Achievable

USMLE STEP 1 DUMP SHEET

Respiratory pathology

Lung tumors

Tumor	Clues
Adenocarcinoma	Peripheral; commonest in women, nonsmokers
Squamous cell	Central; smokers; keratin pearls; PTHrP → ↑ Ca2+
Small cell	Central; smokers; neuroendocrine; SIADH, ACTH
Large cell	Undifferentiated; smokers
Carcinoid	Endobronchial polyp; no smoking link; serotonin
Mesothelioma	Asbestos, 20—40 yr latency, not smoking; calretinin

- **Spread:** brain, bone, adrenals
- **Small cell:** Lambert-Eaton (presynaptic Ca2+ channel antibodies), anti-Hu
- **Non-small cell, adenocarcinoma most:** hypertrophic osteoarthropathy (clubbing)

Obstructive or restrictive

	Obstructive	Restrictive
FEV1/FVC	Under 0.7	Normal or ↑
TLC, RV, FRC	↑	↓
Examples	Asthma, COPD	ILD, obesity, neuromuscular

- **DLCO:** ↓ in emphysema; normal or ↑ in asthma
- **Reversible:** FEV1 ↑ over 12% after bronchodilator

Asthma and COPD

- **Asthma:** Th2 (IL-4, IL-5, IL-13), IgE, eosinophils; methacholine ↓ FEV1 over 20%
- **Intrinsic asthma:** adult onset; aspirin sensitivity, nasal polyps
- **Chronic bronchitis:** productive cough 3 months a year for 2 years; Reid index over 0.5
- **Centriacinar emphysema:** smoking, upper lobes. **Panacinar:** α1-antitrypsin, lower lobes
- **α1-antitrypsin:** codominant, PiZZ; unopposed elastase; also cirrhosis
- **Blue bloater:** bronchitis, cor pulmonale. **Pink puffer:** emphysema, barrel chest
- **Bronchiectasis:** CF, Kartagener, ABPA; tram tracks

Airways and more

- **Kartagener:** dynein defect; situs inversus, sinusitis, infertility
- **Laryngeal papillomas:** HPV 6, 11. **Nasal polyps:** CF, aspirin
- **Vocal cord nodules:** bilateral, voice abuse
- **Loeffler syndrome:** eosinophilia, wandering infiltrates (*Ascaris*)

Pneumoconioses

Dust	Clues
Coal	Upper lobes; Caplan with RA; cancer risk not raised
Silica	Sandblasting, foundries; upper lobes; eggshell hilar nodes; ↑ TB, cancer
Asbestos	Shipbuilding, plumbing; lower lobes; ferruginous bodies (Prussian blue); calcified pleural plaques; mesothelioma
Beryllium	Aerospace; noncaseating granulomas

Interstitial lung disease

- **Restrictive:** dry cough, crackles, clubbing; honeycomb lung
- **IPF:** older men; MUC5B, telomerase genes
- **Drugs:** amiodarone, bleomycin, busulfan, methotrexate, nitrofurantoin
- **Hypersensitivity pneumonitis:** farmer's lung, bird fancier's
- **Alveolar proteinosis:** anti-GM-CSF; PAS-positive surfactant

ARDS and respiratory failure

- **ARDS:** within 1 week; bilateral opacities; not cardiac
- **Mechanism:** endothelial damage → protein-rich alveolar edema
- **PaO2/FiO2** on PEEP 5 or more: mild 200—300, moderate 100—200, severe under 100
- **Causes:** sepsis, pneumonia, aspiration, pancreatitis, trauma
- **Type I:** hypoxemic, ↑ A-a gradient; shunt resists O2. **Type II:** PaCO2 over 50

Pleura

- **Effusion:** dull, ↓ fremitus, ↓ breath sounds
- **Transudate:** heart failure, cirrhosis, nephrotic. **Exudate:** pneumonia, cancer, TB, PE
- **Chylothorax:** milky; triglycerides over 110 mg/dL
- **Spontaneous pneumothorax:** tall young men, smokers; subpleural blebs
- **Tension:** trachea shifts away, ↑ JVP, hypotension
- **Empyema:** pus; split pleura sign

Pulmonary vessels

- **Pulmonary hypertension:** mean PAP over 20 mm Hg; BMPR2; medial hypertrophy
- **Causes:** left heart failure, COPD, recurrent PE, scleroderma, HIV
- **Signs:** loud P2, right ventricular heave, cor pulmonale
- **Decompression sickness:** N2 bubbles; bends; recompression