

# Chronic Obstructive Pulmonary Disease (COPD) Consultation Toolkit

## Introduction

**Chronic obstructive pulmonary disease (COPD) is currently the fifth leading cause of death and is set to become the third by 2030.<sup>1</sup> The numbers of COPD hospital admissions have increased by 50% over the last 10 years and now account for around 10% of all medical admissions.**

This 'COPD Pharmacist Consultation Toolkit' is designed to help improve the confidence of the community pharmacist to provide high quality consultations for patients using medicines for COPD: COPD patient pharmacist consultations can help to:

- establish the patient's actual use, understanding and experience of taking medicines;
- identify, discuss and assist in the resolution of poor or ineffective use of medicines by the patient;
- identify side effects and drug interactions that may affect the patient's compliance with instructions given to them by a health care professional for the taking of medicines; and
- improve clinical and cost effectiveness of medicines prescribed to patients.

### The toolkit consists of:

- Knowledge update on COPD and its management
- 'The COPD Consultation' – designed to be used with patients
- Patient Pre-consultation Record Form - designed to be given to the patient to help identify issues pre-consultation and then be used by the patient as a reminder of the intervention plan agreed in the consultation to improve their disease control and implement lifestyle changes.

## Why should pharmacists review patients with COPD?

There are around 835,000 patients in the UK currently diagnosed with COPD,<sup>2</sup> which means an average pharmacy will have approximately 60 patients who the pharmacy supports with medicines. Pharmacists can play a greater role by optimising medicines; checking inhaler technique and adherence use in a pharmacist patient consultation, providing smoking cessation support and helping early detection of signs of exacerbation.

## Learning objectives

- Update your knowledge on chronic obstructive pulmonary disease (COPD)
- Understand the issues to cover in the consultation for a patient taking medicines for COPD
- Be able to confidently deliver high-quality patient consultations for patients prescribed medicines for COPD
- Be able to contribute to promoting good COPD self-management to improve patient outcomes such as avoiding unplanned hospitalisations.

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## About chronic obstructive disease

Chronic obstructive pulmonary disease (COPD) is currently the fifth leading cause of death and is set to become the third by 2030.<sup>3</sup> Around 835,000 people in England were diagnosed with COPD in 2008 although it is estimated that over three million people have the disease (circa 2.1 million undiagnosed) which is equivalent to 5% of the population.

The cost to the NHS is significant with estimates of £982 million each year, mainly linked to the costs of hospital admissions and drugs.<sup>4</sup> One in eight emergency admissions to hospital is for COPD, making it the second largest cause of emergency admission in the UK, around 31% of patients were re-admitted to hospital within 30 days.<sup>5</sup>

### Presentation

COPD is characterized by the presence of airflow obstruction (defined as an FEV<sub>1</sub>/FVC\* ratio of < 0.7) the airflow obstruction is usually slowly progressive, irreversible and is predominantly caused by smoking.

**FEV<sub>1</sub>/FVC** is the ratio of FEV<sub>1</sub> (FEV<sub>1</sub> is the volume of air that can forcibly be blown out in one second, after full inspiration) and FVC (the volume of air that can forcibly be blown out after full inspiration). The measurements are evaluated by comparing the results with reference values based on age sex and race.

### Diagnosis

A clinical diagnosis of COPD should be considered in any patient who is breathless (dyspnoea), has a chronic cough or sputum production, and or a history of exposure to risk factors for COPD, usually cigarette smoking. The NICE guideline (CG101) states that spirometry is required to make the diagnosis, a FEV<sub>1</sub>/FVC < 0.7 confirms the presence of persistent airflow limitation and COPD.<sup>6</sup>

The diagnosis of COPD includes a history of smoking and/or exposure to risk factors such as pollutants or occupational dusts. About 50% of smokers will develop COPD. COPD sufferers tend to be over 50 and are likely to have multiple chronic health conditions, which can complicate diagnosis.

A diagnosis of COPD should be considered in a patient aged 35 years and over who has a risk factor (e.g. smoking, occupational) and presents with one or more of the following (without the clinical features of asthma (see pathology below):

- Exertional breathlessness
- Chronic cough/chronic bronchitis (cough or sputum production for at least 3 months in 2 consecutive years)
- Regular sputum production
- Frequent winter 'bronchitis'
- Wheeze

For a patient with a diagnosis of COPD it is the beginning of a lifetime of care for patients and will require increasing medical, social and psycho-emotional input as time goes on.

**Table 1: 2010 NICE Guidelines grading of severity of airflow obstruction**

Severity	FEV1 % predicted
Stage 1 – mild	≥ 80*
Stage 2 – moderate	50 - 79
Stage 3 – severe	30 - 49
Stage 4 – very severe	< 30 <sup>†</sup>
*symptoms should be present to diagnosis COPD in people with mild airflow obstruction	<sup>†</sup> or FEV1 < 50% with respiratory failure

### Pathophysiology of COPD

The inhalation of noxious particles such as smoke from cigarettes, burning wood or coal causes a modified inflammatory response in patients who develop COPD. The result is inflammation in the airways and excessive mucus secretion (chronic bronchitis), as well as tissue destruction that results in emphysema. Emphysema develops when alveolar walls are destroyed and this leads to the development of larger airspaces within the lungs and a reduction in the surface area available for gas exchange. The inflammation in the airways leads to progressive narrowing reflected by a decreasing FEV<sub>1</sub>.

### COPD and asthma

COPD and asthma are different diseases although they share some clinical features. Asthma that has been poorly controlled over many years can lead to the development of fixed airflow obstruction this can sometimes be confused with COPD. Asthma may be risk factor for the development of COPD and adults who have asthma have a 12 fold higher risk of acquiring COPD,<sup>12</sup> and approximately 10% of people with COPD also have co-existent asthma.

**Table 2 The clinical differences between COPD and Asthma**

	COPD	Asthma
Smoker or Ex-Smoker	Nearly All	Possibly
Symptoms under age 35	Rare	Often
Chronic Productive cough	Common	Uncommon
Breathlessness	Persistent and Progressive	Variable
Night time waking with breathlessness and or wheeze	Uncommon	Common
Significant diurnal or day to day variability of symptoms	Uncommon	Common

### COPD and co-existing Disease

Patients who suffer from COPD are more likely to suffer from other long term conditions such as; cardiovascular disease, depression and anxiety and diabetes mellitus type II.

## COPD management

**COPD is treatable but not curable. The aim of treating stable COPD is to reduce symptoms, improve exercise tolerance, improve quality of life and to reduce the frequency and the severity of the exacerbations. Management involves pharmacotherapy as well as education, help with smoking cessation, and exercise, as well as nutritional and psychological support for some patients.**

The NICE Costing Report 2011 looked at the impact of the changes in NICE prescribing recommendations (CG101), it stated while cost of COPD medicines would increase £52 million if all recommendations were acted upon by prescribers, there be a 5% reduction in admissions which would save of £15.5 million.

### Adherence

The two key factors of low adherence and poor inhaler techniques need to be recognised and understood by pharmacists. Both can hugely limit the positive therapeutic effect of inhaled medicines, and hence will severely limit the optimal patient outcomes that are achievable.

The World Health Organization stated that increasing the effectiveness of adherence interventions may have far greater impact on the health of the population than any improvement in specific medical treatments. Studies have indicated that that an average of 60% of patients with COPD do not adhere to prescribed therapy,<sup>14</sup> this non-adherence will reduce symptom control, increase exacerbations and reduce quality of life.<sup>15,16</sup>

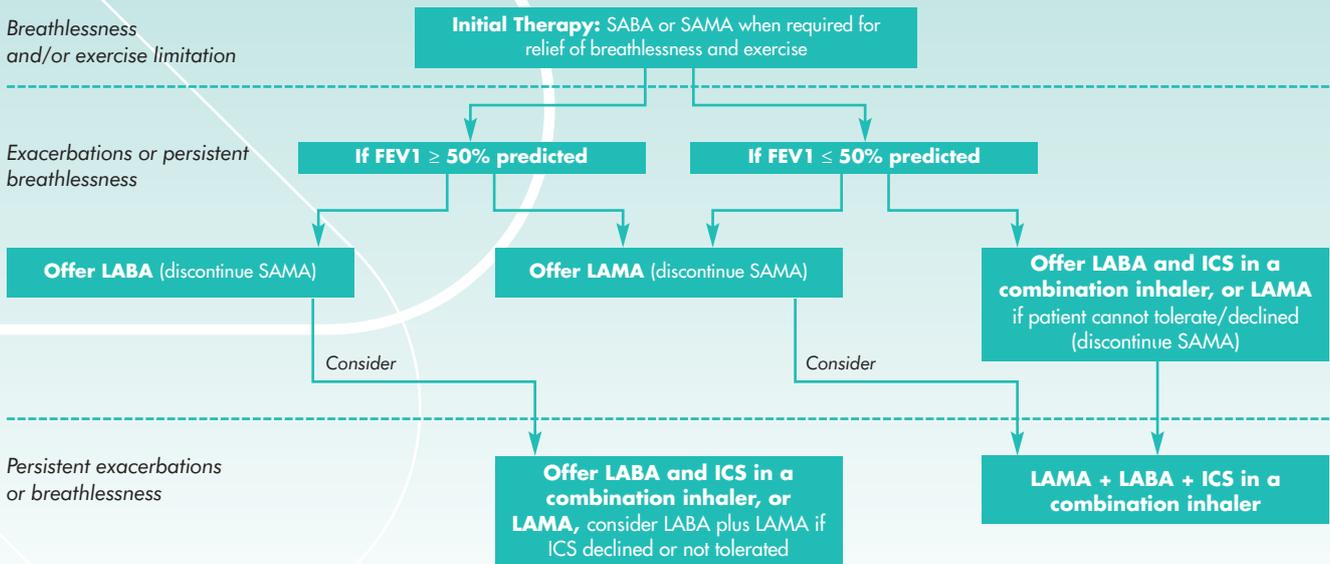
- **Patient adherence** is a complicated issue that has multiple causes; a recent editorial in the Journal of American Medical Association (JAMA May 2013) stated that certain behavioural characteristics such as the patient's beliefs and lack of

understanding on the benefits of their medicines, with complexity of medicine regimes can increase the risk of low adherence.<sup>17</sup> NICE guidance CG76 (2009) has categorised these characteristics into the groups intentional non adherence (e.g. beliefs and understanding) and non-intentional non adherence (e.g. complexity of regimes). The JAMA article stated that educational interventions with behavioural support through continued patient contact over several weeks or months were effective for improving adherence in several chronic diseases (hypertension, hyperlipidaemia, heart failure, and myocardial infarction<sup>18</sup>). In addition it is recognised and evidenced that a patient-centred approach should be used by health professionals in consultations to help address adherence barriers.

- **Poor inhaler technique** can lead to decreased effectiveness of inhaled therapies due to reduced deposition of medication in the lungs. Studies have reported high levels of poor inhaler technique in COPD and asthma patients. One study showed that 89% of patients made at least one significant mistake in with their inhaler technique,<sup>19</sup> the average error rate of the studies published is around 50%.<sup>20</sup> Focused educational interventions designed to improve inhaler skills of adults and children with MDIs, pMDIs and DPIs can result in significant reduction in patient inhaler error,<sup>21,22</sup> the addition of a physical demonstration to the written or verbal instructions delivered by a pharmacist resulted in a markedly better retention of inhaler skills.<sup>23</sup> In another study showed that a simple 2.5 minute inhaler education intervention again delivered by community pharmacists not only significantly improved the patients inhale technique but also resulted in improved asthma outcomes.<sup>24</sup> However it should be noted that health professionals can lack the knowledge of good inhaler technique, one study with medical students stated only 5% of the students were able to use an MDI inhaler correctly,<sup>25</sup> hence it is important that the health professional has undertaken training to improve knowledge and skills of good inhaler technique.

## 1. Inhaled therapy

### Summary of NICE COPD Guidelines for the management of breathlessness and exercise limitation with effective inhaled therapy



#### Overview of medicines (see also consultation brief):

**Bronchodilators:** SABA (e.g. salbutamol)/SAMA(e.g. ipratropium)/LABA (e.g. salmeterol, formeterol)/LAMA (e.g. tiotropium, aclidinium, glycopyrronium). ICS used in combination with LABA (e.g. budesonide, fluticasone).

## 2. Oral therapy

- Regular oral corticosteroids are not recommended for people with COPD, but a small percentage of patients with severe COPD can benefit. The aim is to use the lowest a steroid dose as possible to control symptoms while reducing the risk of side effect risks
- Theophylline is sometimes used if patient remain breathless despite maximal inhaled therapy. If it is used plasma levels need to be monitored and clinicians need to be aware of interactions with other medication e.g. short term therapies such as antibiotics.
- Mucolytic therapy is used if patients have a chronic cough productive of viscous sputum. It is not always very effective.

## 3. Antibiotics

It is common for COPD patients to have higher levels of bacteria such as Haemophilus influenza, streptococcal pneumonia in their lungs. Both bacteria and viruses can trigger exacerbations and antibiotics are useful in treating exacerbations if the patient is coughing up sputum that is more purulent than usual. Long term prophylactic antibiotics were rarely used to treat people with COPD but recent evidence suggests they may have a role in a small group of patients.

## 4. Oxygen

Long term oxygen therapy (LTOT) to patients of over 15 hours per day has been shown to increase survival in patients with severe resting hypoxia. LTOT is indicated for the management of confirmed chronic hypoxaemia and should only be provided after appropriate assessment<sup>6</sup>. There is no evidence to support short-burst oxygen therapy (SBOT) which should not be used except in palliative care in the presence of hypoxia.

## Management of exacerbations

In an exacerbation, the earlier treatment is started the better as the event can accelerate the rate of lung function decline,<sup>26</sup> and is associated significant mortality in those who require hospitalisation.<sup>27</sup> The most common cause of COPD exacerbations are bacterial or viral respiratory tract infections.

The recommended steps for management of exacerbations are:

- Take maximal bronchodilator therapy, in emergencies salbutamol can be used in higher doses (such as 10-15 puffs Salbutamol 100mcg/puff up to 3 times per day) wait 30 seconds between each puff)

### Exacerbation

An exacerbation is a sustained worsening of the patient's symptoms for three days or more, from their usual stable state which is beyond normal day-to-day variations and is acute in onset. Patients with severe COPD (GOLD category III) had an annual exacerbation frequency of 3.43 per year compared with 2.68 per year in those with moderate COPD (GOLD II)<sup>31</sup>. Commonly reported symptoms are, worsening breathlessness, cough and increased sputum volume and change in sputum colour, tightening of the chest. The change in these symptoms often necessitates a change in medication.

### An exacerbation may also include:

- Upper airway symptoms (e.g. colds and sore throats), increased wheeze or chest tightness
- Reduced exercise tolerance, increased fatigue
- Fluid retention, ankle swelling
- Acute confusion, blue lips/finger nails

- Oral steroids (30mg prednisolone daily for 7-14 days) if symptoms persist despite adequate bronchodilators
- Antibiotics if sputum goes yellow/green or changes in viscosity (antibiotics reduce short term mortality by 77%<sup>28</sup>)

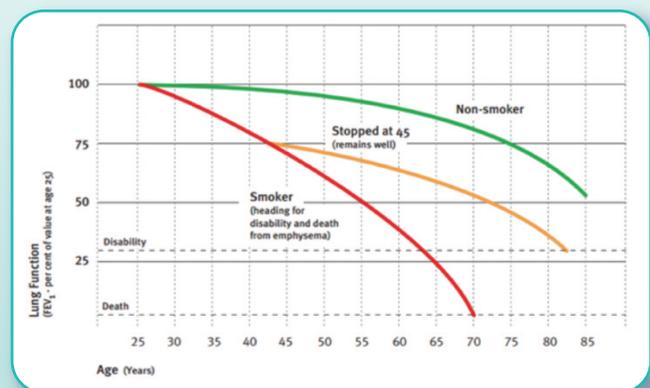
It is important that patients who are at risk of having an exacerbation are encouraged to respond quickly to the symptoms by following the above pharmacological recommendations. Rescue packs which contain a course of antibiotic and corticosteroid tablets may be kept at home and the used by patients when they suffer an exacerbation.

## Non-pharmacological management

### Stopping Smoking

Stopping smoking is the single most important intervention that can be made, regardless of disease severity. None of the licensed medicines have evidence to improve the long term decline in lung function. On average each smoker who manages to stay off tobacco for the rest of their life gains 3.6 life years.

### The Fletcher-Peto Diagram: Showing the benefit to your lungs by giving up smoking



This figure demonstrates the impact on FEV<sub>1</sub> of stopping smoking which is quite a powerful tool to use with patients. The key message is that all COPD patients still smoking, regardless of age, should be encouraged to stop and offered help to do so at every possible opportunity.

Smoking cessation interventions are four times more effective if they include counselling support, and can achieve long term quit rates of up to 25%. One third of COPD patients admitted to hospital in 2008 were current smokers so there are still major opportunities.<sup>29</sup>

### Pulmonary rehabilitation

Pulmonary rehabilitation (PR) is defined by NICE as "a multidisciplinary programme of care for patients with chronic respiratory impairment that is individually tailored and designed to optimise the individual's physical and social performance and autonomy."

PR is a programme of care designed to help patients cope with their breathlessness and feel stronger and fitter at the same time. PR should be made available to all appropriate patients with COPD usually those with a MRC breathlessness (dyspnoea) score of 3 and above, and be considered for patients recently admitted to hospital. Pulmonary rehabilitation has now been shown to reduce the three month readmission rate in COPD from 33% to 7%.<sup>30</sup>

## Immunisation

The MHRA advises health professionals to be vigilant for the development of pneumonia and other infections of the lower respiratory tract when using inhaled corticosteroids to treat people with COPD, because of the increased risk. You should advise patients to carry with them a steroid card, the increased risk of pneumonia, and to ensure they are vaccinated (if indicated).

## Risk of pneumonia high dose ICS and LABA

An exacerbation is a sustained worsening of the patient's symptoms for three days or more, from their usual stable state which is beyond

## Signposting

### For patients:

**British Lung Foundation  
Patient UK (for leaflets)**

<http://www.blf.org.uk/Home>  
[www.patient.co.uk](http://www.patient.co.uk)

### For pharmacists:

- **Asthma UK devices demos:**  
<http://www.asthma.org.uk/Sites/healthcare-professionals/pages/inhaler-demos>
- **Greater Manchester Inhaler Technique Improvement Project see videos:**  
<https://wessexhiecpartnership.org.uk/wires/video-series/inhaler-technique/>

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