Pulmonary Pathophysiology

Course Directors:
Daniel Brodie, MD
David Lederer, MD

Causes of Disease

- Physical examination
- Radiographic examination
  - Chest x-ray
  - Chest CT
- Histological examination
  - Transthoracic needle biopsy
  - Transbronchial biopsy
  - Surgical biopsies

Paradigm

Functional Change

- Respiratory System Mechanics
- Gas Exchange
- Ventilation
- Vascular Changes
Respiratory System Mechanics

- Airway resistance
- Lung compliance
- Chest wall compliance

Gas Exchange

- V/Q mismatch
- Right-to-left shunt
- Diffusion

Ventilation

- Control of breathing
- Alveolar ventilation
- Dead space ventilation

Vascular Changes

- Vascular obstruction
- Vasculopathy

Pathophysiology

- Physical exam
- PFTs
- Ventilator (!)

Diagnosis

- Arterial blood gas
- Pulse oximetry
- Diffusion capacity
- Shunt studies
- Polysomnography

Treatment

- Diuresis
- Antibiotics
- Corticosteroids
- Bronchodilators
- Radiotherapy
- Transplantation
- Oxygen
- PEEP
- Ventilation
- Invasive
- Non-invasive
- Anticoagulation
- Vasodilators

Causes of Disease → Functional Change

- Physical examination
- Radiographic examination
- Histological examination

Respiratory System Mechanics

Gas Exchange

Ventilation

Vascular Changes