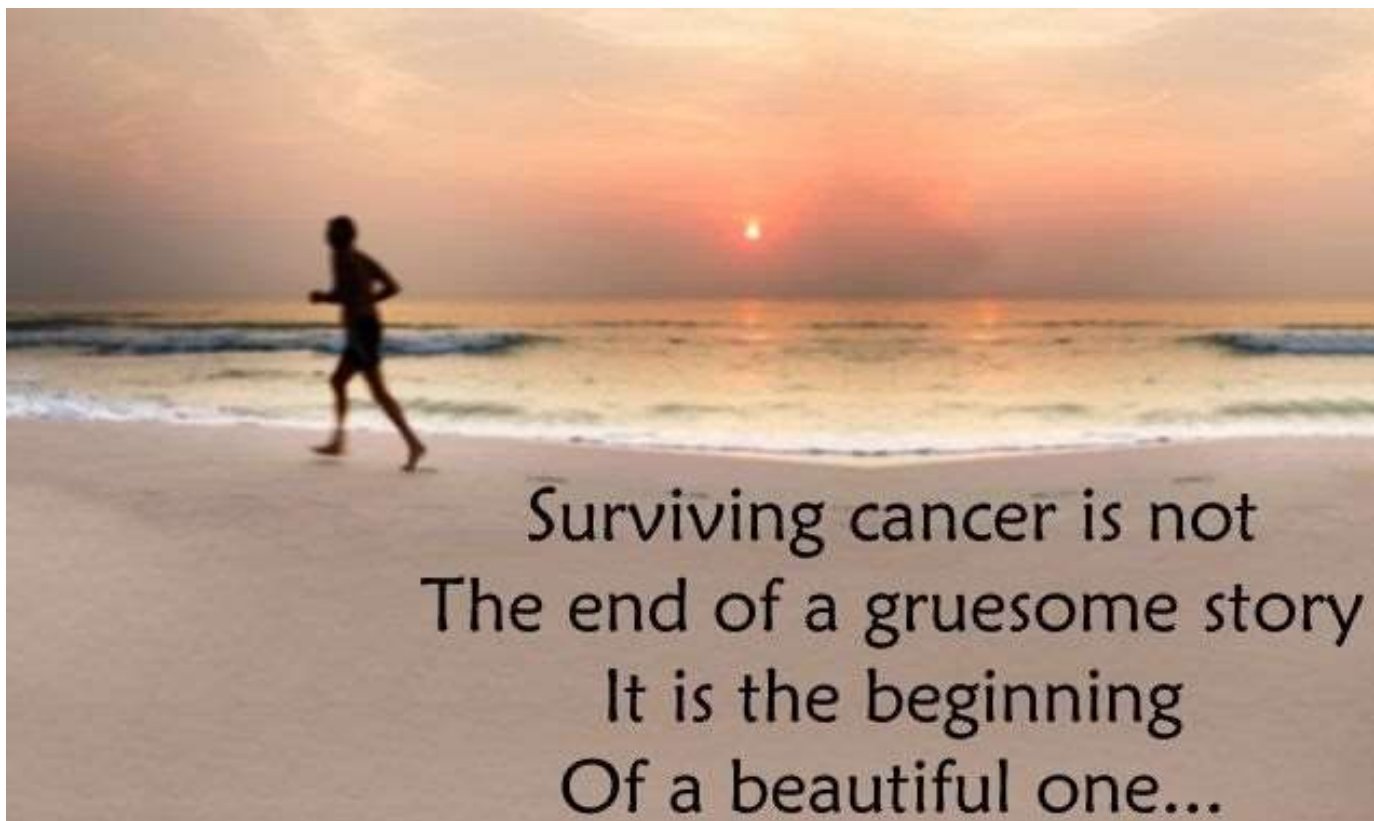




Cancer Immunotherapy

- Cancer cells have mutations that make them look foreign to the immune system
 - Once recognized, the immune system can kill cancer cells
- However, cancer cells can evade the immune system by expressing proteins such as PD-L1
- A cancer treatment which blocks PD-L1 may enable the immune system to kill cancer cells again, potentially leading to long-lasting responses





Surviving cancer is not
The end of a gruesome story
It is the beginning
Of a beautiful one...

Thank you for your time!

Any Questions?