COPD Definition >>

- Common, preventable, treateble (not curable → irreversible changes) disease
- Persistant respiratory symptoms
- Cause by significat exposure to noxious particles & gases
- Chronic bronchitis ⊕ emphysema = COPD (vary from person to person)

* 3rd leading cause of death
* more common in elderly >65
* ♀ = ♂

Risk factors >>

1. Smoke (most common factor)
2. Indoor air pollution { fuel / cooking
3. occupational { dust / chemicals / fumes
4. Outdoor pollution (small effect on COPD)
5. Genetics (α-1 antitrypsin) → 20-30 age
6. Age & sex — elderly / ♀ = ♂
7. Any factor affect lung growth — low birth weight / respiratory infection
8. low socioeconomic
9. Asthma & airway hyperactive
10. chronic bronchitis

* Irritants like cigarette smoke induce an inflammation in epi. cells & alveolar macrophages, leading to →
  1. Mucus hypersecretion — chronic bronchitis
  2. Alveolar wall destruction — Emphysema
  3. Fibrosis — Bronchiolitis

** Emphysma ⇒ Elastic breakdown / SOB

Chronic bronchitis ⇒ ciliary dysfunction & excessive mucus secretion / productive chronic cough (white mucoid & clear)
(↑ goblet size & number)

► Prevention >>

• Primary: - Avoid tobacco exposure (active / passive) / Adverse effect (weight gain, constipation)

- Always screen smokers for COPD even if they don't have symptoms
↳ they called "COPD at risk".

• Secondary: - Help patient to stop smoking [5As]
- Ask (good history)
- Advice (urge user to quit)
- Assess (make sure that smoker willing to a quit attempt)
- Assist (support/plan/nicotine replacement)
- Arrange (follow-up)

• Vaccination: 1. Influenza vaccine ↓ every year

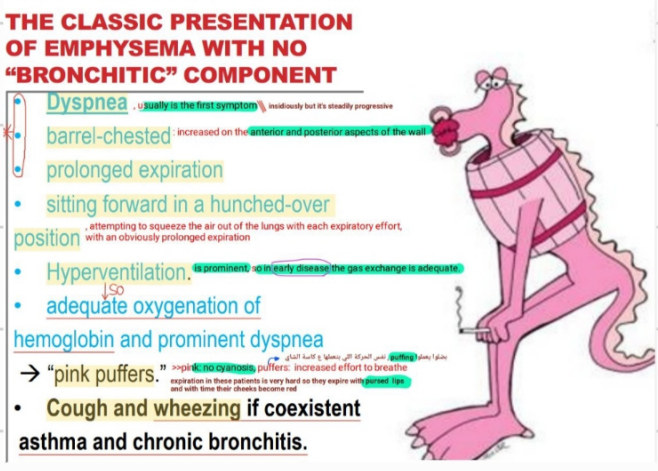
2. pneumococcal vaccine ↓
- PPSV23 → age < 65
- PCV13 → age ≥ 65

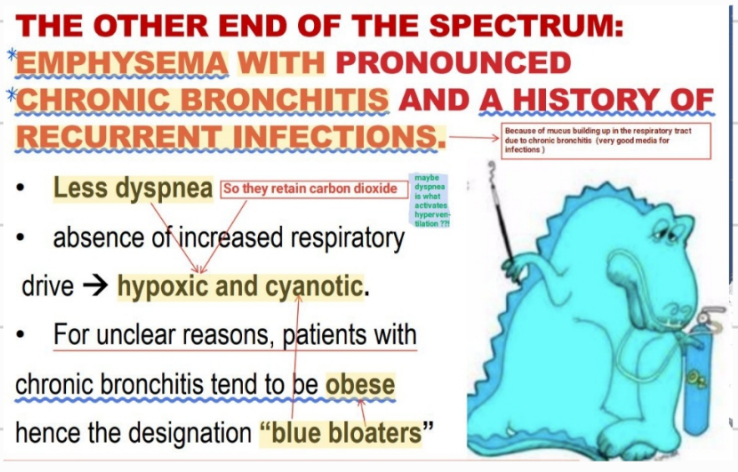
► Diagnosis >>

early on	early	progressive	late	Advanced
Asymptomatic, SOB with exercise	Cough is Mild but recurrent	early morning sputum production ⊕ wheezing ⊕ dyspnea ⊕ chest tightness	Modify activity to avoid dyspnea ⊕ lack of energy	Advance COPD, corepulmonale, Rt. HF (edema, ↑JVP, fatigue)

Physical examination »

- ✓ Early no specific abnormalities, ↓ air entry, maybe vesicular breathing, wheezing may or may not be present.
- ✓ progressive → Prolong expiratory
- ✓ Severe → Hyperinflation
  - barrel-shaped chest
  - ↓ breath sound
  - distant heart sound
  - ↑ ressonace of percussion
  - + cor pulmonale
- ✓ Tripod position
- ✓ Pursed lip breathing
- ✓ Tar stain





Pink puffers ← emphysema
- hyperventilation/SOB
- weight loss

Blue bloaters ← chronic bronchitis
- ventilation = cyanosis
- cor pulmonale with edema

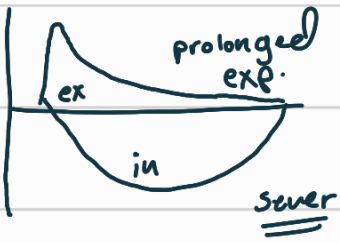
Assessment »

1. CAT score
2. Gold
3. MMRC

Admission	C	D
No	A	B
	CAT < 10, MMRC (0-1)	CAT ≥ 10, MMRC (≥ 2)

Diagnosis Test >>

- Spirometry (gold standard)
  $FEV_1 / FVC < 0.7$



- CXR
  - Hyperinflation
  - flat diaphragm

COPD vs asthma

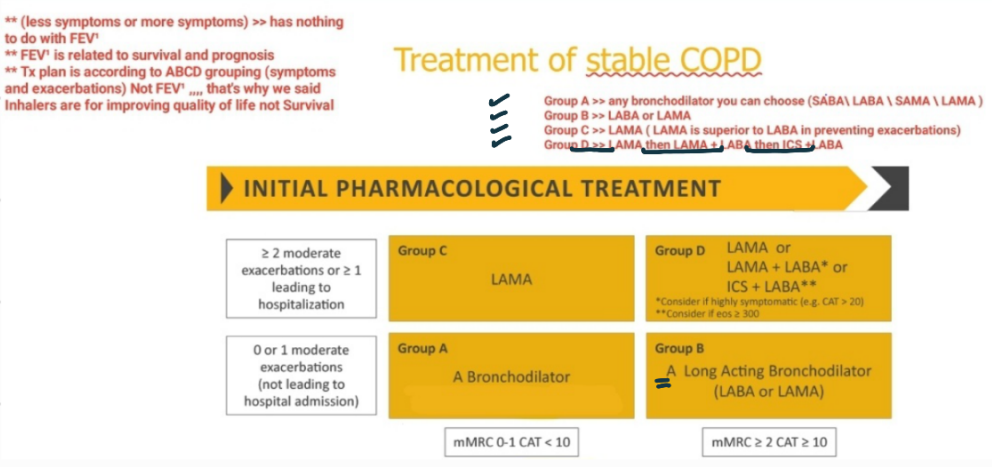
	Asthma	COPD
Onset	Anytime (often childhood or youth)	Later in life but 20-30 in presence of α-1 antitrypsin
Etiology	Allergic, family history	Smoking, other noxious exposures
Course	Intermittent	Chronic progressive + Partial
Clinical features	Wheeze, episodic dyspnea, cough	Persistent dyspnea, productive cough
Pattern of Symptoms	Variable day to day, more at night/early morning	Less variable, more on exertion
Inflammatory cells and mediators	Eosinophils, mast cells, Th-2 type	Neutrophils, macrophages, Th-1 type
Response to Bronchodilators	Largely reversible but asthma after 30 or 40 years becomes like COPD and remodeling occurs (irreversible)	Partially reversible or irreversible
Response to steroids	Substantial	Partial

Treatment >>

- Non pharmacological: smoking cessation / vaccination / Treat hypoxia
  Treat hypercapnia [use bipap] / bronchoscopy & surgery

- pharma:

ICS not prefered bcz ↑ risk for pneumonia
↳ only for group D if eso > 300, or everything else failed.



- Exacerbation: