

Chronic Obstructive Pulmonary Disease (COPD)

Part 1 - Introduction

PC3303 – Integrated Therapeutics 3

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COMMONWEALTH OF AUSTRALIA

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Learning Outcomes

- Understand the pathophysiology of COPD and how it differs from the pathophysiology of asthma
- Describe the symptoms of COPD
- Understand the risk factors for COPD
- Understand the principles of managing COPD, including drug treatment options
- Become familiar with use of the COPDx and GOLD guidelines

Guidelines

- **eTG** (COPD)
- **COPD-X** (Lung Foundation **Australia**)
- **GOLD** (**Global** Initiative for Chronic Obstructive Lung Disease)

What is COPD?

- Persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities
 - **Not** fully reversible
- Usually associated with chronic cough due to:
 - Thickening of airway walls → narrowed airway lumens
 - The breakdown of alveoli in the lung tissue → reduced ventilation and transfer of O₂ and CO₂
- Associated with an abnormal inflammatory response of the lungs to noxious particles or gases (e.g. tobacco smoke)
- Preventable
- Progressive

What is COPD?

- <https://www.youtube.com/watch?v=obAlFbZDbY&t=106s>
- Watch from 2 min 3 secs onwards

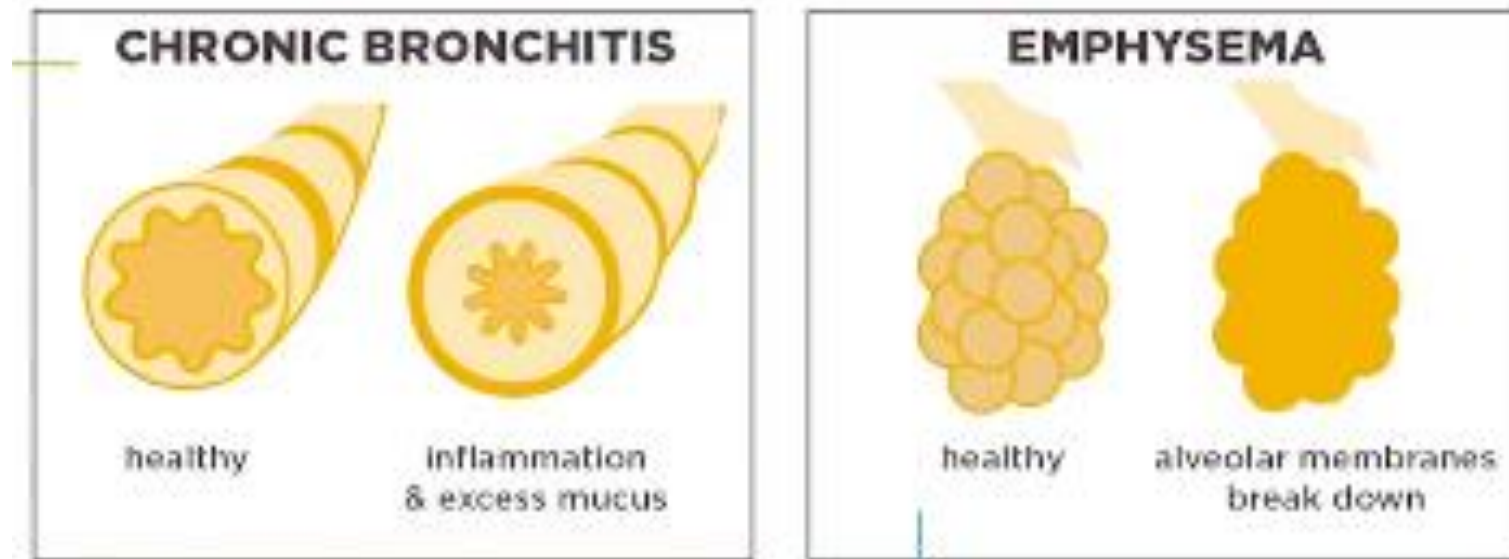


Image taken from: National Heart, Lung, and Blood Institute (NHLBI). The Basics of Chronic Obstructive Pulmonary Disease (COPD). NHLBI website. Updated June 2018.

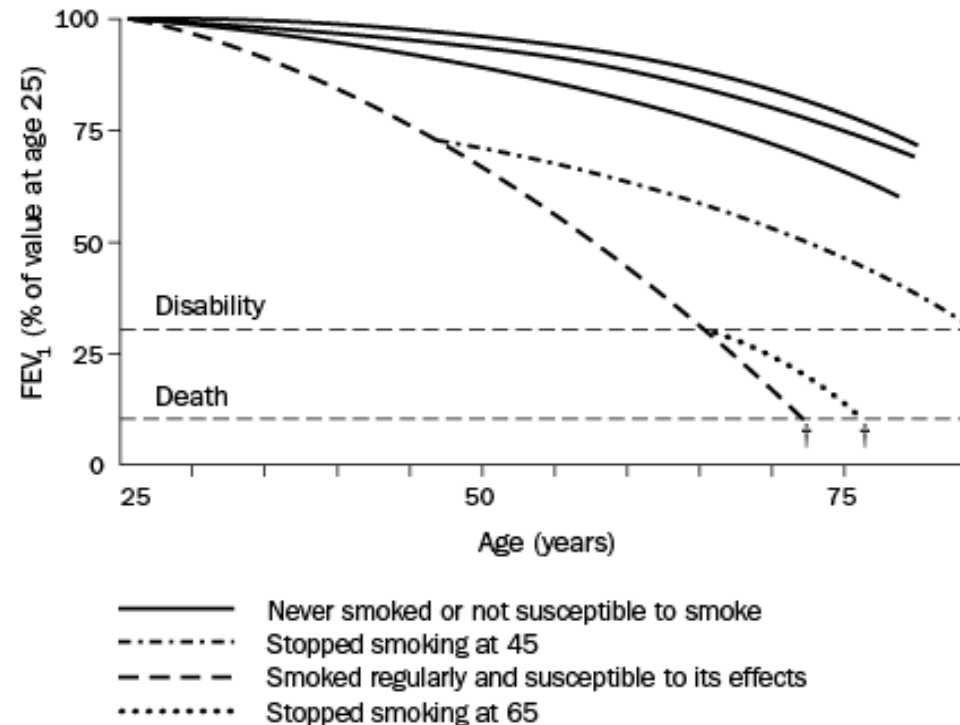
Signs and Symptoms

- **Progressive**
- Breathlessness
- Wheezing
- Persistent cough (often with sputum production)
- Recurrent respiratory tract infections
- Exacerbations

Risk Factors

- **Cigarette smoking !!! →**
- Exposure to second-hand smoke
- Prenatal parental smoking
- Premature birth
- Respiratory illnesses in childhood (incl. asthma)
- Occupational dusts/ fumes
- Genetic susceptibility (e.g. α_1 -antitrypsin deficiency)
- Older age

Smoking and loss of forced expiratory volume in 1 second (FEV₁) with age



Accelerated decline in lung function seen in smokers compared with non-smokers.

Image taken from: Chronic Obstructive Pulmonary Disease. In *eTG Complete*. Melbourne, Australia: Therapeutic Guidelines Limited. Updated December 2020.

Prevalence

- Global prevalence of 3.92%
- In 2017
 - COPD was the 5th leading cause of death in Australia
 - Mortality rate for COPD among Indigenous Australians was 3 times that of non-Indigenous Australians
- COPD mortality has declined over the past 2 decades, in correlation with declining smoking rates
- COPD costs Australia approx. \$8.8 billion per year

Activity 1

- Compare and Contrast – Asthma vs COPD

	Asthma	COPD
Age of Onset (Young/Older)		
Sudden Onset (Yes/No)		
Smoking History (Yes/No)		
Concomitant Allergies Present (Yes/No)		
Dyspnoea (Episodic/Progressive)		
Coughing (Episodic/Progressive)		
Etc.		