Reframing the Role and Impact of Pharmacy in Chronic Obstructive Pulmonary Disease (COPD) Care

eLearning Module

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This material is intended for pharmacists with an interest in respiratory disease.

Welcome

Welcome to the COPD eLearning Module for pharmacists and pharmacy team members.

Reframing the Role and Impact of Pharmacy in COPD Care

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CVD, cardiovascular disease
GOLD, Global Initiative for Chronic Obstructive Lung Disease

Learning objectives

Upon successful completion of this continuing education learning module, you will be able to:

- Understand that chronic obstructive pulmonary disease (COPD) is a systemic disease that impacts more than lung health
- Define COPD
- Understand the impact of COPD on global and individual health
- Describe the risk factors for COPD and exacerbations of the disease
- Describe common symptoms of COPD
- Understand the pharmacological and nonpharmacological treatment of COPD
- Recognise the important role that pharmacists can play in COPD care, including monitoring patient symptoms and optimising COPD medication
- Identify how to utilise the COPD Pharmacy Toolkit in practice to enhance patient care

Why Focus on COPD?

More than a lung disease

Chronic obstructive pulmonary disease (COPD) is a lung disease that causes the airways to narrow and become obstructed, which in turn makes breathing difficult.[1]

However, COPD is much more than a lung disease!

COPD is linked with many other chronic diseases, including heart failure (HF), ischaemic heart disease (IHD), hypertension, depression, anxiety, and osteoporosis, either through shared risk factors or by one disease increasing the risk or severity of the other.[2]

To make matters worse, patients with COPD often experience exacerbations (flare-ups) that can lead to cardiovascular (CV) events (eg, myocardial infarction and stroke) and premature death.[3]

Underdiagnosis and misdiagnosis of COPD are widespread. This, coupled with the escalating prevalence and burden of COPD due to continued exposure to risk factors and an ageing population, suggests that COPD is now a **global health emergency**.[2,4]

1. Global Allergy and Airways Patient Platform (GAAPP). What is COPD? Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
3. Hurst JR et al. *Eur J Int Med*. 2020;73:1–6.
4. Stolz D et al. *The Lancet Commissions*. 2022; 400(10356): 921-972.
5. World Health Organization (WHO). Chronic obstructive pulmonary disease (COPD) – Fact Sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd). Accessed August 2024.
6. Act on COPD. Common, preventable, treatable: Has COPD been underprioritised? Available at: https://qrcgcustomers.s3-eu-west-1.amazonaws.com/account21372441/30986798_2.pdf?0.16088484869497655. Accessed August 2024.
7. Trappenburg et al. BMC Pulmonary Medicine. 2011,11:43.
8. Pavord ID, et al. *Int J Chron Obstruct Pulmon Dis*. 2016;11(special issue):21-30.
9. Tommelein et al. *Br J Clin Pharmacol*. 2013;77(5):756-66.

Underdiagnosed

- Spirometry is often not readily accessible in low- and middle-income countries, leading to diagnosis being missed[5]

Not well understood

- In a 2022 poll of 14,890 people in 14 countries, 45% of these people did not know COPD was a lung disease[6]

Not well managed

- Adherence to inhaled medication is generally low, even in those with very severe disease[2]
- Nonadherence rates were >50% in many studies[2]

Symptoms underreported

- Almost 50% of exacerbations are not reported to a healthcare professional (HCP), despite a worsening of health status at the time[7,8]

Pharmacist interventions improve outcomes

- Pharmacist counselling is shown to improve inhaler technique and medication adherence and decrease the estimated annual severe exacerbation rate[9]

Comprehensive COPD care is needed more than ever. As one of the most accessible and knowledgeable primary care providers,

PHARMACISTS CAN MAKE A DIFFERENCE!

Practice

Reflection

Practice reflection

Reflecting on your own practice, take a moment to answer the question below.

Do you speak to patients about their COPD risk and/or management?

A Yes. I consistently discuss COPD risk and/or management with my patients at a level I'm happy with.

B Yes. I occasionally discuss COPD risk and/or management with my patients, but I would like to do more to help my patients with COPD.

C No. Discussing COPD is not part of my typical practice.

D No. I am unsure of where to start.

Next page

Feedback

While most pharmacists and pharmacy team members would like to answer A, many may not. They may only occasionally speak to their patients with COPD and/or they may not know where to start.

A toolkit designed to enhance patient interactions and minimise the burden on workload and workflow would help pharmacists start the COPD conversation and make their moments spent with COPD patients matter.

The good news is that there is such a toolkit for community pharmacy – the **COPD Pharmacy Toolkit**.

This eLearning module is one component of the **COPD Pharmacy Toolkit**.

Let’s learn more!

Understanding COPD

What is COPD?

Chronic obstructive pulmonary disease (COPD) is a chronic (noncommunicable), progressive disease characterised by the obstruction of air flow in the respiratory system that results in breathing difficulties.[1,2]

It can be described as a disease of the airways (chronic bronchitis) and/or a disease of the air sacs (emphysema).[2]

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) defines COPD as:
"a heterogeneous lung condition characterised by chronic respiratory symptoms (dyspnoea, cough, sputum production, and/or exacerbations) due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that cause persistent, often progressive, airflow obstruction."[1]

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COPD is a complex, heterogeneous, and life-threatening disease:

Complex refers to the nonlinear relationships between several COPD components (eg, forced expiratory volume of air in one second [FEV1], exacerbations, symptom perception, comorbidities); thus, one component of COPD cannot be predicted from another one.[3]

Heterogeneous refers to varying degrees of airway injury, remodelling, inflammation, and tissue destruction and the significant differences in symptoms, consequences, and comorbid conditions; this means that not all COPD components are present in all patients or, even in a single patient, at all points.[3,4]

Life-threatening refers to COPD being a leading cause of death worldwide; this means that each year COPD contributes to over 3 million deaths globally.[1]

To learn more about COPD, visit FIP's Chronic Respiratory Diseases page at:
https://ncd.fip.org/chronic-respiratory-diseases/

FIP, International Pharmaceutical Federation

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Global Allergy and Airways Patient Platform (GAAPP). What is COPD? Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.
3. Celli BR et al. *Int J Chron Obstruct Pulmon Dis*. 2022;17:2127-2136.
4. Stolz D et al. *The Lancet Commissions*. 2022; 400(10356): 921-972.

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For at-risk patients who are unaware of COPD or diagnosed patients who do not understand the disease, you can break the term down as follows to aid understanding and foster conversation[1]:

- **Chronic:** a long-term and ongoing condition that can be treated but does not go away
- **Obstructive:** the airways in your lungs have narrowed and become obstructed or blocked, making it difficult for them to move air out, and, in turn, making it more difficult for you to breath
- **Pulmonary:** a condition that affects your lungs
- **Disease:** a recognised medical condition

1. Global Allergy and Airways Patient Platform (GAAPP). What is COPD? Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.

Diagnosis of COPD

To establish a diagnosis of COPD, forced spirometry is required.[1]

Forced spirometry measures[1]:

1. Forced vital capacity (FVC)-the volume of air that can be forcibly exhaled out of the lung from the point of maximal inspiration
2. Forced expiratory volume of air in one second (FEV1)-the volume of air exhaled during the first second of this expiratory manoeuvre
3. FEV1/FVC-ratio of the 2 measurements

Normally, the FEV1/FVC ratio is greater than 0.7 in an adult.[2] Values less than 0.7 indicate airway obstruction.[1]

Spirometry is performed after an inhaled bronchodilator is administered. A **post-bronchodilator FEV1/FVC <0.7** indicates nonfully reversible airflow limitation and is needed to confirm a COPD diagnosis.[1]

The presence of COPD should also be considered in any patient who has the following[1]:

- dyspnoea (shortness of breath, breathlessness)
- chronic cough
- sputum (mucus, phlegm) production
- history of exposure to disease risk factors

COPD symptoms and risk factors will be reviewed later in this section of the eLearning module.

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Ponce MC, Sankari A, Sharma S. Pulmonary function tests. Available at: https://www.ncbi.nlm.nih.gov/books/NBK482339/. Accessed August 2024.

Burden of COPD

COPD is a common, preventable, and treatable disease. However, it is also the cause of a growing and evolving global health crisis.[1,2]

COPD is a leading cause of morbidity and mortality across the globe, with many people suffering from the disease for years and dying prematurely from COPD or its complications.[1]

It affects people from all countries, socioeconomic statuses, and age groups.[2]

COPD can take a significant toll on individuals, their caregivers, and healthcare systems. And the substantial economic, social, and health burden of COPD is projected to increase over the coming decades due to a combination of continued exposure to COPD risk factors and ageing of the world's population.[1]

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1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Stolz D et al. *The Lancet Commissions*. 2022; 400(10356): 921-972.
3. Adeloye D et al. *Lancet Resp Med*. 2022;10:447-458.
4. World Health Organization (WHO). Chronic obstructive pulmonary disease (COPD) – Fact Sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd). Accessed August 2024.
5. Lane ND et al. *BMJ Open Respir Res*. 2018;5:e000334.
6. Nardini S et al. *Multidiscip Respir Med*. 2014;9:46.
7. Mannino DM et al. *Respir Med*. 2006;100:115-122.
8. Speak-Up-for-COPD Joint Declaration. Available at: https://www.politico.eu/wp-content/uploads/2022/11/15/Speak-Up-for-COPD-Joint-Declaration.pdf. Accessed August 2024.

COPD represents a **worldwide health challenge**:

- Nearly **392 million** people globally have COPD (2019)[3]
- **3rd** leading cause of death worldwide, behind ischaemic heart disease and stroke (2019)[4]
- **7th** leading cause of poor health worldwide (as measured by disability-adjusted life years)[4]
- **2nd** most common cause of emergency department admission in some countries before 2020[5,6]
- Patients with COPD die of **both** respiratory and nonrespiratory causes, including cardiovascular-related causes[7]

Did you know?

On World COPD Day 2022, a coalition of advocates, clinicians, and industry called on governments, healthcare system leaders, and policymakers to acknowledge the significant burden that COPD places on patients, healthcare systems, and the economy and to recognise the need for COPD to be a **public health priority, address risk factors, and improve the standard of care** for patients with COPD.[8]

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Some of your patients with COPD may not yet fully appreciate the seriousness of their disease. You and your team members can play a vital role in improving patients' knowledge about COPD and the possible consequences of not managing their disease.

- Provide easy-to-read, accurate, and up-to-date COPD educational materials that focus on questions such as:
  - What are common COPD risk factors?
  - What risks are associated with COPD (eg, cardiopulmonary risk)?
  - How can COPD affect daily life?

  Direct your patients with COPD to relevant print and online patient-focused COPD materials.

- Explain key terms and tests that a patient may encounter using patient-friendly and accessible language, including:
  - flare-up instead of exacerbation
  - lung function test instead of spirometry

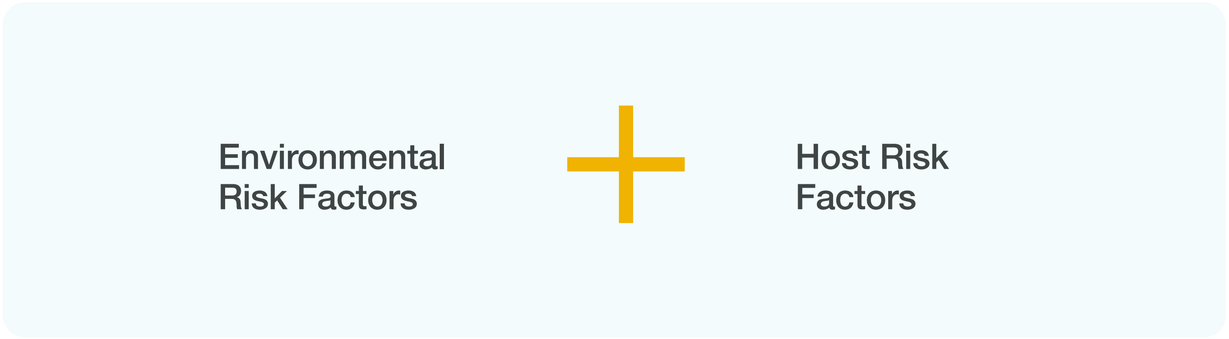
- Educate on the impact COPD can have on daily activities and quality of life.

- Guide patients to primary care services as needed.

COPD risk factors

COPD has been traditionally thought of as a “smoker’s disease,” a self-inflicted disease caused by smoking tobacco which leads to an accelerated decline in lung function.[1,2]

However, there has been a realisation in recent years that COPD is NOT a self-inflicted disease. Factors other than smoking can also significantly contribute to COPD, as people who never smoke may also develop the disease.[1] It is now known that both environmental and host risk factors can contribute to the development of COPD.[3]



Identification and reduction of exposure to risk factors is important not only for the prevention of COPD but also as part of the management of a COPD patient.

1. American Lung Association. COPD causes and risk factors. Available at: https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/what-causes-copd. Accessed August 2024.

2. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022;17:2127-2136.

3. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report Accessed August 2024.

Environmental risk factors

While cigarette smoking is a key environmental risk factor, it is estimated that half of COPD cases globally are due to risk factors other than smoking. Thus, it is important that pharmacists consider other environmental factors when assessing their patients.[1]

Table 1 | Common environmental risk factors associated with the development of COPD

Risk Factor	Associated Risks
Cigarette smoking	• Smokers have an increased prevalence of respiratory symptoms and lung function abnormalities, a higher annual rate of decline in FEV1, and a greater COPD mortality rate than nonsmokers[1] • Using other types of tobacco (eg, pipe, cigar, water pipe), cannabis, vaping, and passive exposure to second-hand smoke are also risks[1] • Tobacco smoking accounts for >70% of cases in high-income countries and 30%-40% of cases in low- or middle-income countries (LMICs)[2] • <50% of heavy smokers develop COPD[1]
Biomass exposure	• Burning wood, animal dung, crop residues, and coal in open fires or poorly functioning stoves can lead to very high levels of household air pollution; exposure to this household air pollution is linked to an increased risk of COPD in LMICs[1] • Globally, almost 3 billion people use biomass and coal as their main source of household energy[1]
Occupational exposures	• Workplace exposures, including organic and inorganic dusts, and chemical agents and fumes, are an under-appreciated risk[1] • Inhalation of high doses of pesticides can lead to a higher incidence of respiratory symptoms, airway obstruction, and COPD[1] • Inhaling dust and fumes is associated with increased airflow obstruction, respiratory symptoms, more emphysema, and gas trapping[1]
Air pollution	• Leading known risk factor in never smokers[1] • Air pollution that typically consists of particulate matter (PM), ozone, oxides of nitrogen or sulphur, heavy metals, and other greenhouse gases is responsible for ~50% of the attributable risk in LMICs[1] • Chronic exposure to particulate matter 2.5 ($PM_{2.5}$) and nitrogen dioxides significantly impairs lung growth in children, accelerates lung function decline in adults, and increases COPD risk, especially among those with additional disease risk factors[1] • Poor air quality from air pollution also increases the risk of COPD exacerbations, hospitalisations, and mortality[1]

FEV1, forced expiratory volume of air in one second

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. World Health Organization (WHO). Chronic obstructive pulmonary disease (COPD) – Fact Sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd). Accessed August 2024.

Host risk factors

Environmental factors alone do not cause COPD. Whether or not your patient develops COPD in their lifetime is influenced by a complex mix of environmental and host factors.[1]

Table 2 | Common host risk factors associated with the development of COPD

Risk Factor	Associated Risks
Genetics	• Increased risk of airflow obstruction has been observed in people who smoke and are siblings of patients with severe COPD[1] • A rare condition called alpha-1 antitrypsin deficiency (AATD) – mutations in the SERPINA1 gene lead to the deficiency. Without alpha-1 antitrypsin, which is a serine protease inhibitor, patients are more susceptible at a younger age[1,2] • A number of other genetic variants that are associated with reduced lung function and risk of COPD have been identified, but the impact of their individual effect is small[1]
Lung development and ageing	• Early life events, such as prematurity, low birth weight, maternal smoking during pregnancy, and passive smoking exposure during infancy, can prevent maximum lung growth[1,3] • While there is a physiologic decline in lung function with age (>40 years of age), it is unclear whether healthy ageing leads to COPD or if age reflects the sum of cumulative exposures over time[1,4]
Asthma and airway hyperreactivity	• Asthma, particularly childhood asthma, may be a risk factor for the development of chronic airflow obstruction and COPD[1,3] • Airway hyperresponsiveness can exist without a diagnosis of asthma and has been shown to be an independent predictor of COPD and respiratory mortality, as well as an indicator of risk of excess decline in lung function in mild COPD[1]
Infections	• Severe childhood respiratory infections have been associated with reduced lung function and increased respiratory symptoms in adulthood[1] • Tuberculosis is both a differential diagnosis for COPD and a potential comorbidity[1] • Human immunodeficiency virus (HIV) increases the risk of COPD likely due to methylation disruptions in airway epithelium[1]
Socioeconomic status	• Poverty is consistently associated with airflow obstruction and lower socioeconomic status is associated with an increased risk of COPD[1] • It is unclear whether this pattern is due to exposure to indoor and outdoor air pollutants, crowding, poor nutrition, infections, or low socioeconomic factors[1]

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. National Health Service (NHS). Chronic Obstructive Pulmonary Disease (COPD): Causes. Available at: https://www.nhs.uk/conditions/chronic-obstructive-pulmonary-disease-copd/causes/. Accessed August 8, 2024.

3. World Health Organization (WHO). Chronic obstructive pulmonary disease (COPD) – Fact Sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd). Accessed August 2024.

4. American Lung Association. COPD causes and risk factors. Available at: https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/what-causes-copd. Accessed August 2024.

Symptoms of COPD

While COPD can be different for each person, there are some symptoms that are typically associated with the disease.[1]

Table 3 | Common symptoms associated with COPD[2]

Symptom	Considerations
Dyspnoea	• Cardinal symptom of COPD and a major cause of the disability and anxiety related to COPD • Persistent but typically worse with exertion or physical activity • Progressive over time, with moderate-to-severe dyspnoea being reported by >40% of patients diagnosed with COPD in primary care • Often described by patients as a sense of increased effort to breathe, chest heaviness, air hunger, or gasping
Chronic cough	• Typically the first symptom of COPD, but significant airflow obstruction can develop without the presence of a cough • Frequently discounted as “smoker’s cough” and/or due to exposure to environmental irritants • May start as intermittent but subsequently may be present every day, usually throughout the day • May be productive (with sputum) or unproductive (without sputum) • Cough with sputum production is present in up to 30% of patients
Sputum production	• Can be intermittent with periods of flare-ups and then periods of remission • Production of small quantities of tenacious sputum with coughing is common • Chronic bronchitis (CB) is a common but variable condition in COPD with prevalence typically ranging from 27%-35%
Wheezing and chest tightness	• May vary between days and over the course of a day, but absence does not exclude a diagnosis, nor does presence confirm a diagnosis • Widespread inspiratory or expiratory wheezing may be heard with a stethoscope • Chest tightness often follows exertion, is poorly localised, and is muscular in nature
Fatigue	• Distressing symptom of COPD • Subjective feeling of tiredness or exhaustion and often described as “general tiredness” or as a feeling of being “drained of energy” • Impacts a patient’s ability to perform daily activities and their quality of life

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1. American Lung Association. COPD symptoms & diagnosis. Available at: https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/symptoms-diagnosis. Accessed August 2024.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

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It is important that you are aware of other possible clinical features of the disease to appropriately monitor and assess your patient's COPD symptoms. Common signs of severe and very severe COPD may include[1]:

- weight loss
- anorexia
- muscle mass loss
- ankle swelling

Because these clinical features can also be a sign of other diseases, such as tuberculosis, lung cancer, or cor pulmonale (right-sided HF), always refer your patient with COPD to their primary care doctor or specialist for further investigation if they exhibit these signs.[1]

HF, heart failure

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

COPD

Exacerbations

What is an exacerbation?

An exacerbation of COPD (also called a flare-up or an attack) is a sudden worsening of COPD symptoms.[1]

GOLD defines an COPD exacerbation as:
"an event characterised by increased dyspnoea and/or cough and sputum that worsens in <14 days which may be accompanied by tachypnoea and/or tachycardia and is often associated with increased local and systemic inflammation caused by infection, pollution, or other insult to the airways."[1]

The increased airway and systemic inflammation, hyperinflation and gas trapping, and mucus production associated with an exacerbation all contribute to increased dyspnoea – **which is the key symptom of a COPD exacerbation**.[1]

As the GOLD definition suggests, other symptoms are also typically present during an exacerbation, including[1]:

- Increased volume of sputum
- Increased production of purulent sputum (eg, yellow or green sputum)
- Increased cough
- Increased wheezing

Did you know?

Exacerbation recognition and reporting by patients is generally poor. Studies have shown that almost 75% of patients have difficulties with understanding the term exacerbation and around 40% of patients do not immediately take action.[2]

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report . Accessed August 2024.

2. Hurst JR et al. *Eur J Int Med*. 2020;73:1–6.

Diagnosis and risk factors

There is no test available in routine clinical practice to diagnose a COPD exacerbation.[1]

An exacerbation is diagnosed after excluding other possible causes of symptom changes, particularly pneumonia, HF, and pulmonary embolism.[1,2]

Currently, exacerbations are classified after the event has occurred based on the treatment required and on whether hospitalisation is needed.[1,2]

According to GOLD, exacerbations can be[2]:

- Mild-treated with SABDs only
- Moderate-treated with SABDs and oral corticosteroids, with or without antibiotics
- Severe-requires hospitalisation or emergency department visit; may also be associated with acute respiratory failure

Pharmacological treatment of COPD will be reviewed later in the eLearning module in the *COPD Management* section.

How can you identify which of your patients with COPD are most at risk of exacerbations?

Below are some common risk factors to monitor[1-6]:

- Prior exacerbations
- Respiratory infections (eg, cold, influenza, COVID-19)
- Symptom burden
- Reduced lung function
- Comorbidities (eg, lung cancer, HF, dyspepsia, asthma)
- Markers of inflammation (eg, elevated eosinophils)
- Poorer quality of life
- Female gender

Did you know?

The strongest predictor of future COPD exacerbation risk is a **history of exacerbations**. The risk of rehospitalisation or death also increases significantly after a first severe exacerbation and with each subsequent event.[3,7]

GOLD, Global Initiative for Chronic Obstructive Lung Disease

HF, heart failure

SABDs, short-acting bronchodilators

1. Hurst JR et al. *Eur J Int Med*. 2020;73:1-6.

2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

3. Müllerová H et al. *BMJ Open*. 2014;4:e006171.

4. Dransfield MT et al. *Am J Respir Crit Care Med*. 2017;195(3):324-330.

5. Westerik JAM et al. *Respir Res*. 2017;18:31.

6. Brusselle B et al. *Respir Med*. 2018;138:21-31.

7. Suissa S, Dell'Aniello S, Ernst P. *Thorax*. 2012;67:957–963.

Impact of exacerbations

The burden of COPD exacerbations can go well beyond the lungs.

Decreased lung function[1]

- Just 1 COPD exacerbation can result in a significant decrease in lung function
- Patients who have frequent exacerbations generally have the largest decline in lung function

Decreased physical activity levels[1]

- One moderate exacerbation can lead to reduced exercise capacity and muscle strength
- Reduced physical activity levels are associated with an increased risk of further exacerbations and mortality

Impact on mental health[1]

- Anxiety, depression, and post-traumatic stress symptoms are more commonly reported in patients with frequent exacerbations (≥2) vs patients with ≤1 exacerbation in the previous year

Worsening quality of life[1]

- Even a mild exacerbation can negatively impact a patient's health-related quality of life
- Frequent exacerbations (≥3/year) have been found to significantly reduce quality of life as compared to less frequent exacerbations (<3/year)

Increased cardiopulmonary risk[2,3]

- There is a 280% increased cardiopulmonary risk in the 30 days after 1 exacerbation compared to the pre-exacerbation period
- Risk of CV events, such as arrhythmia and HF, increases in the first 14 days following a severe exacerbation, and this increased risk of CV events persists for up to a year after
- After moderate exacerbations, the risk of HF, pulmonary hypertension, and acute coronary syndrome is highest after 2 weeks, 1 month, and after 3 months, respectively

Increased mortality[1,4]

- More than 1 in 5 patients hospitalised for a COPD exacerbation for the first time die within 1 year of discharge, and only half of patients are still alive within 3.6 years
- An 80% increase in risk of death was found in patients with COPD who had 2 moderate exacerbations in the previous year compared to patients who did not have an exacerbation

CV, cardiovascular

HF, heart failure

1. Hurst JR et al. *Eur J Int Med*. 2020;73:1–6.

2. Kunisaki KM et al. *Am J Respir Crit Care Med*. 2018;198:51-5.

3. Graul EL et al. *Am J Respir Crit Care Med*. 2023;209(8): 960-972.

4. Rothnie KJ et al. *Am J Respir Crit Care Med*. 2018;198(4):464-471.

5. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

As previously reviewed, many COPD exacerbations are not reported by patients to their healthcare team.[5]

While exacerbations may often be short in duration, they can have a significant impact on a patient's physical and mental health.[5]

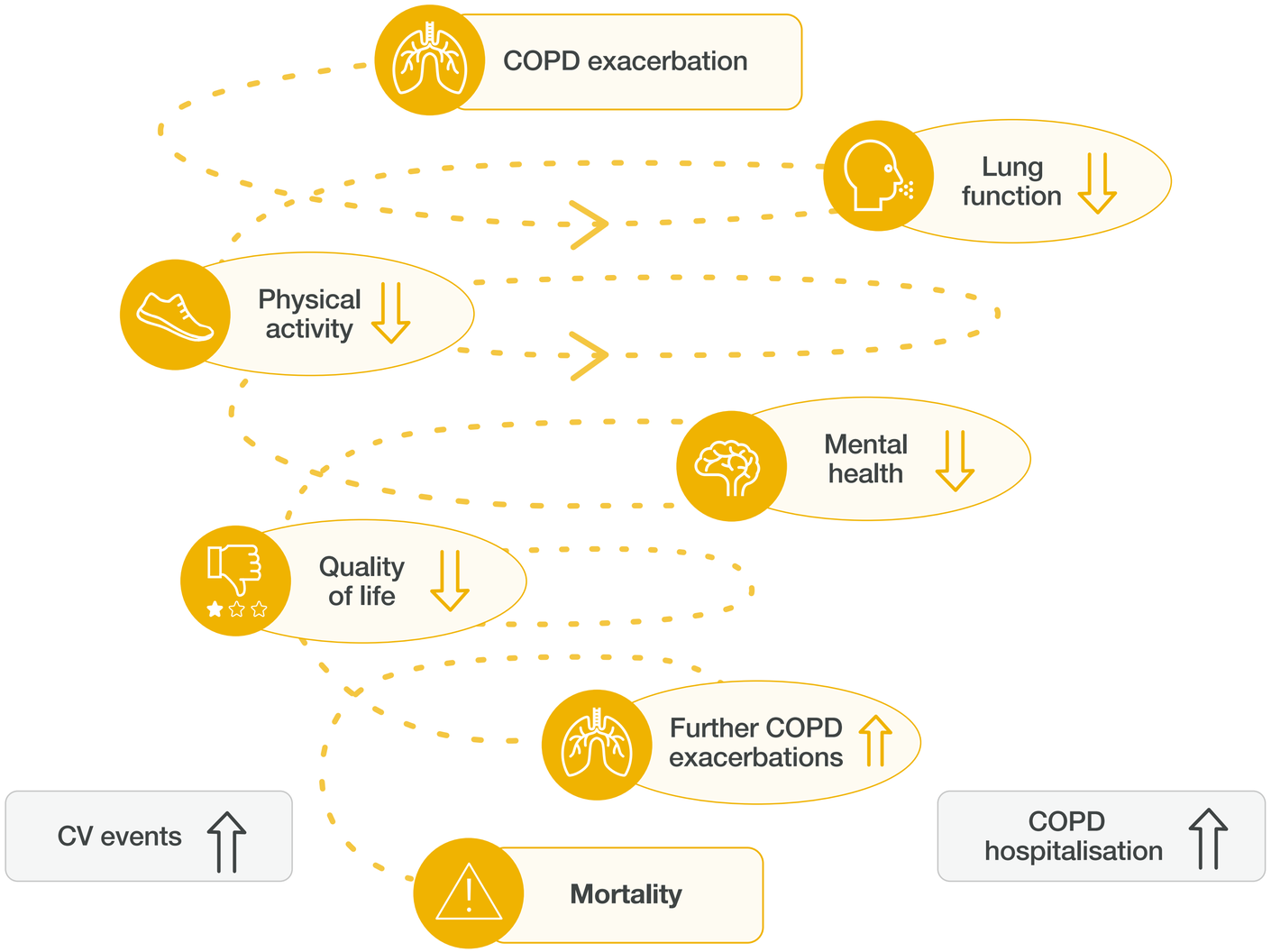
Thus, it is imperative that patients with COPD receive education about the importance of reporting worsening of symptoms and guidance on when to seek medical advice.[5]

Did you know?

During an exacerbation, increased symptoms are typically present for 7 to 10 days. However, exacerbation recovery time can vary, with some patients taking up to 4-6 weeks to recover and others failing to return to their pre-exacerbation state.[5]

ACT NOW +

Downward spiral of exacerbations



Adapted from Hurst JR et al[1]

Depression and anxiety are common in COPD[2] and have been linked with[1]:

- decrease in physical activity
- worsening health-related quality of life
- increased respiratory symptoms
- elevated risk of subsequent exacerbations, hospitalisation, and mortality

Conversely, a decline in physical activity has been associated with higher levels of depression in patients with a moderate COPD exacerbation.[1]

These findings above suggest that in some of your patients with COPD who experience an exacerbation, decreased physical activity may result in them becoming less mobile (housebound). This in turn may increase their depression, thereby leading to a vicious cycle of further impairments in physical activity, decreased quality of life, subsequent exacerbations, hospitalisation, and ultimately death.[1]

Did you know?

COPD not only affects the mental health of patients; almost two-thirds of caregivers reported anxiety symptoms and approximately one-third reported symptoms of depression.[1]

ACT NOW +

CV, cardiovascular

1. Hurst JR et al. *Eur J Int Med*. 2020;73:1-6.

2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

ACT NOW

Depression and anxiety in COPD are often underdiagnosed and can have a significant impact on the course of the disease.[1]
But pharmacy teams can help!

- When a patient is diagnosed with COPD, provide information to the patient about the potential emotional outcomes of managing their disease, both positive and negative (eg, happiness, life satisfaction, depression, anxiety, low mood, stress).

- Reassure the patient that the negative emotions associated with their COPD are normal and may be temporary. Direct the patient to blogs or forums where patients discuss their journey with COPD to highlight the variety in the experiences and severity of the disease and to encourage peer support from other patients. Help your patients with COPD to find relevant patient blogs and forums.

- Encourage the patient to take steps to lessen stressful or negative feelings. For instance, direct patients towards the use of relaxation techniques like muscle relaxation, guided imagery, journalling, and meditation.

- Direct the patient to other resources and services, such as appropriate written/visual information, websites, and psychological support services, including self-help groups, telephone helplines, and counsellors.

- If clinically relevant, refer the patient to their HCP to support pharmacological management of depression and anxiety.

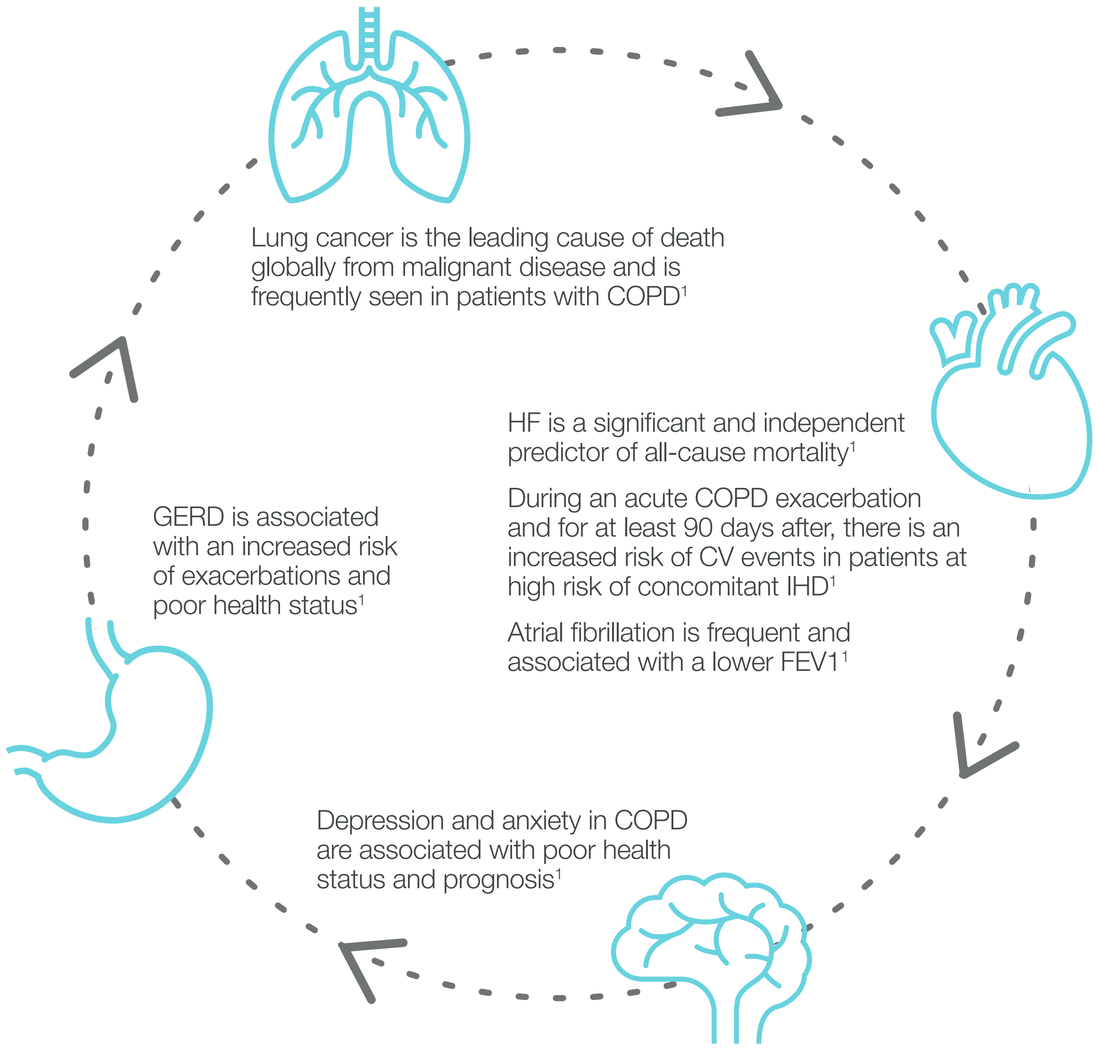
To learn more about depression and anxiety in general, visit FIP's Mental Health page at: https://ncd.fip.org/mental-health/

FIP, Fédération Internationale Pharmaceutique (International Pharmaceutical Federation)
HCP, healthcare professional

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

COPD and Comorbidities

Interconnectivity of COPD and chronic diseases



CVD, cardiovascular disease
GERD, gastroesophageal reflux disease
HF, heart failure
IHD, ischaemic heart disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Westerik JAM et al. *Respir Res*. 2017;18:31.
3. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022 Sep 6;17:2127-2136.
4. Chen et al. *BMC Pulmonary Medicine*. 2023;23:318.

Think of comorbidities as the rule rather than the exception in patients with COPD.[2]

Comorbidities, such as CVD, depression, GERD, and lung cancer are common at any stage of COPD severity.[1]

Some comorbidities may[2]:

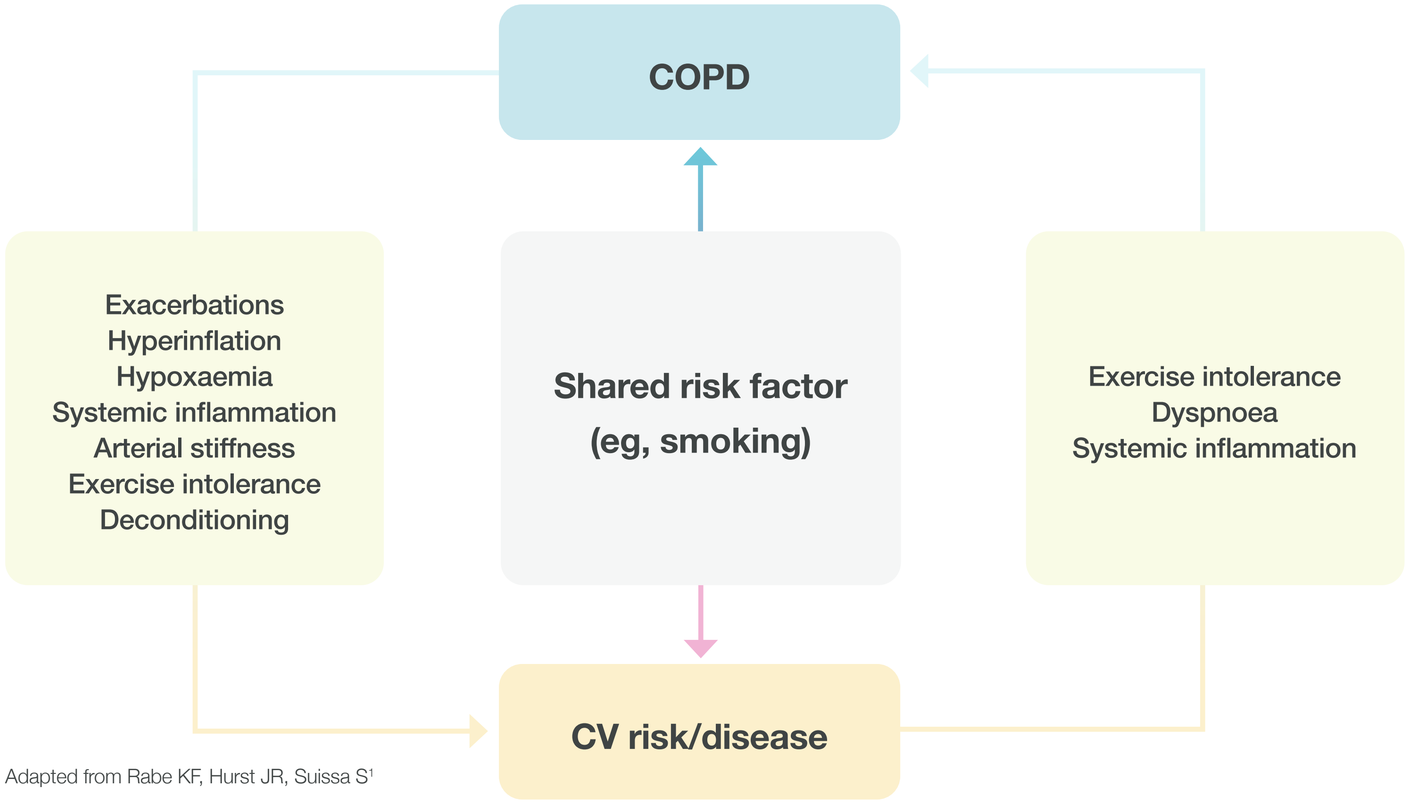
- arise independently of COPD
- be causally related either through shared risk factors (eg, smoking, ageing) or shared pathophysiology (eg, inflammation)
- be a complication of COPD

Equal attention should be paid to COPD and comorbidities! Comorbid conditions must be considered and addressed, as they have a major impact on health status and survival, and can cause the same symptoms as COPD (eg, dyspnoea, cough).[1,3]

Did you know?

Evidence suggests that CVD is the most common comorbidity in COPD.[4] Hypertension is likely the most frequently occurring CVD, but HF, IHD, and arrhythmias are also frequently seen in patients with COPD.[1]

Link between COPD and CVD



Adapted from Rabe KF, Hurst JR, Suissa S[1]

Evidence suggests a **syndemic** occurrence between COPD and CVD, with fundamental pathobiological links between the heart and lungs causing an aggregation of the 2 diseases and leading to a worsening in disease burden and prognosis.[2]

COPD was once considered a disease restricted to the lungs, with little impact on other organs.[3] In recent years, it has been revealed how COPD is a systemic disease with a low-level of inflammation that increases during exacerbations. This systemic activity affects other organs, particularly the heart and blood vessels.[3]

In addition to systemic inflammation, there are several other mechanisms which underlie the relationship between COPD and CVD, including[1,4]:

- hyperinflation
- hypoxaemia
- exacerbations (high levels of inflammation and oxidative stress occur during and after)
- shared risk factors (eg, smoking, ageing, inactivity)

The next slide takes a closer look at some of the potential mechanisms.

Did you know?

It is estimated that at least 40% of COPD deaths are due to CV causes, though this number may actually be underestimated.[3]

CV, cardiovascular
CVD, cardiovascular disease

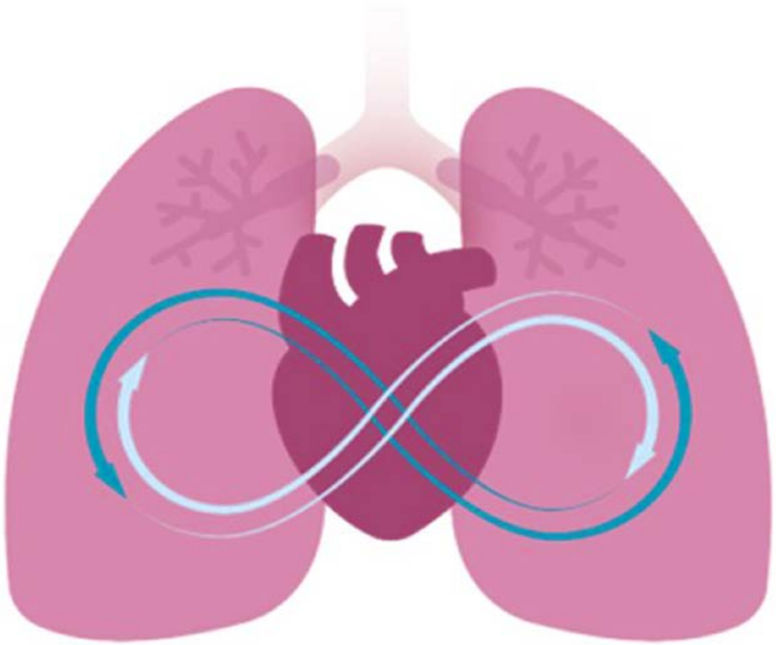
1. Rabe KF, Hurst JR, Suissa S. *Eur Respir Rev*. 2018;27:180057.
2. Donaldson GC et al. *Chest*. 2010;137:1091-1097.
3. Calderón Montero A, Segrelles Calvo G. *Interv Cardiol*. 2023; 15(S16): 407-412.
4. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Potential mechanisms of COPD-driven cardiopulmonary risk

EXACERBATIONS

Precursor of further pulmonary[1] and cardiac events[2-4]

Catalyst for inflammation,[2] hyperinflation,[3,5] and hypoxaemia[6]



Inflammation

Lung inflammation can trigger systemic inflammation, resulting in atherothrombosis in the heart and blood vessels[2]

Hyperinflation

Hyperinflation **compresses the heart** and **hinders blood pumping** and oxygenation[5,7]

Hypoxaemia

Hypoxic vasoconstriction in the lungs can cause pulmonary hypertension,[6] which can result in right HF and reduced cardiac output[5]

HF, heart failure

1. Müllerová H et al. *BMJ Open*. 2014;4:e006171.
2. Van Eeden S et al. *Am J Respir Crit Care Med*. 2012;186:11-16.
3. Crisan L et al. *Front Cardiovasc Med*. 2019;6:79.
4. Calderón Montero A, Segrelles Calvo G. *Interv Cardiol*. 2023; 15(S16): 407-412.
5. Rabe KF, Hurst JR, Suissa S. *Eur Respir Rev*. 2018;27:180057.
6. Kent BD et al. *Int J Chron Obstruct Pulmon Dis*. 2011;6:199-208.
7. Aisanov Z. Khaltaev N. *J Thorac Dis*. 2020;12(5):2791-2802.

Assessment of COPD

Patient assessment

Once the diagnosis of COPD has been confirmed by spirometry, the patient should be assessed to guide treatment.[1]

GOLD recommends that the **initial patient assessment** by healthcare professionals be focused on the following 5 aspects[1]:

These parameters can also form a framework for **ongoing patient assessment**.

Regular monitoring and follow-up of patients with COPD can help evaluate the effect of treatment, guide the need for changes in treatment, determine disease progression, and monitor the impact and progression of comorbidities.[1]

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Assessment of severity of airflow obstruction

GOLD Grades and Severity of Airflow Obstruction in COPD (based on post-bronchodilator FEV1)

In COPD patients (FEV1/FVC < 0.7):

GOLD 1:	Mild	FEV1 ≥80% predicted
GOLD 2:	Moderate	50% ≤ FEV1 <80% predicted
GOLD 3:	Severe	30% ≤ FEV1 <50% predicted
GOLD 4:	Very Severe	FEV1 <30% predicted

Adapted from the GOLD 2024 Report[1]

In patients with COPD (eg, FEV1/FVC ratio <0.7), the severity of airflow limitation is determined based on the patient's FEV1 relative to normal values. These FEV1 values are then used to classify COPD into **grades**.[1]

As per GOLD's classification system, COPD is graded 1-4 (mild, moderate, severe, and very severe) depending on how reduced a patient's FEV1 spirometry score is for their age.[1]

However, there is only a weak correlation between the severity of airflow obstruction and patient symptoms or the impact on their health. Thus, grading of COPD based on airflow obstruction may not be very helpful when it comes to choosing the best treatment for patients with COPD.[1,2]

To gain a complete picture of a patient's condition and to guide management, their current symptoms, risk of worsening symptoms, history of previous exacerbations, and comorbid conditions are also assessed.[2]

FEV1, forced expiratory volume of air in one second

FVC, forced vital capacity

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. Global Allergy and Airways Patient Platform (GAAPP). What are the four stages of COPD (chronic obstructive pulmonary disease)? Available at: https://gaapp.org/diseases/copd/four-stages-of-copd/. Accessed August 2024.

Assessment of nature and magnitude of current symptoms

Modified MRC Dyspnoea Scale

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | GRADES 0-4

mMRC GRADE 0	mMRC GRADE 1	mMRC GRADE 2	mMRC GRADE 3	mMRC GRADE 4
I only get breathless with strenuous exercise	I get short of breath when hurrying on the level or walking up a slight hill	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level	I stop for breath after walking about 100 meters or after a few minutes on the level	I am too breathless to leave the house or I am breathless when dressing or undressing
☐	☐	☐	☐	☐

Reference: ATS (1982) Am Rev Respir Dis. Nov:126(5):952-6

Adapted from the GOLD 2024 Report[1]

CAT™ Assessment

For each item below, place a mark (x) in the box that best describes you currently. Be sure to only select one response for each question.

EXAMPLE: I am very happy	0	X	2	3	4	5	I am very sad
I never cough	0	1	2	3	4	5	I cough all the time
I have no phlegm (mucus) in my chest at all	0	1	2	3	4	5	My chest is completely full of phlegm (mucus)
My chest does not feel tight at all	0	1	2	3	4	5	My chest feels very tight
When I walk up a hill or one flight of stairs I am not breathless	0	1	2	3	4	5	When I walk up a hill or one flight of stairs I am very breathless
I am not limited doing any activities at home	0	1	2	3	4	5	I am very limited doing activities at home
I am confident leaving my home despite my lung condition	0	1	2	3	4	5	I am not at all confident leaving my home because of my lung condition
I sleep soundly	0	1	2	3	4	5	I don't sleep soundly because of my lung condition
I have lots of energy	0	1	2	3	4	5	I have no energy at all

Score

Reference: Jones et ak, ERJ 2009; 34 (3); 648-54.

TOTAL SCORE: ☐

Adapted from the GOLD 2024 Report[1]

Spirometry assesses the severity of airflow limitation in COPD and **not** the severity of the disease itself.[1]

Therefore, formally assessing symptoms using validated questionnaires is required to evaluate disease severity.[1]

Two of the most commonly used questionnaires are[2]:

1. Modified Medical Research Council (mMRC) Dyspnoea Scale
2. COPD Assessment Test (CAT™)

Proposed use of these questionnaires by the pharmacy team will be reviewed later in the eLearning module in the *Your Role in COPD Care* section.

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Global Allergy and Airways Patient Platform (GAAPP). What are the four stages of COPD (chronic obstructive pulmonary disease)? Available at: https://gaapp.org/diseases/copd/four-stages-of-copd/. Accessed August 2024.

Modified MRC (mMRC) Dyspnoea Scale

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | GRADES 0-4

mMRC GRADE 0	mMRC GRADE 1	mMRC GRADE 2	mMRC GRADE 3	mMRC GRADE 4
I only get breathless with strenuous exercise	I get short of breath when hurrying on the level or walking up a slight hill	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level	I stop for breath after walking about 100 meters or after a few minutes on the level	I am too breathless to leave the house or I am breathless when dressing or undressing
☐	☐	☐	☐	☐

Adapted from the GOLD 2024 Report[1]

As the name suggests, the **mMRC Dyspnoea Scale** measures dyspnoea (breathlessness). Dyspnoea is a key symptom in many patients with COPD, although it is often not recognised by patients.[1]

The questionnaire is an easy-to-use tool that assesses the degree of baseline functional disability due to dyspnoea on a scale of 0-4 with 4 being the most severe.[2,3]

The scale is simple to administer as patients tick the box that best indicates the extent to which their breathlessness affects their mobility.[1]

The mMRC score relates well to other multidimensional health status measures and can help to predict future mortality risk.[1] Moreover, increased dyspnoea (mMRC ≥2) is associated with an increased risk of future exacerbations.[4]

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Agarwal AK, Raja A, Brown BD. Chronic obstructive pulmonary disease. Available at: https://www.ncbi.nlm.nih.gov/books/NBK559281/. Accessed August 2024.
3. Global Allergy and Airways Patient Platform (GAAPP). What are the four stages of COPD (chronic obstructive pulmonary disease)? Available at: https://gaapp.org/diseases/copd/four-stages-of-copd/. Accessed August 2024.
4. Müllerová H et al. *BMJ Open*. 2014;4:e006171.

COPD Assessment Test (CAT™)

For each item below, place a mark (x) in the box that best describes you currently. Be sure to only select one response for each question.

EXAMPLE: I am very happy	0	X	2	3	4	5	I am very sad	Score
I never cough	0	1	2	3	4	5	I cough all the time	
I have no phlegm (mucus) in my chest at all	0	1	2	3	4	5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	0	1	2	3	4	5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	0	1	2	3	4	5	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	0	1	2	3	4	5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	0	1	2	3	4	5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	0	1	2	3	4	5	I don't sleep soundly because of my lung condition	
I have lots of energy	0	1	2	3	4	5	I have no energy at all	

TOTAL SCORE:

Adapted from the GOLD 2024 Report[1]

The **CAT™** is a reliable measure of the health status of patients with COPD.[2]

The 8-item validated questionnaire is completed by the patient.[1] It has a scoring range of 0-40[2,3]:

- **≤5:** expected in healthy non-smokers
- **<10:** impact of COPD low
- **10-20:** impact of COPD medium
- **>20:** impact of COPD high
- **>30:** impact of COPD very high

CAT™ was developed to address the need for a simple-to-use tool which could quantify the effect of COPD on a patient's health and life.[2]

It was designed to enhance understanding of the disease's impact in order to manage patients optimally and reduce the burden of disease as much as possible.[2]

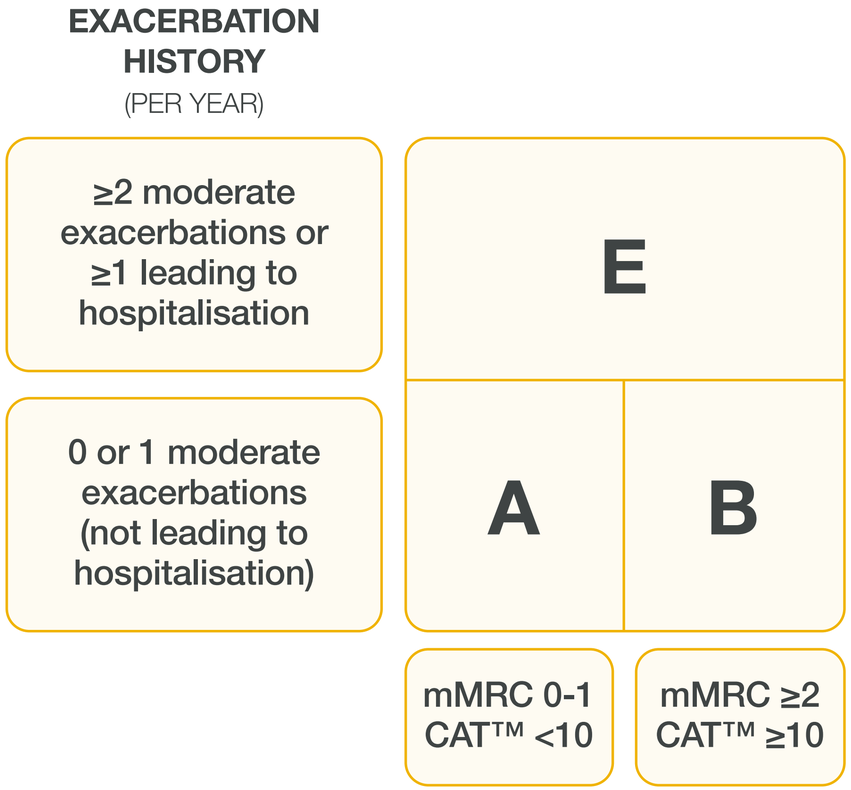
GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. The COPD Assessment Test (CAT). Available at: https://www.catestonline.org/hcp-homepage/clinical-practice.html. Accessed August 2024.

3. Global Allergy and Airways Patient Platform (GAAPP). Four stages of COPD. Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.

Assessment of symptoms and exacerbation history



Adapted from the GOLD 2024 Report[1]

To further aid the assessment of COPD severity, GOLD recommends classifying patients into 1 of 3 **groups** (A, B, or E) based on the[1]:

- nature and magnitude of their symptoms
- history of moderate (treated at home) and severe (treated in hospital) exacerbations

Prior to 2023, GOLD recognised 4 groups (A, B, C, and D). However, in the 2023 report, the A and B groups were unchanged, while the C and D groups were merged into a single group (E) to highlight the clinical relevance of exacerbations, independent of the patient's level of symptoms.[1]

The use of the GOLD groups to guide the initial choice of pharmacological treatment will be explored in the next section – COPD Management.

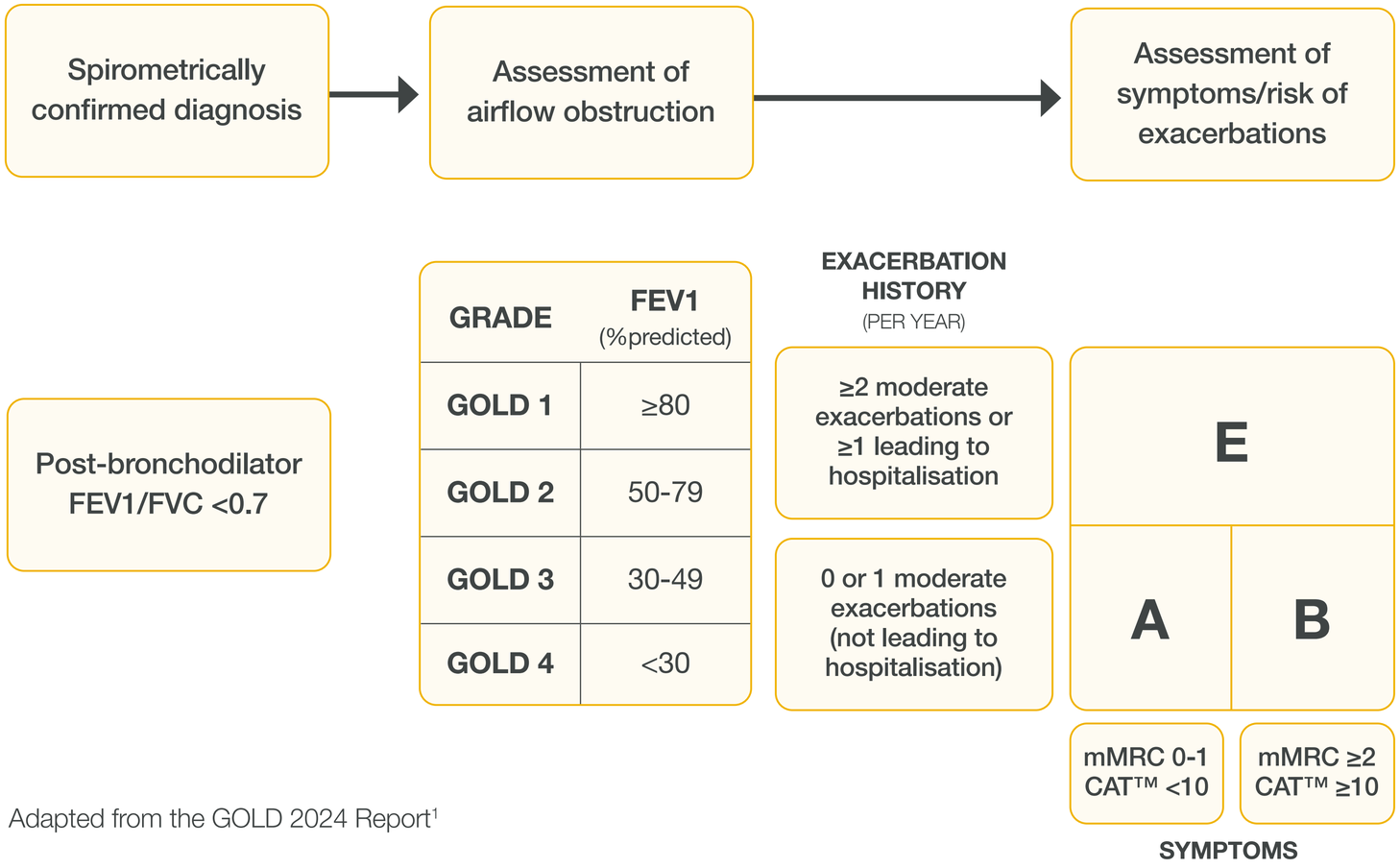
CAT™, COPD Assessment Test

GOLD, Global Initiative for Chronic Obstructive Lung Disease

mMRC, modified Medical Research Council

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

GOLD ABE assessment tool



Adapted from the GOLD 2024 Report[1]

The goals of COPD assessment are to determine[1]:

- **severity of airflow obstruction** (indicative of lung function)
- **symptom burden** (indicative of impact on patient's health status)
- **risk of exacerbations** (indicative of future exacerbations, hospital admissions, or death)

As the GOLD ABE assessment tool indicates, assessment of airflow obstruction, symptoms, and risk of exacerbations together can help to define the severity of COPD and, in turn, guide therapy.[1,2]

Pharmacists are typically the first point of contact for care in the community. Thus, they can leverage their accessibility and patient relationships to take an active role in COPD patient assessment by[3]:

- **assessing** current symptoms
- **screening** for exacerbations
- **monitoring** comorbid diseases
- **referring** to primary care as needed
- **following up** with patients

CAT™, COPD Assessment Test
FEV1, forced expiratory volume of air in one second
FVC, forced vital capacity
GOLD, Global Initiative for Chronic Obstructive Lung Disease
mMRC, modified Medical Research Council

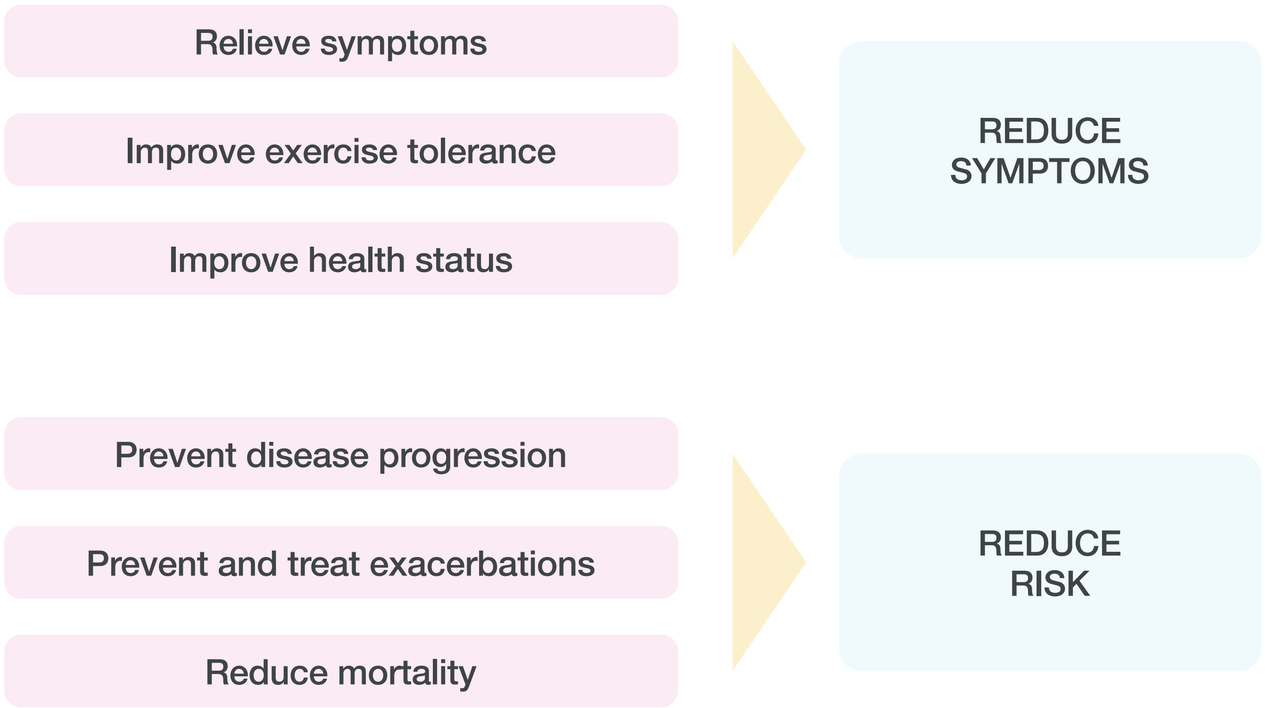
1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. The COPD Assessment Test (CAT). Available at: https://www.catestonline.org/hcp-homepage/clinical-practice.html. Accessed August 2024.
3. International Pharmaceutical Federation (FIP). Chronic respiratory diseases: A handbook for pharmacists. Available at: https://www.fip.org/file/5230. Accessed August 2024.

COPD Management

Management goals of stable COPD

Chronic morbidity and premature death are characteristic of COPD.[1]

Thus, the goals of COPD management aim to work in synergy to reduce morbidity and mortality and achieve optimal health outcomes.[1]



Adapted from the GOLD 2024 Report[1]

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Management goals of exacerbations

COPD exacerbations can significantly impact the health status of a patient (often for a prolonged period of time), accelerate the rate of lung function decline, worsen prognosis, and contribute to most of the healthcare costs.[1]

Thus, the goals of exacerbation management aim to work in synergy to lessen the impact of symptom worsening on the patient's health status and avoid future exacerbations, hospital admissions, or premature death.[1]

Minimise the negative impact of the current exacerbation

+

Prevent subsequent events

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Holistic approach to COPD management

Some Patients[2]


Antibiotics


Oral corticosteroids


Phosphodiesterase 4 (PDE4) inhibitors


Pulmonary rehabilitation


Inhaled corticosteroids


Methylxanthines


Oxygen therapy

Most Patients[2]


Physical activity


Inhaled bronchodilators


Smoking cessation


Vaccination


Written action plan

There is no cure for COPD. However, there are a range of pharmacological and nonpharmacological treatments available to manage the disease and help patients live well with COPD.[1]

Every patient with COPD should receive an **individualised treatment plan** that is guided by[2]:

- severity of symptoms
- risk of exacerbations
- comorbidities
- patient's response to treatment
- medication availability
- medication cost
- patient preference
- ability to use various drug delivery devices

Inhaled bronchodilators, such as SABAs, LABAs, SAMAs, and LAMAs, are central to COPD management. They are typically taken on a regular basis to reduce or prevent COPD symptoms.[2]

1. Global Allergy and Airways Patient Platform (GAAPP). COPD Treatment. Available at: https://gaapp.org/diseases/copd/copd-treatment/. Accessed August 2024.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

LABAs, long-acting beta 2 agonists
LAMAs, long-acting muscarinic antagonists
SABAs, short-acting beta 2 agonists
SAMAs, short-acting muscarinic antagonists

Pharmacological management of COPD

Table 4 | Inhaled pharmacological treatments for COPD[1,2]

Therapeutic Category	Selected Characteristics and Considerations
Short-acting beta-2 agonists (SABAs)	• Make breathing easier by relaxing airway smooth muscle via stimulation of beta-2 adrenergic receptors • Used primarily as rescue therapy; effect usually wears off in 4-6 hours • Regular and as needed use can improve FEV1 and symptoms
Long-acting beta-2 agonists (LABAs)	• Mainly act by relaxing airway smooth muscle, stimulating beta-2 adrenergic receptors • Used as maintenance therapy; effect usually wears off within 12-24 hours • Significantly improve lung function, dyspnoea, and health status and reduce exacerbation rates • Combination therapy with LAMA increases FEV1 and reduces COPD symptoms and exacerbations compared to monotherapy
Short-acting muscarinic antagonists (SAMAs)	• Mainly act by blocking the bronchoconstrictor effects of acetylcholine • Effect usually wears off in 6-8 hours • Regular and as needed use can improve FEV1 and symptoms
Long-acting muscarinic antagonists (LAMAs)	• Mainly act by blocking the bronchoconstrictor effects of acetylcholine • Used as maintenance therapy; effect usually wears off within 12-24 hours • Significantly improve lung function, dyspnoea, and health status and reduce exacerbation rates • Greater effect on reducing exacerbations and decreasing hospitalisations than LABAs • Combination therapy with LABAs increases FEV1 and reduces COPD symptoms and exacerbations compared to monotherapy
Inhaled corticosteroids (ICS)	• Use as monotherapy not recommended; used mostly in those with frequent exacerbations and eosinophilic inflammation, but monotherapy does not modify long-term decline of FEV1 nor mortality in patients with COPD • Factors to favour adding an ICS to long-acting bronchodilators include history of hospitalisation(s) for exacerbations, ≥2 moderate COPD exacerbations per year, blood eosinophils ≥300 cells/μL, and history of or current asthma • Triple therapy (LABA + LAMA + ICS) improves lung function and health status and reduces COPD exacerbations when compared to LAMA monotherapy, LABA + LAMA, and LABA + ICS • Evidence has shown that triple therapy reduces morality as compared to dual bronchodilation

FEV1, forced expiratory volume of air in one second

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. International Pharmaceutical Federation (FIP). Chronic respiratory diseases: A handbook for pharmacists. Available at: https://www.fip.org/file/5230. Accessed August 2024.

Pharmacological management of COPD (cont'd)

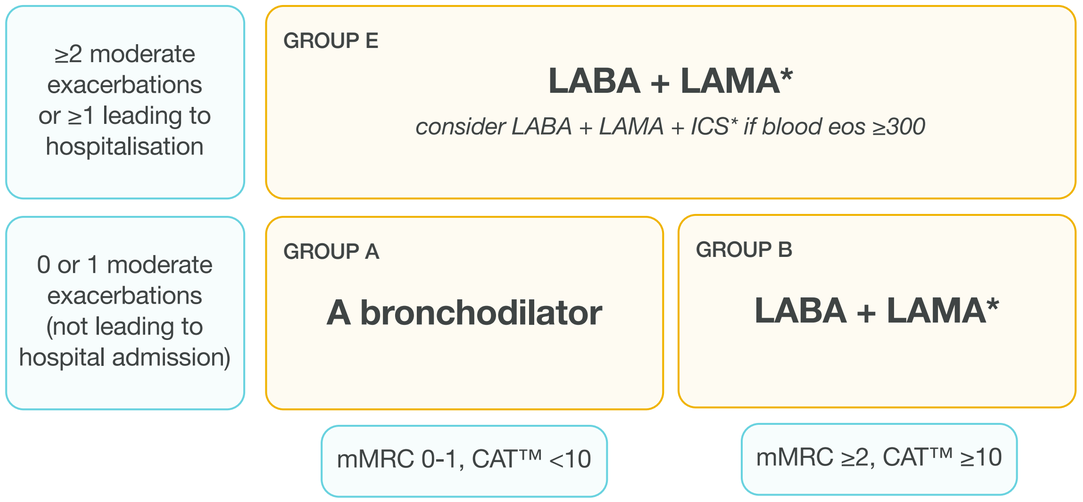
Table 5 | Additional pharmacological treatments for COPD[1,2]

Therapeutic Category	Selected Characteristics and Considerations
Systemic glucocorticoids	• Role in the acute management of exacerbations; use should be confined to significant exacerbations • In patients with severe exacerbations, shorten recovery time and improve lung function (FEV1), oxygenation, decrease risk of early relapse, decrease treatment failure, and decrease the length of hospitalisation • Dose of 40 mg prednisone-equivalent per day for 5 days recommended for exacerbations; longer courses associated with an increased risk of pneumonia and mortality • May be less effective in patients with lower levels of blood eosinophils • No role in daily treatment in COPD due to a lack of benefit and high rate of systemic complications
Phosphodiesterase-4 (PDE4) inhibitors	• Reduce exacerbations in patients who have chronic bronchitis, severe to very severe COPD, and a history of exacerbation by reducing inflammation • Improvement in lung function when added to long-acting bronchodilators and in patients with uncontrolled disease on fixed-dose LABA + ICS combinations • Have more adverse effects than inhaled COPD medications
Methylxanthines	• Modest bronchodilator effects with duration of action of up to 24 hours; act as nonselective PDE inhibitors • Addition of theophylline to salmeterol produces greater improvement in dyspnoea than salmeterol alone • Not recommended due to increased side effects
Antibiotics	• Use of antibiotics in exacerbations remains controversial • Use in exacerbations in patients who have 3 cardinal symptoms: 1) increase in dyspnoea, 2) sputum volume, and 3) sputum purulence; have 2 of the cardinal symptoms, if increased purulence of sputum is one of the two symptoms; or require mechanical ventilation (invasive or noninvasive) • Recommended length of therapy is 5-7 days for inpatients, with a duration of ≤5 days for outpatient treatment; shorter exposure may decrease risk of antimicrobial resistance and complications associated with antibiotic therapy • Choice of the antibiotic based on the local bacterial resistance pattern

FEV1, forced expiratory volume of air in one second
ICS, inhaled corticosteroid
IV, intravenous
LABA, long-acting beta-2 agonist
PDE, phosphodiesterase

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. International Pharmaceutical Federation (FIP). Chronic respiratory diseases: A handbook for pharmacists. Available at: https://www.fip.org/file/5230. Accessed August 2024.

Initial pharmacological COPD treatment



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment. Exacerbations refers to the number of exacerbations per year.

Adapted from the GOLD 2024 Report[1]

All patients should be prescribed rescue bronchodilators (SABAs and SAMAs) for immediate relief of COPD symptoms.[1]

The initial choice of inhaled therapy is recommended to be based on the patient's GOLD group.[1]

Group A Patients[1]

- Bronchodilator (SABA or LABA) is recommended based on effect on dyspnoea (breathlessness)
- LABA preferred if available and affordable, except in patients with very occasional breathlessness
- Bronchodilator is continued if beneficial

Group B Patients[1]

- LABA + LAMA combination is recommended if no issues with availability, cost, and side effects
- If LABA + LAMA not appropriate, consider patient's choice of LABA or LAMA based on view of symptom relief
- If present, comorbidities should be treated based on national and international guidelines

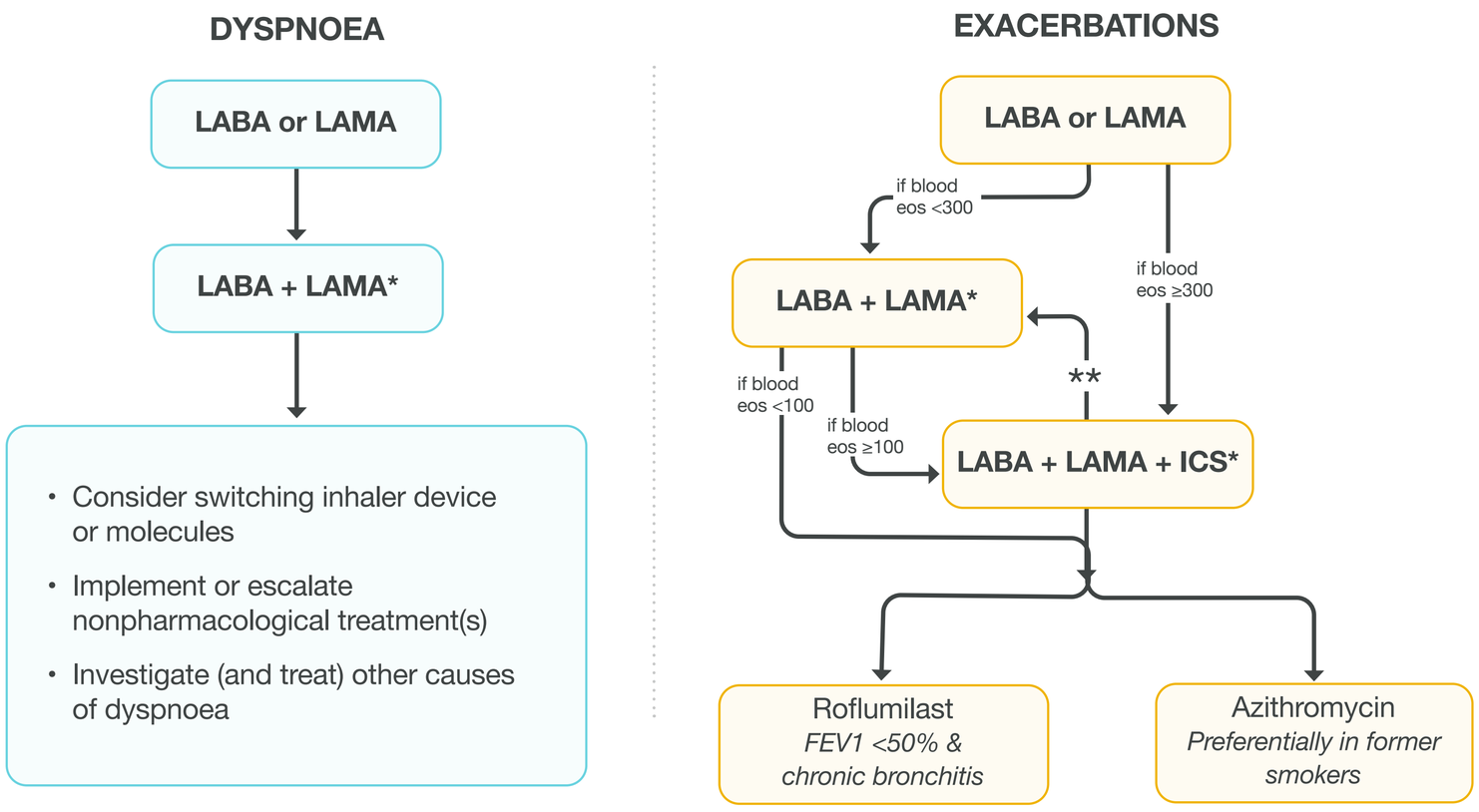
Group E Patients[1]

- LABA + LAMA combination recommended if no issues with availability, cost, and side effects
- Triple therapy (LABA + LAMA + ICS) is the preferred choice (rather than LABA + ICS) if ICS is indicated
- GOLD recommends LABA + LAMA + ICS if blood eosinophils ≥300 cells/µL, as the effect of ICS on exacerbation prevention is correlated to eosinophil count
- Patients with COPD who have asthma should be treated like patients with asthma; ICS use is standard

CAT™, COPD Assessment Test
eos, eosinophilia
GOLD, Global Initiative for Chronic Obstructive Lung Disease
ICS, inhaled corticosteroid
LABA, long-acting beta-2 agonist
LAMA, long-acting muscarinic antagonist
mMRC, modified Medical Research Council scale
SABAs, short-acting beta-2 agonists
SAMAs, short-acting muscarinic antagonists

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Ongoing pharmacological COPD treatment



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment

**Consider de-escalation of ICS if patient has pneumonia or other considerable side effects. In case of blood eos ≥300 cells/µl, de-escalation is more likely to be associated with the development of exacerbations

Adapted from the GOLD 2024 Report[1]

This algorithm recommended by GOLD is designed to facilitate **ongoing management of COPD** in patients taking maintenance treatment(s), whether it is early after initial treatment or years after their diagnosis.[1]

Escalation or de-escalation of treatment is made irrespective of the GOLD group that the patient was in when treatment was first started.[1]

The algorithm is based on[1]:

- persistence of dyspnoea
- occurrence of exacerbations

If response to initial treatment is appropriate, the current treatment should be maintained.[1]

If the response is not appropriate, it is important that inhaler technique, adherence, and comorbidities be checked.[1]

Next, consideration must be given to whether dyspnoea or exacerbations is the major concern. If both need to be treated, then it is recommended that the exacerbation pathway be used.[1]

eos, eosinophils
FEV1, forced expiratory volume of air in one second
GOLD, Global Initiative for Chronic Obstructive Lung Disease
ICS, inhaled corticosteroid
LABA, long-acting beta-2 agonist
LAMA, long-acting muscarinic antagonist

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Ongoing pharmacological COPD treatment

Table 5 | Nonpharmacological measures based on the GOLD group at diagnosis

Patient Group	Essential	Recommended	Depending on Local Guidelines
A	**Smoking cessation** (can include pharmacological treatment)	**Physical activity**	**Vaccination**
B and E	**Smoking cessation** (can include pharmacological treatment) **Pulmonary rehabilitation**	**Physical activity**	**Vaccination**

Adapted from the GOLD 2024 Report[1]

Nonpharmacological treatment is a critical component of COPD management and is complementary to pharmacological treatment.[1,2]

Given the frequency of patient interactions, pharmacists are uniquely positioned to empower and promote nonpharmacological measures including[1]:

- medication adherence
- smoking cessation
- proper inhaler technique
- vaccination
- physical activity
- pulmonary rehabilitation

In some countries, pharmacists can also prescribe smoking cessation medications and prescribe and/or deliver recommended vaccines.

Smoking cessation is the only evidence-based intervention that **reduces the risk** of developing COPD and **slows the accelerated decline** of lung function in patients with COPD.[3]

Consider advising every patient with COPD in your pharmacy that smokes to quit and offering assistance to do so.[1]

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022 Sep 6;17:2127-2136.

3. van Eerd EAM et al. *Cochrane Database Syst Rev*. 2016(8):CD010744.

Your Role in COPD Care

Role of the pharmacist

GOLD has organised treatment objectives into 2 groups[1]:

1. Those directed towards relieving and reducing the impact of symptoms
2. Those that reduce the risk of adverse health events (eg, exacerbations and CV events) that may affect the patient in the future

These objectives emphasise the need for HCPs to focus on both the short-term and long-term impacts of COPD.[1]

Given the key roles community pharmacists already play as primary HCPs in many nations, who better than pharmacists to embrace the challenge?

Pharmacists can provide focused interventions, specialised counselling, and/or care coordination to help improve patient engagement to achieve better COPD outcomes.[2]

As one of the most accessible and knowledgeable primary care providers, pharmacists are ideally placed to become key allies in the global battle against COPD.[3] By actively engaging in services to enhance patient care, they can play an integral role in moving COPD care beyond symptom control to disease modification and remission and, hopefully one day, cure.

There are multiple opportunities within the pharmacy to support:

- symptom assessment
- medication optimisation

Routine pharmacy services may reveal patient risk factors for COPD or existing COPD symptoms, making them ideal touch points for further patient counselling and referral

Pharmacists can provide initial counselling on what specifically COPD is, the risks a patient may have of developing COPD, how they can get tested, what symptoms to monitor for, and when to seek medical advice

To learn more about the pharmacist role in COPD care, visit FIP's Chronic Respiratory Diseases page at:
https://ncd.fip.org/chronic-respiratory-diseases/

CV, cardiovascular
FIP, Fédération Internationale Pharmaceutique (International Pharmaceutical Federation)
GOLD, Global Initiative for Chronic Obstructive Lung Disease
HCP, healthcare professional

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. International Pharmaceutical Federation (FIP). FIP statement of policy; The role of pharmacists in non-communicable diseases. Available at: https://www.fip.org/file/4338#:~:text=Contributing%20to%20the%20appropriate%20management,medicines%20reconciliation%20and%20other%20services. Accessed August 2024.
3. International Pharmaceutical Federation (FIP). Beating non-communicable diseases in the community: The contribution of pharmacists. Available at: https://www.fip.org/files/content/publications/2019/beating-ncds-in-the-community-the-contribution-of-pharmacists.pdf. Accessed August 2024.

There are resources to help! Support for pharmacy across the COPD care services journey

1

Recognition of the value of COPD care services in your pharmacy but don't know where to start

- Chronic Disease Service Framework eLearning Module

2

Assessment of your team's readiness and preparation for COPD care services initiation

- Service Implementation Checklist
- **FIP** Knowledge and Skills Reference Guide for Professional Development in Chronic Respiratory Disease

3

Evaluation of your pharmacy's demographic to assess focus of COPD care services

- Pharmacy management computer system
- Team knowledge of patients

4

Team training on COPD

- COPD eLearning Module
- **FIP** Chronic Respiratory Disease: A Handbook for Pharmacists
- **FIP** Knowledge and Skills Reference Guide for Professional Development in Chronic Respiratory Disease

5

Team training on utilisation of Chronic Disease Service Framework

- Service Framework eLearning Module

6

Promotion of COPD care services to patients and colleagues

- Service Promotion Poster
- Prescriber Service Promotion Letter

7

Implementation of COPD care services in your pharmacy

- COPD Assessment Tool
- COPD Patient Information Leaflet
- COPD Primary Care Referral Letter

FIP, Fédération Internationale Pharmaceutique (International Pharmaceutical Federation)

Role across the COPD journey

Pharmacy has a key role to play in the care of all patients with COPD. Pharmacist-led strategies throughout the disease journey aim to improve outcomes for patients with COPD.

At-risk patients who have not yet been diagnosed + **Patients with COPD with low exacerbation risk** + **Patients with COPD with high exacerbation risk**

Pharmacists can support the care of patients with COPD across their disease journey.

1 **Symptom Monitoring**

2 **Medication Optimisation**

1

Your role in symptom monitoring

The relationship between symptoms of COPD and disease burden cannot be underestimated in terms of[1]:

- daily activities
- sleep
- health status
- quality of life
- physical activity
- comorbid anxiety and depression
- exacerbation risk and prognosis

Thus, symptom recognition and improvement should be an integral part of a pharmacist's approach to COPD care.[1] Patient education should focus on increasing understanding and reporting of COPD symptoms, particularly worsening symptoms, to aid prevention, timely identification, and treatment of exacerbations.[2]

Improving patient recognition of initial symptoms and symptom worsening and increasing awareness of the impact of exacerbations on a COPD patient's health status are key to minimising negative effects.[2]

Consider paying particular attention to patients with COPD with worsening symptoms who are receiving maintenance therapy. Focus on identifying such patients and optimising their therapy with the aim of improving symptoms and preventing exacerbations.

During pharmacy visits, regularly talk with your patients with COPD about their symptoms, including any new or worsening ones.[3]

Focus on any changes since the last visit in[4]:

- breathlessness
- cough
- sputum (volume and colour)
- fatigue
- ability to be active
- sleep
- unscheduled visits to doctors or other healthcare providers
- telephone calls for assistance
- use of urgent or emergency care services or hospitalisation
- likely causes of symptom worsening

Pharmacy team members can use questionnaires such as the mMRC Dyspnoea Scale or the CAT™ to assess trends and changes in the patient's symptoms.[4]

The use of other practical tools, such as the COPD Flare-Up Checklist, can help pharmacy teams educate patients on how to recognise an exacerbation and the importance of reporting.

ACT NOW +

CAT™, COPD Assessment Test

mMRC, modified Medical Research Council

1. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022 Sep 6;17:2127-2136.

2. Hurst JR et al. *Eur J Int Med*. 2020;73:11-6.

3. AstraZeneca. ACT on COPD. Optimise management. Assess patient symptoms. Available at: https://www.actoncopd.com/hcp/optimise-management.html#optimise_tablist-item-8743b51d94-tab. Accessed August 2024.

4. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

ACT NOW

- Adopt patient language by using terms such as “flare-up” when discussing worsening of symptoms to help patients with COPD understand what has happened to them.[1]
- Encourage patients to track their own symptoms. They can use the **COPD Flare-Up Checklist**, which will be reviewed a little later in this module.
- Ask daily life-related questions. For example, “Have you had to change your daily activities because of your symptoms?” This can help the patient to share symptom/flare details.
- Host COPD Awareness Days at your pharmacy to highlight risk factors, common symptoms patients should be self-monitoring, and the health consequences of exacerbations.
- Consider World Lung Day in September and World COPD Day in November as possible dates for a COPD Awareness Day.

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Use of the mMRC Dyspnoea Scale in the pharmacy

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | GRADES 0-4

mMRC GRADE 0	mMRC GRADE 1	mMRC GRADE 2	mMRC GRADE 3	mMRC GRADE 4
I only get breathless with strenuous exercise	I get short of breath when hurrying on the level or walking up a slight hill	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level	I stop for breath after walking about 100 meters or after a few minutes on the level	I am too breathless to leave the house or I am breathless when dressing or undressing
☐	☐	☐	☐	☐

Adapted from the GOLD 2024 Report[1]

Encourage your patients with COPD to learn how to use this dyspnoea screening tool and to share results with you and their primary care team. Document and track the patient's results in their profile.

GOLD, Global Initiative for Chronic Obstructive Lung Disease

mMRC, modified Medical Research Council

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Physiopedia. Medical Research Council (MRC) Dyspnoea Scale. Available at: https://www.physio-pedia.com/Medical_Research_Council_(MRC)_Dyspnoea_Scale. Accessed August 2024.
3. Cheng SL et al. *Journal of the Formosan Medical Association*. 2019;118:1:3 429-435.
4. Jones PW et al. *Eur Resp J*. 2013; 42:647-654.

Once completed, the mMRC scale can provide a **framework for your interactions** with patients with COPD.

The mMRC scale is easy and efficient to use. The statements are generally easily understood by patients, and a score can usually be obtained in a few seconds.[2]

It may be particularly useful when dyspnoea is a COPD patient's key symptom or the patient is experiencing anxiety related to their breathlessness. It has been recommended to use a mMRC score of ≥2 as the symptom cut-point for categorising patients into low- or high-symptom groups.[3,4]

Show your patients how to complete the questionnaire. Advise patients that they can complete it at home on a regular basis to gauge if there has been a change to the extent of how their breathlessness is affecting their mobility.

Use of the mMRC scale can help guide COPD care. The following interventions can be particularly beneficial for those patients who score ≥2:

- **reviewing** current maintenance therapy and recommending a change to primary care if needed
- **educating** on minimising and managing exacerbations
- **discussing** continued exposure to aggravating exacerbation risk factors
- **providing** smoking cessation advice/service
- **recommending and/or delivering** vaccines
- **regularly monitoring and assessing** symptoms

Remember, these interventions may also help patients who score less than 2.

Use of the CAT™ in the pharmacy

For each item below, place a mark (x) in the box that best describes you currently. Be sure to only select one response for each question.

EXAMPLE: I am very happy	0	X	2	3	4	5	I am very sad
I never cough	0	1	2	3	4	5	I cough all the time
I have no phlegm (mucus) in my chest at all	0	1	2	3	4	5	My chest is completely full of phlegm (mucus)
My chest does not feel tight at all	0	1	2	3	4	5	My chest feels very tight
When I walk up a hill or one flight of stairs I am not breathless	0	1	2	3	4	5	When I walk up a hill or one flight of stairs I am very breathless
I am not limited doing any activities at home	0	1	2	3	4	5	I am very limited doing any activities at home
I am confident leaving my home despite my lung condition	0	1	2	3	4	5	I am not at all confident leaving my home because of my lung condition
I sleep soundly	0	1	2	3	4	5	I don't sleep soundly because of my lung condition
I have lots of energy	0	1	2	3	4	5	I have no energy at all

Score

TOTAL SCORE:

Adapted from the GOLD 2024 Report[1]

Encourage patients with COPD to learn how to use this health status screening tool and share results with you. Document and track the patient's results in their profile.

Once completed, the CAT™ can also provide a **framework for your interactions** with patients with COPD.[2]

While the CAT™ has more questions than the mMRC scale, it is also easy to use. It does not focus solely on dyspnoea, but rather measures the impact of COPD on a patient's life.[2]

Ask your patients with COPD to complete the CAT™ questionnaire when they arrive at the pharmacy. You could provide a paper version, or they could complete it online. The patient could also complete the CAT™ at home right before visiting the pharmacy. It can be printed out or emailed.[2]

Recommend that your patients complete the CAT™ every 2 to 3 months to identify trends in the score and associated changes in their health. Since a patient's CAT™ score would not be expected to decrease by more than 1 unit per year, a change of 2 or more units over a 2- to 3-month period would suggest a clinically significant positive or negative change in health status.[2]

Encourage patients to share their results.

Pharmacists can decide which questionnaire they will use in the pharmacy to monitor a patient's symptoms, either the mMRC Dyspnoea Scale or the CAT™, based on what information they are looking to obtain. There is no need to use both.

CAT™, COPD Assessment Test

GOLD, Global Initiative for Chronic Obstructive Lung Disease

mMRC, modified Medical Research Council

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. The COPD Assessment Test (CAT). Available at: https://www.catestonline.org/hcp-homepage/clinical-practice.html. Accessed August 2024.

Guidance of pharmacist interventions

The CAT™ can help both you and your patients gain a common understanding of the impact of COPD and help identify where COPD has the greatest affect on your patient's health and daily life.[1] Use of the CAT™ can help guide relevant pharmacy-led interventions.[1]

Table 6 | Possible pharmacist management interventions based on the CAT™ Score[1]

CAT™ Score	Impact Level	Broad Clinical Picture of COPD Impact	Possible Pharmacist Interventions
>30	Very high	• COPD stops everything they want to do; never have good days • If the patient manages to take a bath or shower, it takes a long time • They cannot go shopping or do their housework • Patient may feel as if they have become an invalid	• Referral to primary care for further assessment, particularly if CAT™ scores are increasing • Review of current maintenance therapy and recommendation to primary care for additional pharmacological treatments if appropriate • Referral to primary care for pulmonary rehabilitation • + Interventions for patients with low- and medium-impact CAT™ scores
>20	High	• The patient can't do most things that they want to do because of COPD • Breathless from walking around the home and when getting washed or dressed • Cough makes them tired, and chest symptoms disturb their sleep most nights • Everything the patient does feels like too much effort • Patient may feel afraid and not in control of their disease	
10-20	Medium	• COPD is one of the most important problems that the patient has • Have some good days a week, but cough up sputum on most days • Experience 1-2 exacerbations a year • Breathless on most days and usually wake up with chest tightness or wheezing • Get breathless when bending over and can only walk up a flight of stairs slowly	• Review of current maintenance therapy and recommendation to primary care if suboptimal • Education on minimising and managing exacerbations • Review of continued exposure to aggravating risk factors • + Interventions for patients with low-impact CAT™ scores
<10	Low	• Unable to do 1-2 things that they would like to do because of COPD • Most days are good, but get exhausted easily • Get breathless when playing sports/games and when carrying heavy loads • Need to slow down/stop when walking up hills or walking quickly on level ground	• Provision of smoking cessation advice/service • Recommendation and/or delivery of vaccinations • Education on reducing exacerbation risk factors • Continued symptom monitoring and assessment

ACT NOW +

CAT™, COPD Assessment Test

1. The COPD Assessment Test (CAT). Available at: https://www.catestonline.org/hcp-homepage/clinical-practice.html. Accessed August 2024.

ACT NOW

- Use the CAT™ score to empower self-management. For instance, if your patient scores ≥10, emphasise that there is room for improvement.[1]

- Ask the patient if they would like to partner with you and/or their primary care professional (eg, doctor, nurse, nurse practitioner) to discuss ways to lower their score and, in turn, the impact that COPD is having on their lives.

CAT™, COPD Assessment Test

1. The COPD Assessment Test (CAT). Available at: https://www.catestonline.org/hcp-homepage/clinical-practice.html. Accessed August 2024.

Use of the COPD Flare-Up Checklist in the pharmacy

Completion of the COPD Flare-Up Checklist can aid patient understanding of exacerbations and determine if they have had an exacerbation in the past year.[1]

Ask patients to complete the checklist at the pharmacy or have a team member help the patient complete it. Then review the checklist answers with patients, explaining the following[1]:

- The best way to predict their future risk of flare-ups is their flare-up history
- Frequent rescue inhaler use may indicate their symptoms are getting worse (Question 1)
- Answering “1” or more to any of Questions 2-4 may indicate they had a flare-up of COPD in the past year
- The importance of reporting new or worsening symptoms to their doctor

Provide patients with copies of the checklist or the link to the tool so they can regularly complete it at home.

1 **In relation to your symptoms, how often do you use a rescue medication (inhalers or nebulisers) each week?**

☐ Never/rarely ☐ Once or twice a week ☐ Most days ☐ Every day

2 **How many times have you taken antibiotics for your COPD in the past year?** If you are prescribed antibiotics as part of your regular maintenance treatment for COPD, you should only answer this question for courses of antibiotics in addition to your repeat prescriptions.

☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+

3 **How many times have you taken steroid tablets (eg, prednisolone) for your COPD over the past year?** If you are prescribed steroid tablets as part of your regular maintenance treatment for COPD, you should only answer this question for courses of steroid tablets prescribed in addition to your repeat prescriptions.

☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+

4 **How many times have you been in the hospital (emergency department or a stay in the hospital) for your COPD in the past year?**

☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+

The COPD FLARE-UP CHECKLIST is available at:
https://www.actoncopd.com/content/dam/intelligentcontent/brands/breztri/actoncopd-global/pdf/Flare-Up-checklist-new.pdf

1. AstraZeneca. COPD Flare-Up Checklist. Available at: https://www.actoncopd.com/content/dam/intelligentcontent/brands/breztri/actoncopd-global/pdf/Flare-Up-checklist-new.pdf. Accessed August 2024.

2

Your role in medication optimisation

Optimal management of medications for patients with COPD is essential for controlling symptoms and reducing future risk.[1] With clinical expertise in pharmacotherapy, pharmacists are well-positioned to play a collaborative role in COPD care by[1,2]:

- educating patients on correct medication administration techniques
- regularly reassessing technique
- monitoring and promoting adherence
- addressing and resolve medication-related problems
- minimising occurrence of adverse events

Escalation or de-escalation of medication should be considered or recommended after assessing symptoms, adherence, and inhaler technique. It is essential to optimise inhaler choice and administration technique before reaching a conclusion about the effectiveness of COPD treatment.[1]

Education and regular training on proper inhaler technique should be emphasised whenever possible.[1,2] While inhaler devices deliver medication directly into the airways and lungs as a patient breathes, not all inhalers work the same way.[2,3]

Requests for refills of COPD medications, particularly maintenance therapy, are an ideal time to review adherence. Don't miss the opportunity to review the last date that the patient received their maintenance inhalers as you are filling the current refill. If adherence is an issue, educate on the importance of using their inhalers as prescribed to help prevent exacerbations.

Shared decision-making (eg, decisions that involve the patient) is important when choosing the right inhaler.[2]

Consider the following factors when optimising inhaler choice, including[2]:

- patient's beliefs
- patient's preference
- patient's satisfaction with the device
- patient's cognition
- patient's dexterity, coordination, and strength and how these impact the patient's ability to use the specific device
- inhaler size and portability
- inhaler cost

Did you know?

Patients prescribed DPIs need to inhale deeply and forcefully through the device. Those prescribed MDIs and SMIs need to inhale slowly and deeply through the device and coordinate the inhalation with the device triggering. Spacers and VHCs may be added to MDIs to simplify administration and aid medication delivery.[1,2]

ACT NOW +

DPIs, dry powdered inhalers
MDIs, metered-dose inhalers
SMIs, soft mist inhalers
VHCs, valved holding chambers

1. International Pharmaceutical Federation (FIP). Chronic respiratory diseases: A handbook for pharmacists. Available at: https://www.fip.org/file/5230. Accessed August 2024.

2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

3. Global Allergy and Airways Patient Platform (GAAPP). COPD Treatment. Available at: https://gaapp.org/diseases/copd/copd-treatment/. Accessed August 2024.

ACT NOW

- Don’t assume the reason for medication nonadherence; be sure to ask the patient why they are not using their COPD medication in a nonjudgmental manner, and suggest ways to improve adherence, including:
  - use of phone alarms
  - use of visual cues, such as notes on the refrigerator or bathroom mirror
  - use of pill boxes
  - linking taking their COPD medications to an existing established behaviour and action, such as brushing their teeth or before their morning shower
  - asking friends and family to provide reminders to take their COPD medication
  - use of a medication tracker, calendar, or diary

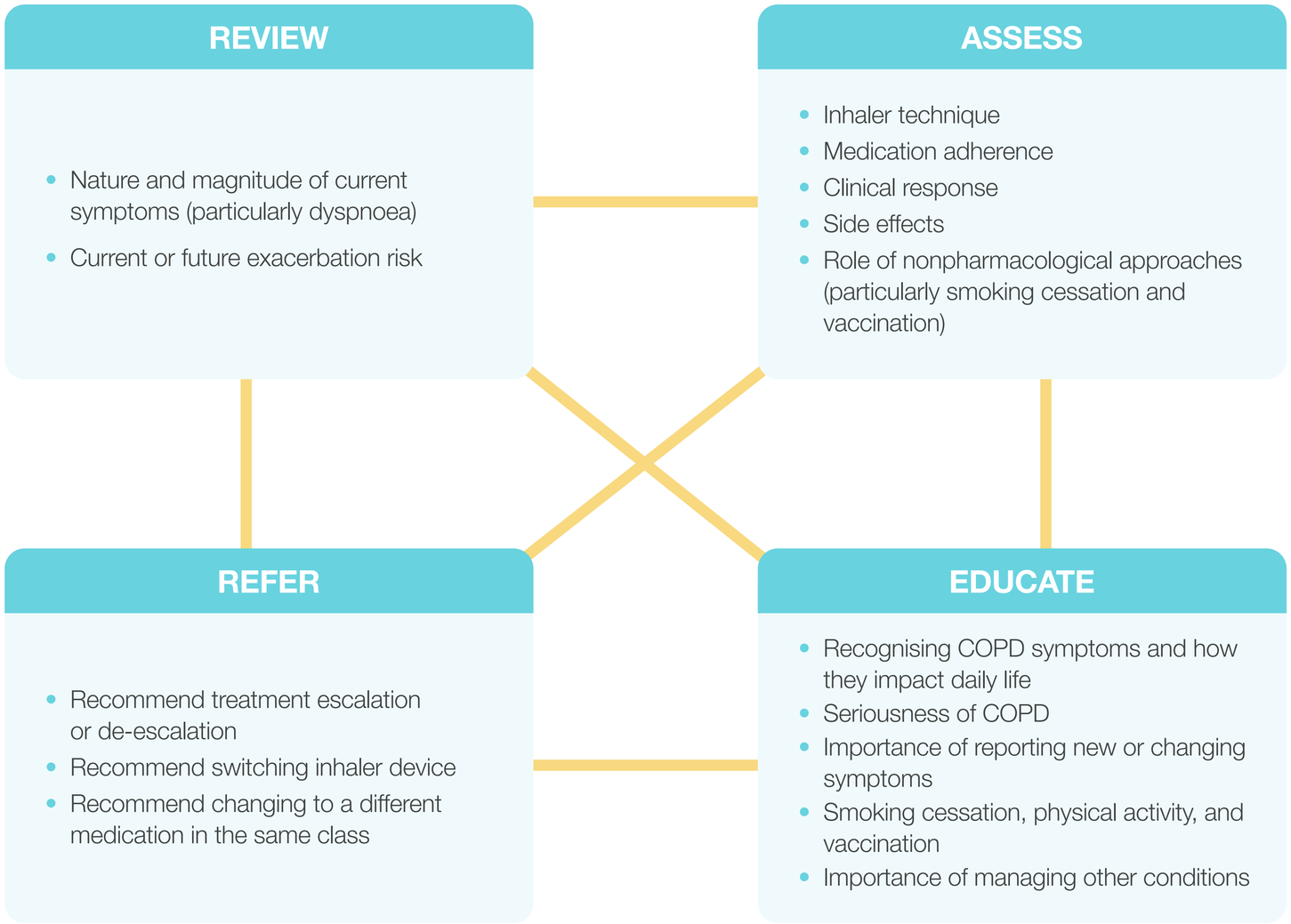
- Encourage the patient to write a list of the benefits and drawbacks of their COPD medication regime and to discuss these with you, so you can problem solve together.

- Use various tools to help to improve your patient’s inhaler technique (eg, physical demonstrations, step-by-step guides, videos).[1] You are encouraged to search for local patient-focused tools that can be utilised in your practice.

- Ask patients to practise their inhaler technique live in the pharmacy and provide guidance.[1]

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

COPD management cycle in the pharmacy



Adapted from the GOLD 2024 Report[1]

As medication management experts, pharmacists can play an integral role in regularly reassessing patients with COPD to determine whether treatment goals are attained and to identify any barriers to successful COPD management.[1]

Pharmacy teams can actively support the COPD management cycle.

ACT NOW +

GOLD, Global Initiative for Chronic Obstructive Lung Disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

ACT NOW

- Regularly scan the profiles of patients with COPD to confirm if a change in pharmacotherapy may be needed; look for indicators of possible exacerbations and inadequate control such as early refills of inhalers and prescriptions for oral corticosteroids and antibiotics.

- Conduct regular medication reviews to ensure patients are on the most appropriate therapy for them. In some jurisdictions, pharmacies may receive reimbursement for providing such services.

Counselling points

Smoking Cessation	• Encourage your patients to quit at every opportunity[1] • Inform your patients with COPD that quitting smoking is the most important thing they can do to prevent the progression of their disease[1] • Advise patients on prescription and nonprescription pharmacotherapies that have been shown to increase cessation rates[1]
Vaccination	• Discuss the benefits of vaccination[1] • Review possible barriers and partner on potential solutions • Advise on local immunisation practices[1]
Physical Activity	• Promote physical activity[1,2] • Review ways to incorporate various forms of physical activity into the patient's daily routine, especially if breathlessness is an issue • Discuss the benefits of a pulmonary rehabilitation programme[1]

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022 Sep 6;17:2127-2136.

Case Study

Meet Ola

Ola is 66 years old and was diagnosed with COPD approximately 8 years ago

- Smoker for over 40 years
- Visited her pharmacy for an early refill of her inhaler
- Says she needs her rescue inhaler more than usual
- Asked to sit down in waiting room as she was short of breath and coughing
- Received prednisone 6 months ago to help her breathe

Medications

- Pantoprazole 40 mg daily
- Amlodipine 5 mg daily
- Atorvastatin 10 mg daily
- Alendronate 70 mg weekly
- Aclidinium 400 mcg daily (LAMA)
- Salbutamol 100-200 mcg QID PRN

Was Ola's pharmacist comfortable taking an active role in her COPD care?

Yes, with the help of the COPD Pharmacy Toolkit!

ACT NOW +

LAMA, long-acting muscarinic antagonist
PRN, as needed
QID, 4 times a day

ACT NOW

Utilise the COPD pharmacy toolkit to help you recognise moments where you can engage with patients like Ola to:

- assess their current understanding of COPD
- advise how COPD may be impacting their health
- provide valuable information on symptoms and treatment
- support them in their care journey

Caring for patients with COPD, like Ola, in the pharmacy

Below are the steps pharmacists and their teams can take every day to identify and care for patients at risk of COPD and diagnosed patients at risk of exacerbations. They can recognise and identify at risk patients, start a conversation and motivate patients to take action, and collaborate with primary care providers.

STEP 1
Recognise and Identify

Positively impacting patients starts with accurate identification of patients at risk of COPD and patients with COPD at risk of exacerbations.

Earlier identification can drive earlier diagnosis, timely initial treatment, and escalation or de-escalation of current treatment.

Increasing patient awareness of COPD at point of care can help trigger conversations with the pharmacy team.

STEP 2
Start a Conversation and Take Action

Motivating patients with COPD to take action involves a continuous and conscious effort by the entire pharmacy team.

Using effective counselling techniques and an integrated plan can help streamline engagement with patients with COPD, from initiation to the monitoring phase of the journey.

STEP 3
Collaborate with Primary Care

Communicating and collaborating with primary care can optimise care for patients at risk of COPD or diagnosed patients at risk of exacerbations.

Effectively and efficiently documenting a COPD assessment and key recommendations can help build a strong collaborative care partnership and promote a seamless experience for patients.

The **COPD Pharmacy Toolkit** can help structure and formalise this process for COPD care!

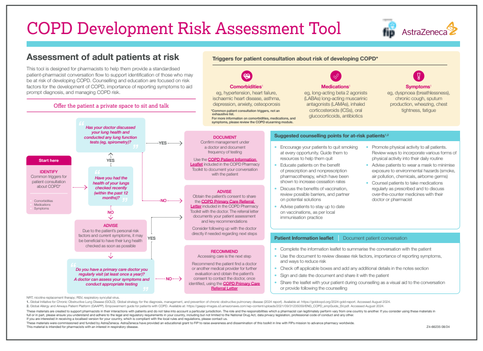
Use of the COPD Pharmacy Toolkit resources in the COPD care journey

STEP 1
Recognise and Identify

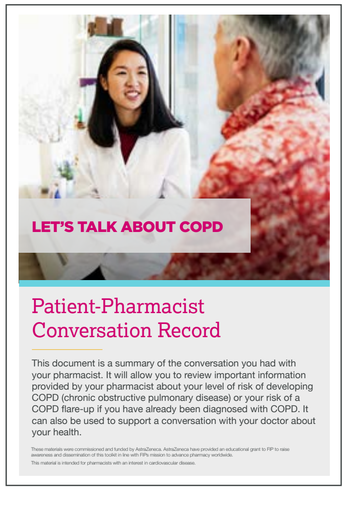
STEP 2
Start a Conversation and Take Action

STEP 3
Collaborate with Primary Care

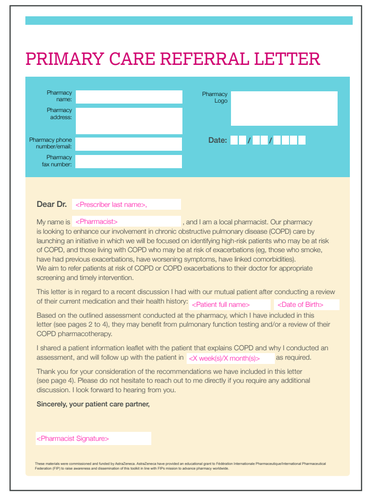
Disease State e-Learning Module



Disease State Assessment Tool



Patient Information Leaflet



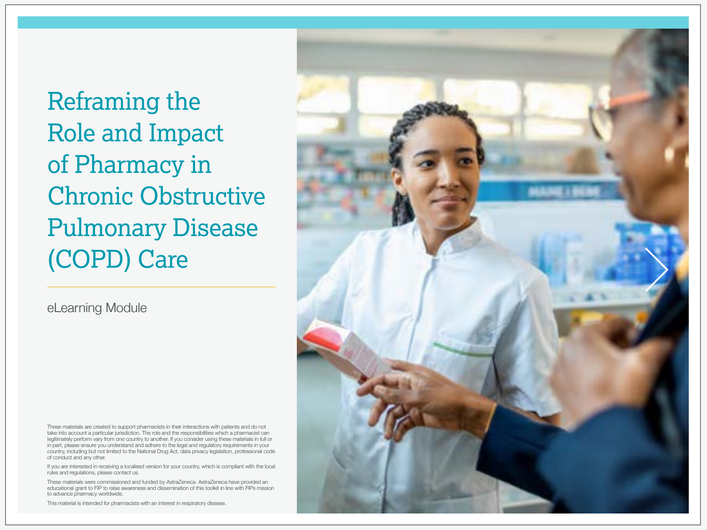
Primary Care Referral Letter

Identifying Ola's risk

Based on foundational disease state knowledge gained in the **COPD eLearning Module**, Ola's pharmacist recognised that Ola may be at risk of a COPD exacerbation.

However, Ola did not seem to recognise her symptoms were worsening or that they were related to COPD. She stated that her changing symptoms were due instead to ageing.

After completing this eLearning module and reviewing resources in the **COPD Pharmacy Toolkit**, the pharmacist felt confident that she could maximise the time she spent with Ola.



Patients with COPD often get accustomed to their symptoms changing.[1] Thus, they may not recognise or report when symptoms are different than their normal day-to-day symptoms and may simply choose to cope with them.[1-3]

1. Singh D et al. *International Journal of Chronic Obstructive Pulmonary Disease*. 2021;16:3009–3016.
2. Barnes N et al. *BMC Pulm Med*. 2013;13:54.
3. Wedzicha JA, Donaldson GC. *Respir Care*. 2003;48(12):1204-1215.

Using change in symptoms as a COPD patient consultation trigger

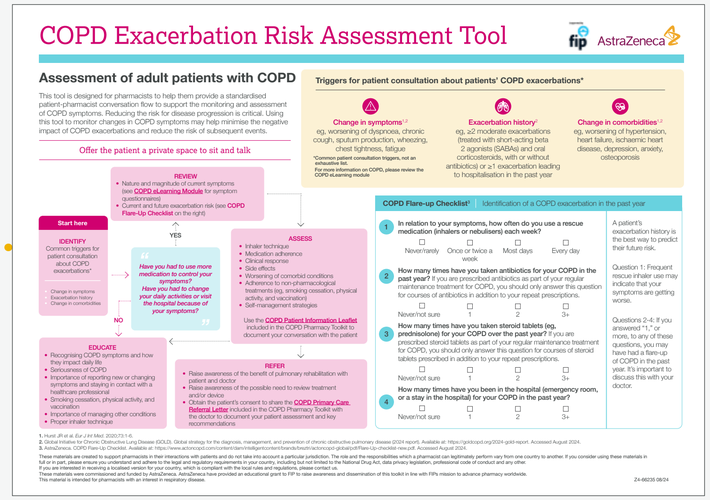
During the initial interaction with the pharmacy team member, Ola communicated that she has been using her LAMA inhaler more than normal. The pharmacist also observed that Ola needed to sit while she waited for her prescription due to breathlessness and coughing.

The following exacerbation risk factors were identified during that initial interaction and a review of Ola's patient profile:

- continues to smoke
- increasing symptom burden despite maintenance therapy
- prior moderate exacerbation (treated with prednisone but did not result in hospitalisation)

The pharmacist planned to open the COPD consultation with Ola by asking her about her symptoms. The pharmacist suspected that Ola may need education about exacerbations and a change in her treatment to help prevent further events.

The pharmacist hoped discussing the possible negative impact of exacerbations on Ola's overall health would lead to an opportunity to discuss smoking cessation again with her.


COPD Exacerbation Risk Assessment Tool

fip AstraZeneca

Assessment of adult patients with COPD

This tool is designed for pharmacists to help them provide a standardised patient-pharmacist conversation flow to support the monitoring and assessment of COPD symptoms. Reducing the risk for disease progression is critical. Using this tool to monitor changes in COPD symptoms may help minimise the negative impact of COPD exacerbations and reduce the risk of subsequent events.

Offer the patient a private space to sit and talk

Triggers for patient consultation about patients' COPD exacerbations*

- **Change in symptoms**[1,2] eg, worsening of dyspnoea, chronic cough, sputum production, wheezing, chest tightness, fatigue
- **Exacerbation history**[2] eg, ≥2 moderate exacerbations (treated with short-acting beta 2 agonists (SABAs) and oral corticosteroids, with or without antibiotics) or ≥1 exacerbation leading to hospitalisation in the past year
- **Change in comorbidities**[1,2] eg, worsening of hypertension, heart failure, ischaemic heart disease, depression, anxiety, osteoporosis

*Common patient consultation triggers, not an exhaustive list.
For more information on COPD, please review the COPD eLearning module

Start here

IDENTIFY
Common triggers for patient consultation about COPD exacerbations*:
- Change in symptoms
- Exacerbation history
- Change in comorbidities

REVIEW
- Nature and magnitude of current symptoms (see **COPD eLearning Module** for symptom questionnaires)
- Current and future exacerbation risk (see **COPD Flare-Up Checklist** on the right)

YES

"Have you had to use more medication to control your symptoms? Have you had to change your daily activities or visit the hospital because of your symptoms?"

NO

ASSESS
- Inhaler technique
- Medication adherence
- Clinical response
- Side effects
- Worsening of comorbid conditions
- Adherence to non-pharmacological treatments (eg, smoking cessation, physical activity, and vaccination)
- Self-management strategies

Use the **COPD Patient Information Leaflet** included in the COPD Pharmacy Toolkit to document your conversation with the patient

EDUCATE
- Recognising COPD symptoms and how they impact daily life
- Seriousness of COPD
- Importance of reporting new or changing symptoms and staying in contact with a healthcare professional
- Smoking cessation, physical activity, and vaccination
- Importance of managing other conditions
- Proper inhaler technique

REFER
- Raise awareness of the benefit of pulmonary rehabilitation with patient and doctor
- Raise awareness of the possible need to review treatment and/or device
- Obtain the patient's consent to share the **COPD Primary Care Referral Letter** included in the COPD Pharmacy Toolkit with the doctor to document your patient assessment and key recommendations

COPD Flare-up Checklist[3] | Identification of a COPD exacerbation in the past year

1. **In relation to your symptoms, how often do you use a rescue medication (inhalers or nebulisers) each week?**
   ☐ Never/rarely ☐ Once or twice a week ☐ Most days ☐ Every day
2. **How many times have you taken antibiotics for your COPD in the past year?** If you are prescribed antibiotics as part of your regular maintenance treatment for COPD, you should only answer this question for courses of antibiotics in addition to your repeat prescriptions.
   ☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+
3. **How many times have you taken steroid tablets (eg, prednisolone) for your COPD over the past year?** If you are prescribed steroid tablets as part of your regular maintenance treatment for COPD, you should only answer this question for courses of steroid tablets prescribed in addition to your repeat prescriptions.
   ☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+
4. **How many times have you been in the hospital (emergency room, or a stay in the hospital) for your COPD in the past year?**
   ☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+

A patient's exacerbation history is the best way to predict their future risk.

Question 1: Frequent rescue inhaler use may indicate that your symptoms are getting worse.

Questions 2-4: If you answered "1," or more, to any of these questions, you may have had a flare-up of COPD in the past year. It's important to discuss this with your doctor.

1. Hurst JR et al. *Eur J Int Med.* 2020;73:1-6.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://gold.copd.org/2024-gold-report. Accessed August 2024.
3. AstraZeneca. COPD Flare-Up Checklist. Available at: https://www.actioncopd.com/content/dam/intelligentcontentbrands/bestnr/actioncopd-global/pdf/Flare-Up-checklist-new.pdf. Accessed August 2024.

These materials are created to support pharmacists in their interactions with patients and do not take into account a particular jurisdiction. The role and the responsibilities which a pharmacist can legitimately perform vary from one country to another. If you consider using these materials in full or in part, please ensure you understand and adhere to the legal and regulatory requirements in your country, including but not limited to the National Drug Act, data privacy legislation, professional code of conduct and any other.
If you are interested in receiving a localised version for your country, which is compliant with the local rules and regulations, please contact us.
These materials were commissioned and funded by AstraZeneca. AstraZeneca have provided an educational grant to FIP to raise awareness and dissemination of this toolkit in line with FIP's mission to advance pharmacy worldwide.
This material is intended for pharmacists with an interest in respiratory disease.

Z4-66235 08/24

LAMA, long-acting muscarinic antagonist

Starting the exacerbation conversation

As directed by the **COPD Assessment Tool**, the pharmacist started the conversation/consultation with Ola by asking:

START HERE

Ola, have you had to use more of your inhaler lately to control your symptoms? Or have you had to change your daily activities because of your symptoms?

Ola admitted that she has been using her rescue inhaler (salbutamol) more over the past few days because she felt **more breathless** walking up the stairs at home. Ola indicated that she hasn't been able to go for a walk outside with her husband for the past few days due to the **shortness of breath** and **cough**.

This worsening of your symptoms is likely what is known as a COPD flare-up.You have several risk factors for a flare-up, including having a flare-up 6 months ago and smoking. Flare-ups have a negative impact on your health. Would you be OK with completing a few questions so we can see how COPD may be affecting you?

Ola said she had never been told that she had a flare-up 6 months ago and, in fact, did not remember hearing that term before. She agree to completing the CAT™ and scored **24**, indicating that the impact of COPD on her health status was **high**.

CAT™, COPD Assessment Test

Motivating Ola to take action

Based on Ola's answers throughout the consultation and her CAT™ score, the pharmacist used the **COPD Assessment Tool** to guide her interventions.

REVIEW

- Used the COPD Flare-Up Checklist to discuss future exacerbation risk
- Explained the CAT™ result to highlight the impact of COPD

REFER

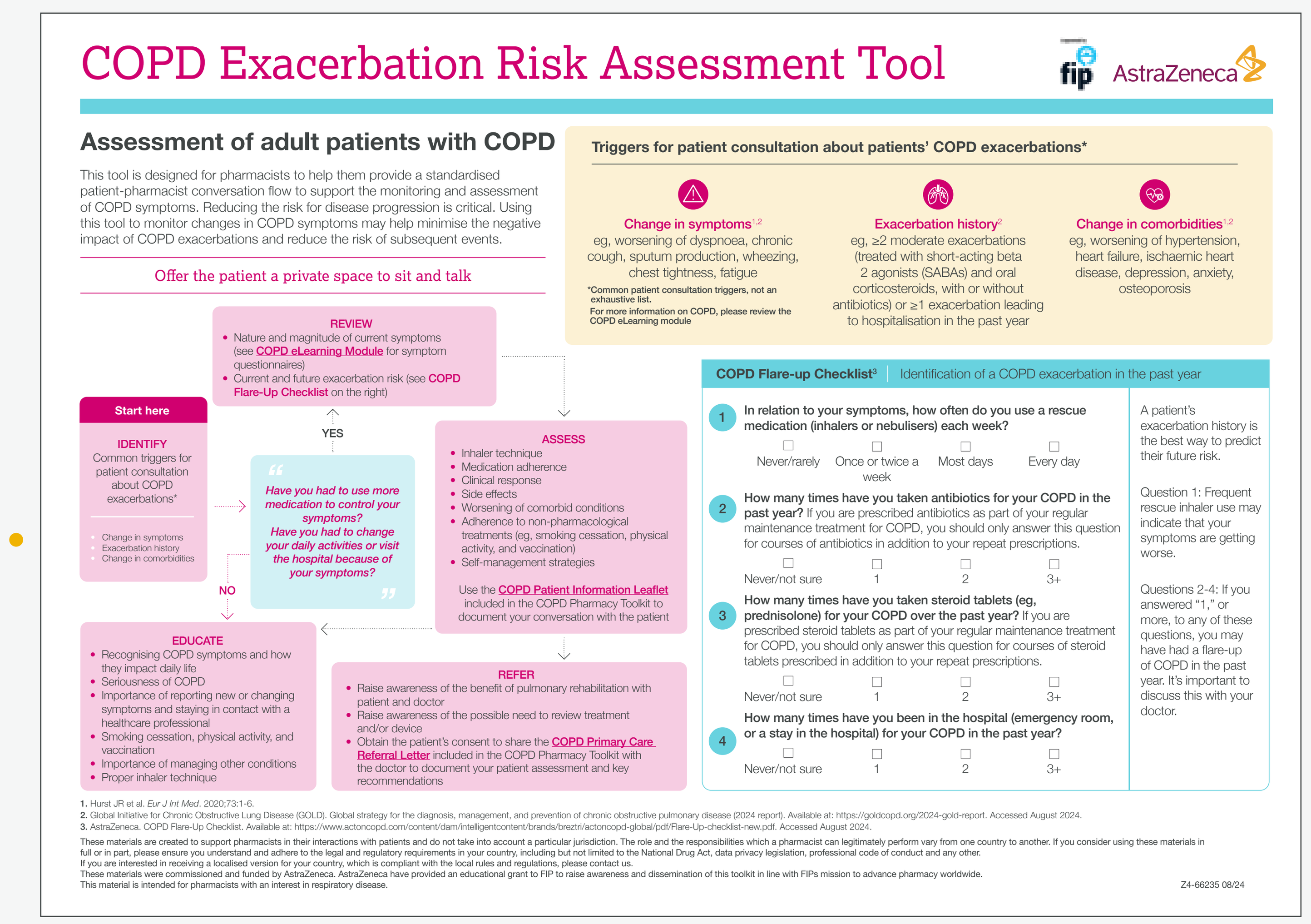
- Plan to discuss possible need for changes in treatment and pulmonary rehabilitation with Ola's doctor

ASSESS

- Ola's inhaler technique appeared appropriate
- Using inhalers more than prescribed due to worsening symptoms
- No recent change in hypertension, GERD, or osteoporosis
- Continuing to smoke
- No longer walking each day
- Received her flu shot and COVID-19 booster this year

EDUCATE

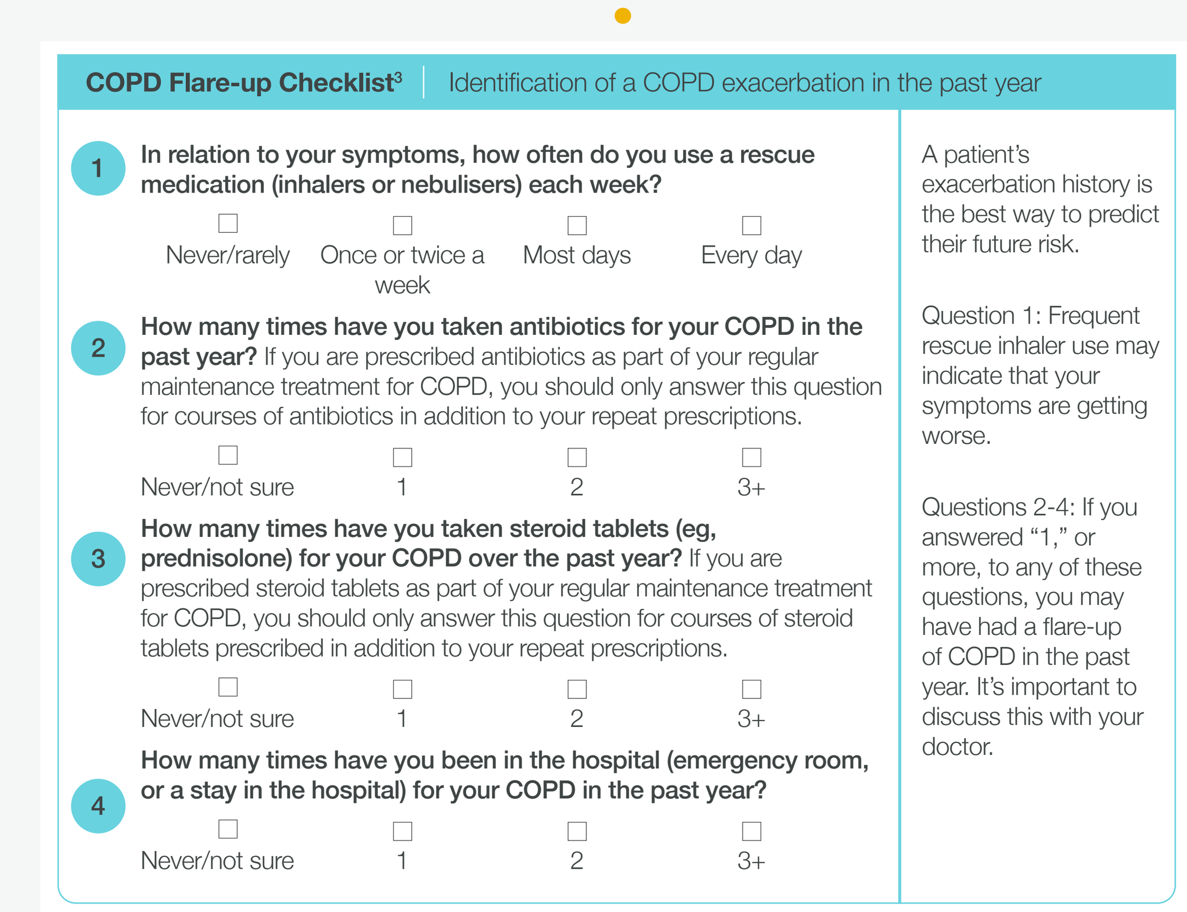
- Complete CAT™ regularly at home to confirm impact on daily life and share results
- Report new or changing symptoms as soon as possible
- Quitting smoking is the most important thing you can do to prevent the progression of COPD
- Pharmacy is here to help with prescription and nonprescription medications that can increase the chance of your success


COPD Exacerbation Risk Assessment Tool

Assessment of adult patients with COPD

Triggers for patient consultation about patients' COPD exacerbations

Offer the patient a private space to sit and talk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   ☐ Never/not sure ☐ 1 ☐ 2 ☐ 3+
4. **How many times have you been in the hospital (emergency room, or a stay in the hospital) for your COPD in the past year?**
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A patient's exacerbation history is the best way to predict their future risk.

Question 1: Frequent rescue inhaler use may indicate that your symptoms are getting worse.

Questions 2-4: If you answered "1," or more, to any of these questions, you may have had a flare-up of COPD in the past year. It's important to discuss this with your doctor.

CAT™, COPD Assessment Test
GERD, gastroesophageal reflux disease

Providing holistic advice over multiple visits

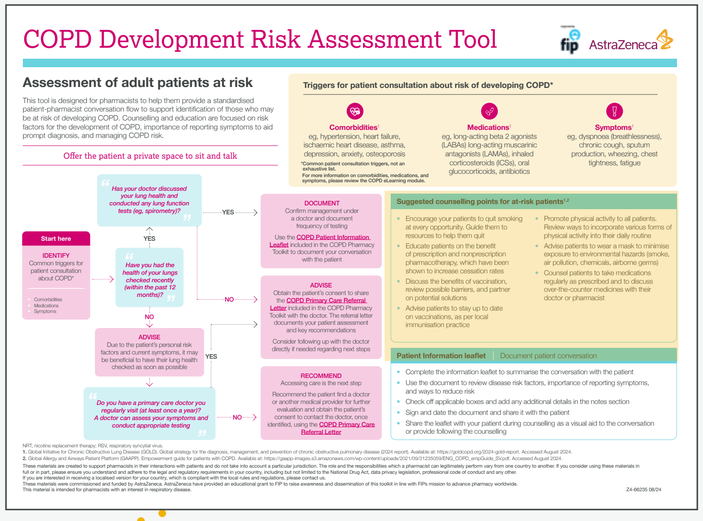
The pharmacist's initial COPD consultation with Ola focused on the following:

- Importance of Ola reporting new or changing symptoms to the pharmacist and/or doctor as soon as possible
- Importance of smoking cessation in the near future and how the pharmacy could help her in her quit journey
- Importance of preventing future exacerbations

Ola's assessment and consultation involved a significant amount of education and required communicating several key recommendations. Thus, the pharmacist recognised that it would be best to reinforce this information and provide additional advice to Ola over multiple visits.

Suggested counselling points for at-risk patients[1,2]

- Encourage your patients to quit smoking at every opportunity. Guide them to resources to help them quit
- Educate patients on the benefit of prescription and nonprescription pharmacotherapy, which have been shown to increase cessation rates
- Discuss the benefits of vaccination, review possible barriers, and partner on potential solutions
- Advise patients to stay up to date on vaccinations, as per local immunisation practice
- Promote physical activity to all patients. Review ways to incorporate various forms of physical activity into their daily routine
- Advise patients to wear a mask to minimise exposure to environmental hazards (smoke, air pollution, chemicals, airborne germs)
- Counsel patients to take medications regularly as prescribed and to discuss over-the-counter medicines with their doctor or pharmacist



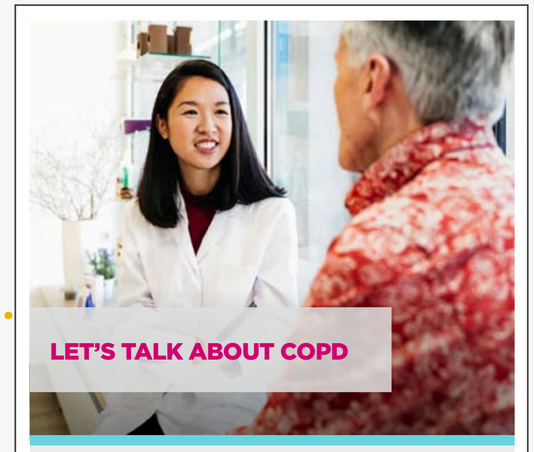
NRT, nicotine replacement therapy
RSV, respiratory syncytial virus

Summarising Ola's visit using the COPD Patient Information Leaflet

To ensure Ola received the most benefit from the COPD assessment and counselling, the pharmacist provided Ola with the completed **COPD Patient Information Leaflet**.

The personalised patient information leaflet was filled out by the pharmacist as she was communicating with Ola to summarise the pharmacist-patient interaction. The leaflet also served as a visual aid to the conversation with Ola.

The pharmacist checked off the boxes applicable to Ola and added additional details as needed. The pharmacist then signed and dated the document.



Patient-Pharmacist Conversation Record

This document is a summary of the conversation you had with your pharmacist. It will allow you to review important information provided by your pharmacist about your level of risk of developing COPD (chronic obstructive pulmonary disease) or your risk of a COPD flare-up if you have already been diagnosed with COPD. It can also be used to support a conversation with your doctor about your health.

These materials were commissioned and funded by AstraZeneca. AstraZeneca have provided an educational grant to FIP to raise awareness and dissemination of this toolkit in line with FIP's mission to advance pharmacy worldwide.
This material is intended for pharmacists with an interest in cardiovascular disease.

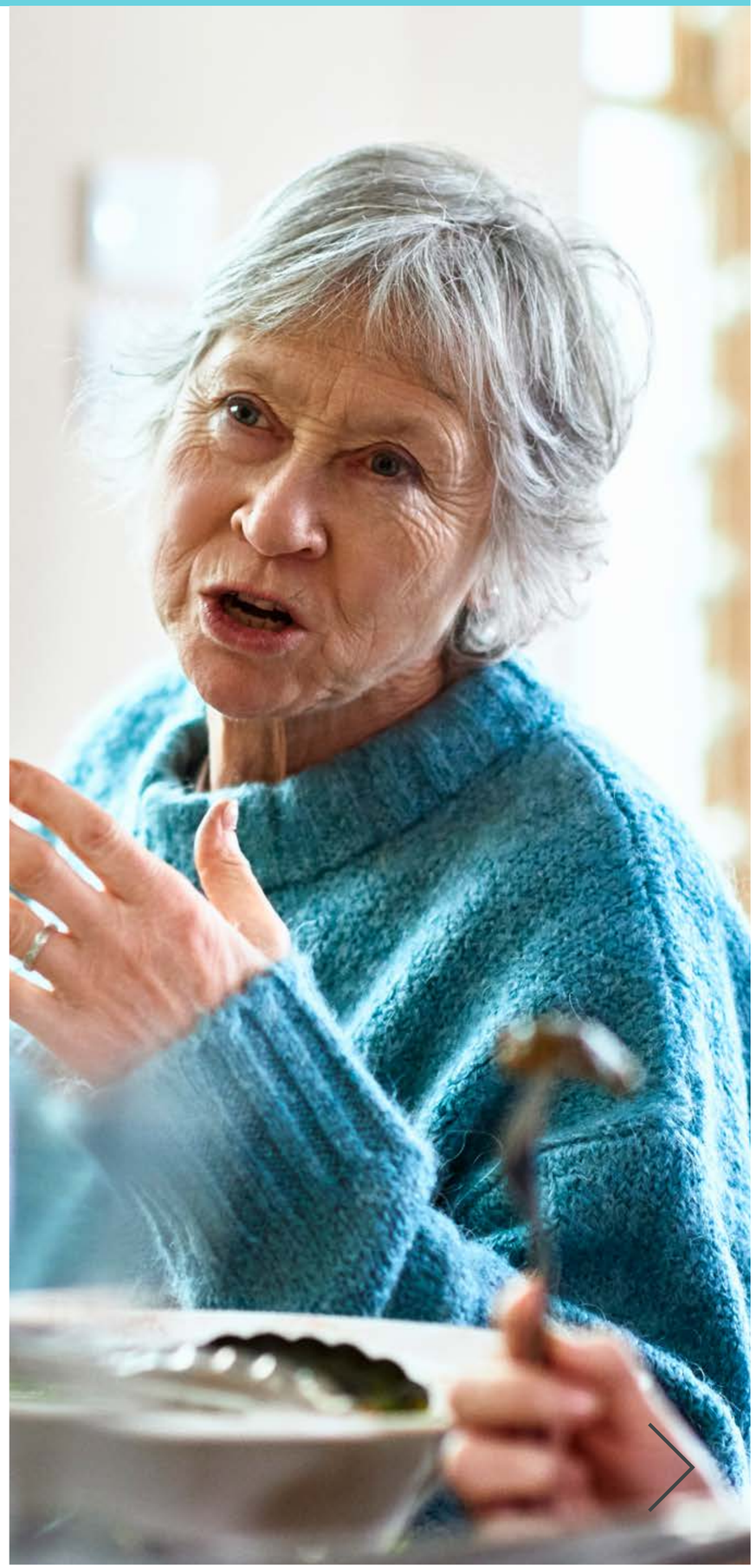
Sharing the completed information leaflet with Ola

Once the **COPD Patient Information Leaflet** was complete, the pharmacist shared it with Ola. She was encouraged to share the COPD leaflet with her family and doctor.

The pharmacist advised Ola to review the document at home. Ola was counselled to write down any questions she had after reviewing the document again and to bring those questions with her on her next visit. Ola was told she could also call the pharmacy if she had urgent questions.

The pharmacist reminded Ola again to contact the pharmacy or her doctor if she was experiencing any new or worsening symptoms.

Ola asked if it was OK if the pharmacy followed up with her in 2 weeks if she had not visited the pharmacy during that time.



Documenting Ola's assessment and key recommendations

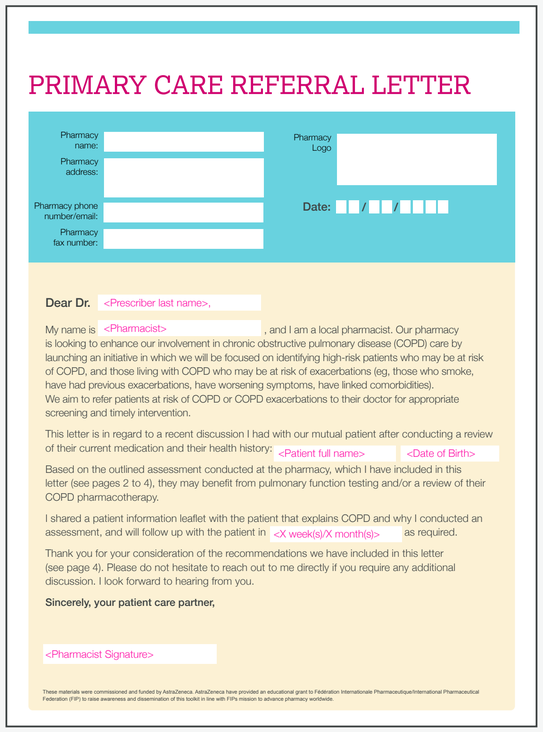
Before Ola left the pharmacy, the pharmacist received Ola's consent to share her assessment and consultation details directly with her doctor using the **COPD Primary Care Referral Letter**.

The pharmacist recognised that efficiently documenting Ola's assessment and key recommendations could help build a strong collaborative care partnership with Ola's doctor and promote a seamless experience for Ola.

The pharmacist completed the customisable referral letter to provide an outline of the intervention.

Page 1 was first completed to provide a summary of important points for Ola's doctor. The pharmacist then completed the remaining pages to summarise the results of Ola's patient assessment, including risk factors for future exacerbations, current medications, and key recommendations.

The pharmacist also provided final comments in the space available on the final page.



PRIMARY CARE REFERRAL LETTER

Pharmacy name:
Pharmacy address:
Pharmacy phone number/email:
Pharmacy fax number:
Pharmacy Logo
Date: ☐☐/☐☐/☐☐☐☐

Dear Dr. <Prescriber last name>,

My name is <Pharmacist>, and I am a local pharmacist. Our pharmacy is looking to enhance our involvement in chronic obstructive pulmonary disease (COPD) care by launching an initiative in which we will be focused on identifying high-risk patients who may be at risk of COPD, and those living with COPD who may be at risk of exacerbations (eg, those who smoke, have had previous exacerbations, have worsening symptoms, have linked comorbidities).
We aim to refer patients at risk of COPD or COPD exacerbations to their doctor for appropriate screening and timely intervention.

This letter is in regard to a recent discussion I had with our mutual patient after conducting a review of their current medication and their health history: <Patient full name> <Date of Birth>

Based on the outlined assessment conducted at the pharmacy, which I have included in this letter (see pages 2 to 4), they may benefit from pulmonary function testing and/or a review of their COPD pharmacotherapy.

I shared a patient information leaflet with the patient that explains COPD and why I conducted an assessment, and will follow up with the patient in <X week(s)/X month(s)> as required.

Thank you for your consideration of the recommendations we have included in this letter (see page 4). Please do not hesitate to reach out to me directly if you require any additional discussion. I look forward to hearing from you.

Sincerely, your patient care partner,

<Pharmacist Signature>

These materials were commissioned and funded by AstraZeneca. AstraZeneca have provided an educational grant to Fédération Internationale Pharmaceutique/International Pharmaceutical Federation (FIP) to raise awareness and dissemination of this toolkit in line with FIPs mission to advance pharmacy worldwide.

Sharing the Referral Letter with Ola's doctor

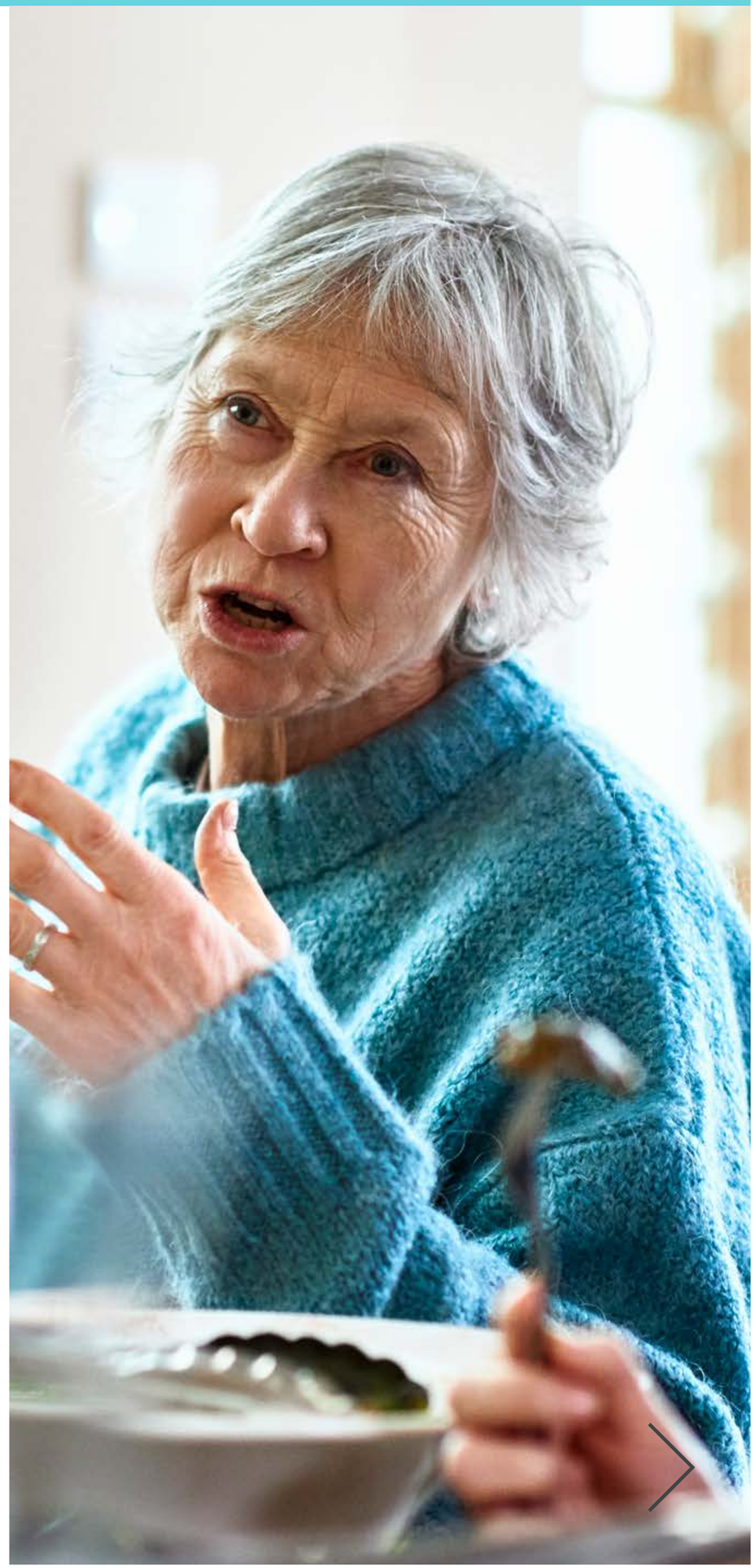
The referral letter explained why the pharmacist was reaching out to Ola's doctor.

The pharmacist documented recommendations to support Ola's COPD management and help prevent future exacerbations, including:

- addition of a new bronchodilator (LABA)
- pulmonary rehabilitation programme

The referral letter was completed, signed by the pharmacist, and emailed to the doctor by a pharmacy team member.

The pharmacist planned on following up with Ola's doctor in 1 week to ask if they had any questions.



LABA, long-acting beta-2 agonist

Module Key Learnings

Key Learnings

- Chronic obstructive pulmonary disease (COPD) is a chronic (noncommunicable), progressive disease characterised by the obstruction of air flow in the respiratory system that results in breathing difficulties.[1,2]
- COPD has been traditionally thought of as a self-inflicted disease, but it is known that factors other than smoking can also significantly contribute to COPD, as people who never smoke may also develop the disease.[3,4] It is now known that both environmental and host risk factors can contribute to the development of COPD.[1]
- Evidence suggests a syndemic occurrence between COPD and CVD, with fundamental pathobiological links between the heart and lungs causing an aggregation of the 2 diseases and leading to a worsening in disease burden and prognosis.[5]
- As one of the most accessible and knowledgeable primary care providers, pharmacists are ideally placed to become key allies in the global battle against COPD.[6]
- You and your pharmacy team members have a vital role in helping patients access appropriate COPD care.

CVD, cardiovascular disease

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.
2. Global Allergy and Airways Patient Platform (GAAPP). What is COPD? Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.
3. Celli BR, Singh D, Vogelmeier C, Agusti A. *Int J Chron Obstruct Pulmon Dis*. 2022;17:2127-2136.
4. American Lung Association. COPD causes and risk factors. Available at: https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/what-causes-copd. Accessed August 2024.
5. Donaldson GC et al. *Chest*. 2010;137:1091-1097.
6. International Pharmaceutical Federation (FIP). Beating non-communicable diseases in the community: The contribution of pharmacists. Available at: https://www.fip.org/files/content/publications/2019/beating-ncds-in-the-community-the-contribution-of-pharmacists.pdf. Accessed August 2024.

Module Learning Checkpoints

Learning checkpoint

Q1 Which of the following statements regarding COPD are true?

A. COPD is a complex, heterogeneous, and life-threatening disease.

B. COPD is a common, preventable, and treatable disease.

C. COPD affects people from all countries, socioeconomic statuses, and age groups.

D. COPD is the 3rd leading cause of death worldwide, behind only ischaemic heart disease and stroke.

Answer

Q1 **Which of the following statements regarding COPD are true?**

- ✓ COPD is a complex, heterogeneous, and life-threatening disease.
- ✓ COPD is a common, preventable, and treatable disease.
- ✓ COPD affects people from all countries, socioeconomic statuses, and age groups.
- ✓ COPD is the 3rd leading cause of death worldwide, behind only ischaemic heart disease and stroke.

All of these statements regarding COPD are true.

Learning checkpoint

Q2 Which of the following statements regarding COPD exacerbations are true?

A. Wheezing is the key symptom of a COPD exacerbation.

B. The strongest predictor of future COPD exacerbation risk is the use of antibiotics during a current exacerbation.

C. Just one COPD exacerbation can result in a significant decrease in lung function.

D. COPD exacerbations are typically immediately reported by patients to their healthcare teams.

Answer

Q2 Which of the following statements regarding COPD exacerbations are true?

✗ Wheezing is the key symptom of a COPD exacerbation.

✗ The strongest predictor of future COPD exacerbation risk is the use of antibiotics during a current exacerbation.

✓ Just one COPD exacerbation can result in a significant decrease in lung function.

✗ COPD exacerbations are typically immediately reported by patients to their healthcare teams.

C is true.

Just one COPD exacerbation can result in a significant decrease in lung function.[1]

CVD, cardiovascular disease

1. Hurst JR et al. *Eur J Int Med*. 2020;73:1–6

Learning checkpoint

Q3 COPD is more than a lung disease. It is a systemic disease linked with many other chronic diseases, including HF, hypertension, depression, anxiety, and osteoporosis, either through shared risk factors or by one disease increasing the risk or severity of the other.

- True
- False

HF, heart failure

Answer

Q3 **COPD is more than a lung disease. It is a systemic disease linked with many other chronic diseases, including HF, hypertension, depression, anxiety, and osteoporosis, either through shared risk factors or by one disease increasing the risk or severity of the other.**

✓ True

False

TRUE

COPD is much more than a lung disease!

COPD is a systemic disease linked with many other chronic diseases. And to make matters worse, patients with COPD often experience exacerbations (flare-ups) that can lead to CV events and premature death.[1,2]

CV, cardiovascular

HF, heart failure

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

2. Hurst JR et al. *Eur J Int Med*. 2020;73:1–6.

Learning checkpoint

Q4 Which of the following statements regarding symptoms of COPD are true?

A. Dyspnoea (breathlessness) is the cardinal symptom of COPD and a major cause of the disability and anxiety related to COPD.

B. Sputum production is typically the first symptom of COPD.

C. Chronic cough may start as intermittent but subsequently may be present every day, usually throughout the day.

D. Fatigue can be a distressing symptom of COPD, with patients describing fatigue as “general tiredness” or a feeling of being “drained of energy.”

Answer

Q4 Which of the following statements regarding symptoms of COPD are true?

✓ Dyspnoea (breathlessness) is the cardinal symptom of COPD and a major cause of the disability and anxiety related to COPD.

✗ Sputum production is typically the first symptom of COPD.

✓ Chronic cough may start as intermittent but subsequently may be present every day, usually throughout the day.

✓ Fatigue can be a distressing symptom of COPD, with patients describing fatigue as “general tiredness” or a feeling of being “drained of energy.”

B is false. All of the other statements are true.

Chronic cough is typically the **first symptom** of COPD.[1]

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Learning checkpoint

Q5 Which of the following are roles pharmacists can play in COPD care?

A. Use of tools, such as the mMRC Dyspnoea Scale, CAT™, and COPD Flare-Up Checklist, to assess trends and changes in COPD symptoms and help enhance patient understanding of COPD exacerbations.

B. During pharmacy visits, regularly talk with patients with COPD about their symptoms, including any new or worsening ones.

C. Provide regular education and training on proper inhaler technique.

D. Regularly reassess patents with COPD for attainment of treatment goals and identification of any barriers to medication optimisation and disease management.

CAT™, COPD Assessment Test
mMRC, modified Medical Research Council

Answer

Q5 **Which of the following are roles pharmacists can play in COPD care?**

- ✓ Use of tools, such as the mMRC Dyspnoea Scale, CAT™, and COPD Flare-Up Checklist, to assess trends and changes in COPD symptoms and help enhance patient understanding of COPD exacerbations.
- ✓ During pharmacy visits, regularly talk with patients with COPD about their symptoms, including any new or worsening ones.
- ✓ Provide regular education and training on proper inhaler technique.
- ✓ Regularly reassess patents with COPD for attainment of treatment goals and identification of any barriers to medication optimisation and disease management.

All of these are **important roles pharmacists can play** in COPD care.

CAT™, COPD Assessment Test
mMRC, modified Medical Research Council

Glossary of Common Terms

Glossary

Acute coronary syndrome: umbrella term for when blood supplied to the heart muscle is decreased or blocked, that may lead to a heart attack.[1]

Arrhythmia: problem with the rate or rhythm of the heart; also known as an irregular heartbeat.[2]

Asthma: chronic lung disease caused by inflammation and narrowing of the small airways of the lungs, making it more difficult to breath and causing symptoms such as coughing, wheezing, shortness of breath, and chest tightness.[3]

Atrial fibrillation: irregular heartbeat that occurs when beating in the atria (upper chambers of the heart) is abnormal and blood cannot flow properly from the atria to the ventricles (lower chambers of the heart).[4]

Cardiovascular diseases (CVDs): group of disorders of the heart and blood vessels, including coronary heart disease (disease of the blood vessels supplying the heart), cerebrovascular disease (disease of the blood vessels supplying the brain [eg, stroke]), and peripheral arterial disease (disease of blood vessels supplying the arms and legs.[5]

Chronic bronchitis: regular production of sputum for 3 or more months in 2 consecutive years (in the absence of any other conditions that may explain it).[6]

Chronic diseases: conditions that last one year or more and require ongoing medical attention or limit activities of daily living or both. Chronic diseases are caused by a combination of genetic, physiological, environmental, and behavioural factors. They are also known as non-communicable disease (NCDs).[7,8]

1. U.S. Department of Health and Human Services. The health consequences of smoking—50 years of progress: A report of the Surgeon General. Available at: https://www.ncbi.nlm.nih.gov/books/NBK179276/pdf/Bookshelf_NBK179276.pdf. Accessed August 2024.
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3. World Health Organization (WHO). Asthma – Fact sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/asthma. Accessed August 2024.
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Glossary

Chronic obstructive pulmonary disease (COPD): lung disease that causes the airways to narrow and become obstructed, which, in turn, makes breathing difficult. It has been described as a disease of the airways (chronic bronchitis) and/or a disease of the air sacs (emphysema).[1]

Disability-adjusted life years (DALY): time-based measure of a disease or health condition that provides a sum of the years of life lost to due to premature mortality (YLLs) and the years lived with a disability (YLDs) due to prevalent cases of the disease or health condition in a population. One (1) DALY represents the loss of the equivalent of one (1) year of full health.[2]

Eosinophils: type of white blood cells (leukocytes). They are active participants in many immune responses and play a beneficial role against infections. However, eosinophils can also be damaging as part of the inflammatory process of allergic disease.[3]

Gastro-oesophageal reflux disease (GERD): chronic gastrointestinal disorder characterised by the regurgitation of gastric contents into the oesophagus. It typically manifests with symptoms of heartburn and regurgitation.[4]

Heart failure: a type of CVD that occurs when the heart cannot pump enough blood to the body's vital organs. Although the heart works, it does not work as well as it should. This can cause fluid to pool in the body, which manifests as swelling (oedema) in the lower legs and ankles and shortness of breath as fluid collects in the lungs.[5]

Hypertension: elevated blood pressure that occurs when the pressure in the blood vessels is typically 140/90 mmHg or higher. It is also known as high blood pressure.[6]

1. Global Allergy and Airways Patient Platform (GAAPP). What is COPD? Available at: https://gaapp.org/diseases/copd/. Accessed August 2024.
2. World Health Organization (WHO). Disability-adjusted life years (DALYs). Available at: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/158. Accessed August 2024.
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Glossary

Ischaemic heart disease (IHD): type of CVD that occurs when heart arteries become narrowed due to the build up of plaque, which results in less blood and oxygen reaching the heart muscle. It is also referred to as coronary artery disease.[1]

Ischaemic stroke: type of stroke that occurs when a blood clot or other particle blocks an artery in the brain or an artery leading to the brain.[1]

Medication management: patient-centred care to optimise safe, effective, and appropriate drug therapy. It involves several services aimed to improve clinical outcomes, such as completing medication reviews and health assessments, monitoring treatment plans, providing education, promoting self-management, and monitoring efficacy and safety of therapy.[2]

Myocardial infarction: acute event that occurs when blood flow to the heart is severely reduced or blocked and heart muscle cells die from lack of oxygen; also known as a heart attack.[1]

Osteoporosis: bone disease characterised by low bone mass, deterioration of bone tissue, and disruption of bone microarchitecture.[3]

Oxidative stress: characterised by a disruption in the balance between the production of reactive oxygen species (ROS) and the body's capacity to counteract them with antioxidant defence mechanisms, leading to a detrimental impact on cells and tissues.[4]

Pulmonary rehabilitation: comprehensive programme based on thorough patient assessment followed by patient-tailored therapies that include, but are not limited to, exercise training, education, and self-management intervention aimed at behaviour change designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviours.[5]

1. U.S. Department of Health and Human Services. The health consequences of smoking—50 years of progress: A report of the Surgeon General. Available at: https://www.ncbi.nlm.nih.gov/books/NBK179276/pdf/Bookshelf_NBK179276.pdf. Accessed August 2024.
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5. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease (2024 report). Available at: https://goldcopd.org/2024-gold-report. Accessed August 2024.

Glossary

Spirometry: type of lung function test that measures the ability to inhale and exhale air relative to time. It can help diagnose and monitor the progression of common respiratory diseases, such as asthma and COPD. The test is carried out using a device called a spirometer, which is a small machine attached by a cable to a mouthpiece.[1,2]

Sputum: thick type of mucus made in the lungs; also known as phlegm.[3]

Stroke: acute event that occurs when there is an interruption of blood flow to the brain. There are two types of stroke-haemorrhagic and ischaemic.[4]

Syndemic: two or more disease states interacting poorly with each other and negatively influencing the mutual course of each disease trajectory.[5]

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