

### Environmental/occupational causes of lung disease: models

Exposure	Disease
isocyanates	occupational asthma
asbestos	pulmonary fibrosis
chlorine gas	ARDS
high altitude	pulmonary edema
rapeseed oil	pulmonary hypertension
uranium	bronchogenic carcinoma
pigeons	hypersensitivity pneumonitis
homeless shelter	tuberculosis

### Evaluation of the patient with lung disease

---

History  
 Physical examination  
 Physiologic evaluation  
 Anatomic evaluation  
 Pathologic evaluation

The New England Journal of Medicine

**COUGH AND BRONCHIAL RESPONSIVENESS IN FIREFIGHTERS AT THE WORLD TRADE CENTER SITE**

DAVID J. PREZANT, M.D., MICHAEL WEIDEN, M.D., GISELA I. BANAUCH, M.D., GEORGEANN MCGUINNESS, M.D., WILLIAM N. ROM, M.D., M.P.H., THOMAS K. ALDRICH, M.D., AND KERRY J. KELLY, M.D.

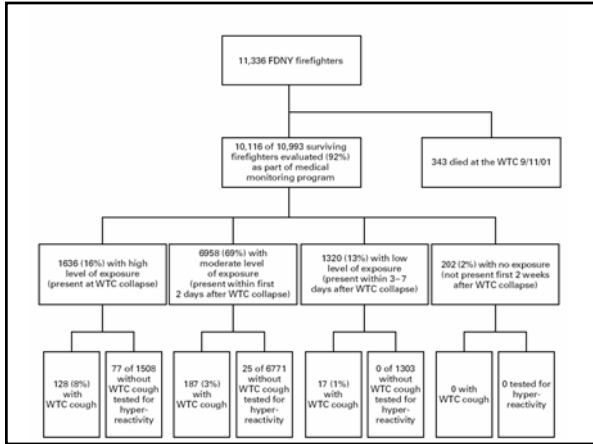
- **Short intense exposure to inorganic dust, products of combustion, other material among those present at site of World Trade Center after attack on September 11, 2001**
- **Respiratory complaints common in firefighters who had been at World Trade Center site**

### History taking in patients with lung disease

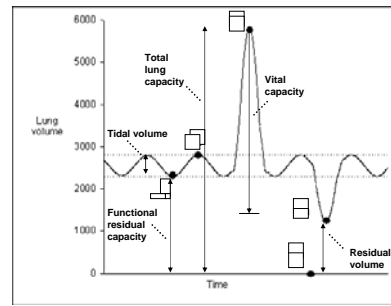
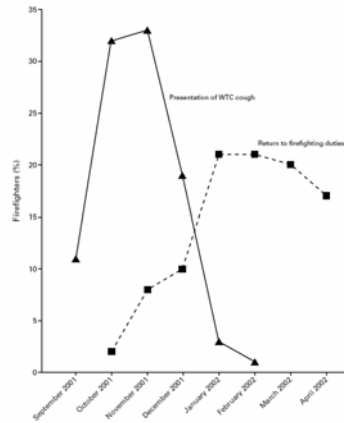
---

Onset, duration, triggers, and severity of symptoms  
 dyspnea (rest, exercise)  
 cough (dry, productive)  
 chest pain (pleuritic, constant)  
 fever

Occupational/environmental exposures  
 Smoking history  
 Family history  
 Underlying illnesses (e.g. collagen vascular disease)



### Clinical course of WTC cough syndrome

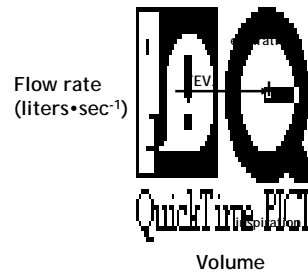


### Physical examination in patients with lung disease

#### Physical examination

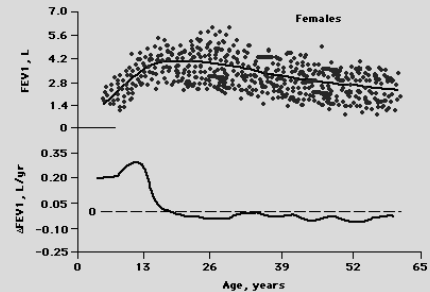
- respiratory rate and pattern
- shape of thoracic cage
- quality of breath sounds and percussion note (normal, dull/absent, hyperresonant)
  - normal breath sounds
  - wheezes
  - crackle
- clubbing
- cyanosis
- peripheral edema

### Spirogram

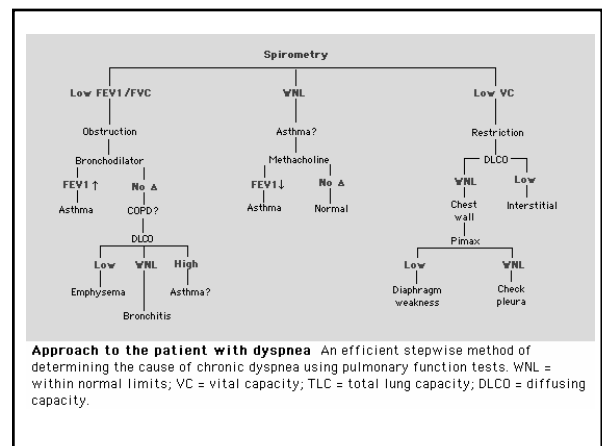
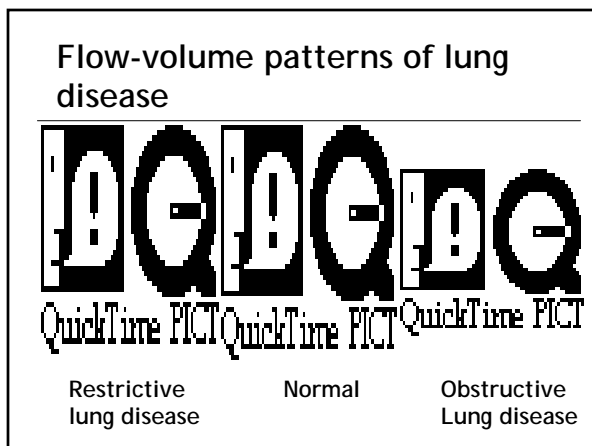
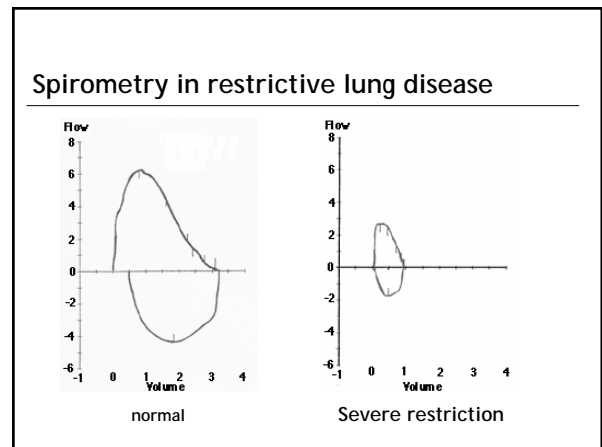
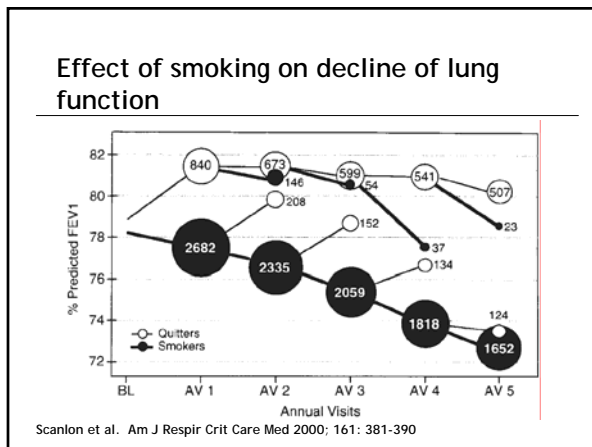
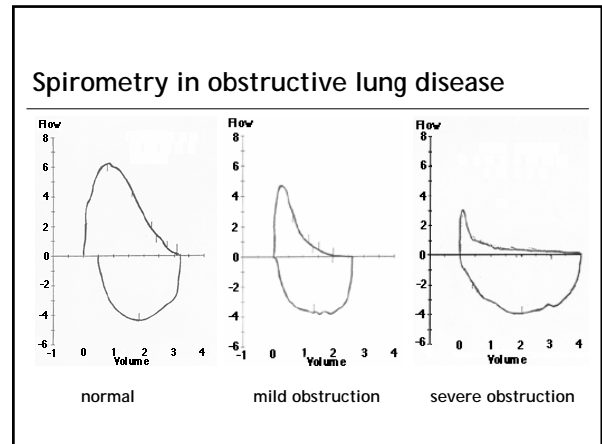
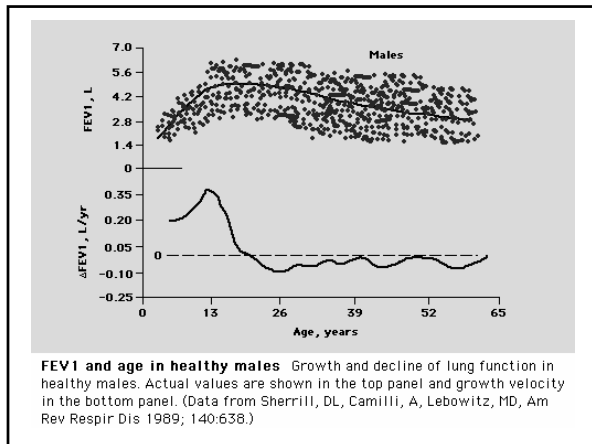


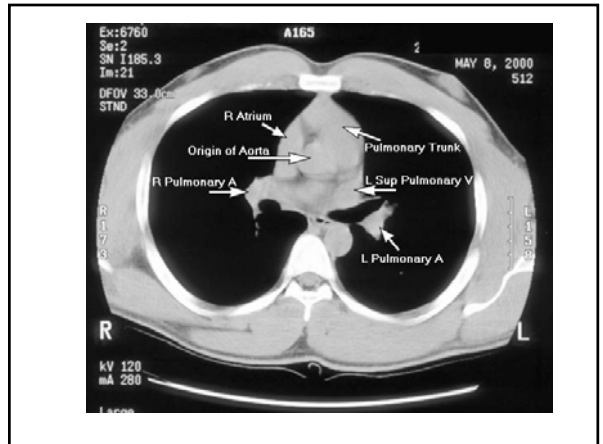
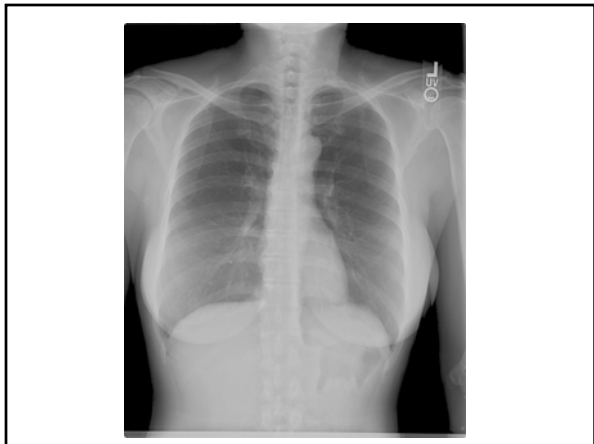
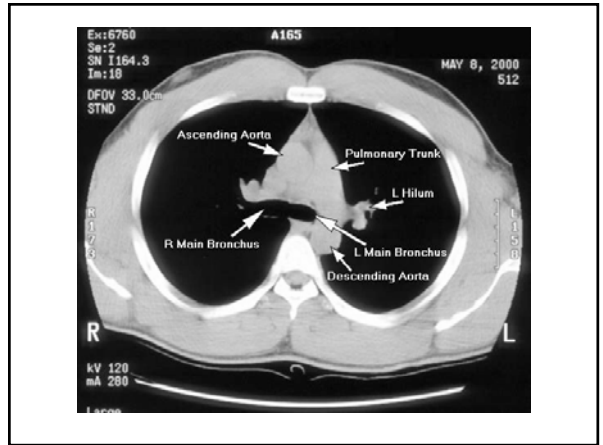
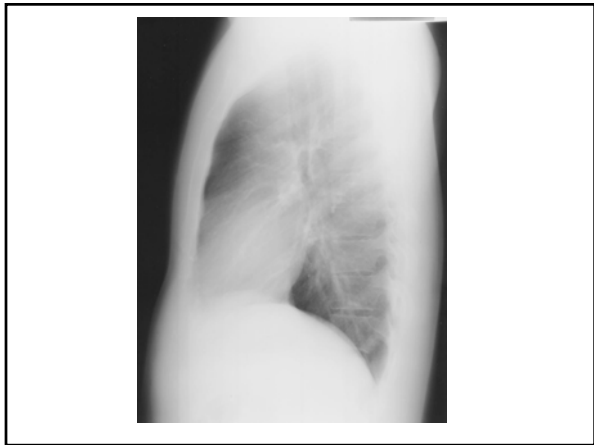
### Tools for the diagnosis of lung disease

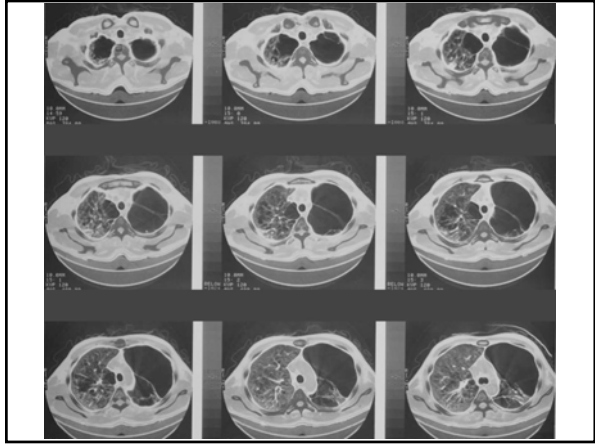
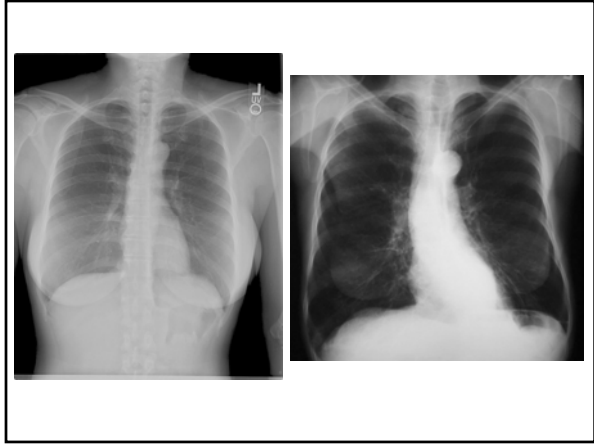
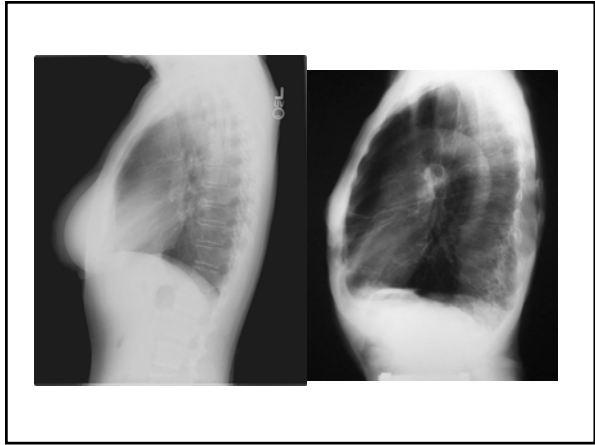
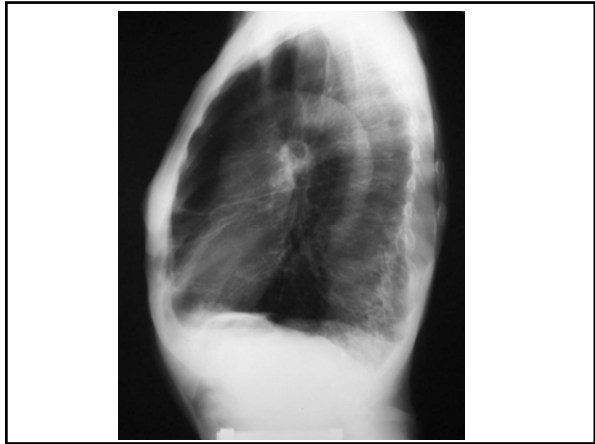
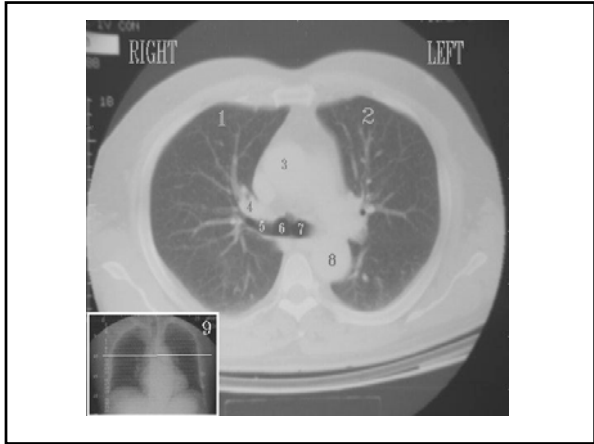
<u>Physiologic</u>	<u>Anatomic</u>	<u>Pathologic</u>
ABG	Chest radiograph	Transbronchial lung biopsy
PFTs	CT scan	Thoracentesis
V/Q scan	Bronchoscopy	Pleural biopsy
Exercise testing		Open lung biopsy

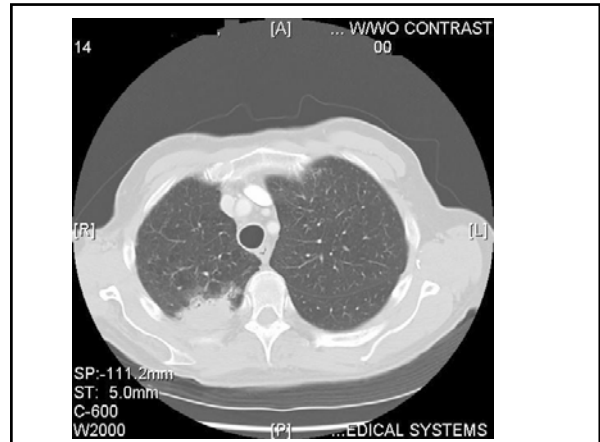


**FEV1 and age in healthy females** Growth and decline of lung function in healthy females. Actual values are shown in the top panel and growth velocity in the bottom panel. (Redrawn from Sherrill, DL, Camilli, A, Lebowitz, MD, Am Rev Respir Dis 1989; 140:638.)









### Anatomic, physiologic, and pathologic classification of lung disease

<u>Disease</u>	<u>Anatomy</u>	<u>Physiology</u>	<u>Pathology</u>
Emphysema	Hyperinflation	Obstruction	Loss of alveolar Tissue
Sarcoidosis	Enlarged LN, parenchymal infiltrates	Restriction	Granulomatous Inflammation
Asthma	Normal	Obstruction	Airways inflammation
Usual interstitial pneumonitis	Parenchymal infiltrates	Restriction	Interstitial infiltration, fibrosis

