



CMScript

*Member of a medical scheme?
Know your guaranteed benefits!*

Issue 2 of 2014

In this issue of CMScript we focus on Chronic Obstructive Pulmonary Disease or COPD. Medical schemes are required to fund the prescribed minimum benefits or PMBs highlighted in the Medical Schemes Act. COPD is one of the PMBs and must be covered by medical aids. Medical cover for COPD includes diagnosis, treatment and care of the condition.

Chronic Obstructive Pulmonary Disease (COPD)

COPD is one of the leading causes of illness and deaths in the world. It is estimated that there are currently over 280 million cases globally. The number of COPD cases is projected to rise in the near future, owing to increased exposure to risk factors and population ageing.

What is COPD?

COPD is characterised by airflow limitation. The airflow limitation is usually associated with an abnormal inflammatory response of the lungs to particles and gases which irritate them. Significant airflow blockage may be present before the person is aware of it. COPD is also a preferred term for patients with airflow obstruction who were previously diagnosed as having chronic bronchitis or emphysema.

Risk factors of COPD

Tobacco smoke

COPD is more common in smokers and ex-smokers than in non-smokers. The age at which a person started smoking, the number of years they have been a smoker and their current smoking status all play a role.

Cannabis

Smoking cannabis (dagga) is associated with a dose-related airflow blockage. One cannabis joint is equivalent to 2.5 to 5 tobacco cigarettes.

Occupational dusts and chemicals

Occupational dust and chemical exposure is another cause

of COPD. The National Health and Nutrition Examination Survey (NHANES III) of almost 10 000 adults estimated that the percentage of COPD caused by the type of jobs COPD sufferers had was 19% overall and 31% among individuals who had never smoked.

Indoor air pollution

The burning of biomass and fossil fuels (wood, animal dung, crop residues and coal) in open fires or poorly functioning stoves in poorly aired spaces leads to very high levels of indoor air pollution.

Outdoor air pollution

Outdoor air pollution, mainly from motor vehicles and smoke from bush and forest fires, is associated with loss of lung function.

Infections

Childhood respiratory infections are associated with reduced lung function in adults. Several studies have shown that previous lung tuberculosis may lead to COPD. Additionally, viral and bacterial infections may worsen the progression of COPD.

Socio-economic status

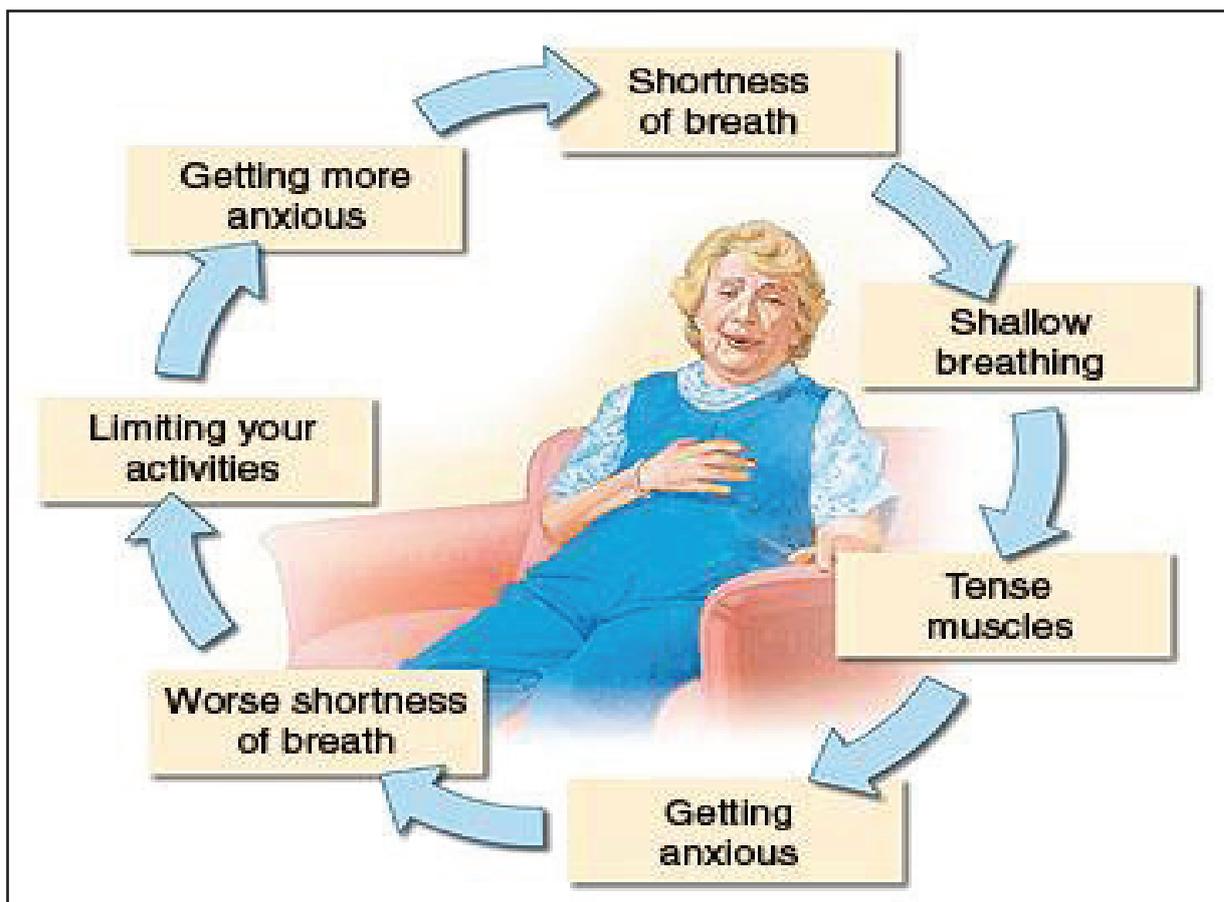
The presence of COPD is higher among lower socioeconomic groups, most likely as a result of increased exposure to smoking, indoor and outdoor air pollution, vulnerability to infections and poor nutrition.

Nutrition

The role of nutrition in the development of COPD is not clear. Severe malnutrition, however, has been associated with emphysema.

What are the signs and symptoms of COPD?

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<http://whatiscopdsymptoms.com/156/common-symptoms-copd/>

The patient will experience:

- breathlessness on exertion;
- chronic progressive dyspnoea (difficulty in breathing);
- chronic cough with or without mucous production;
- frequent winter 'bronchitis' (inflammation or swelling of the bronchial tubes);
- wheezing (whistling sound during breathing).

One of the primary symptoms of COPD is progressive and persistent breathlessness.

The following may also be present:

- weight loss;
- inability to be active;
- waking at night;
- ankle swelling;
- fatigue;
- occupational hazards;
- chest pain;
- haemoptysis (coughing up blood).

However, chest pain and coughing up blood are not common in COPD and so could be as a result of other diseases or illnesses.

Diagnosis of COPD

COPD should be considered in patients over the age of 35 who have smoked for more than 10 years. There is no single diagnostic test for COPD. Making a diagnosis relies on clinical judgement based on a combination of history, physical examination and confirmation of the presence of airflow obstruction. COPD may sometimes be misinterpreted as asthma. Below is a guide for differentiating between COPD and asthma.

Features suggesting COPD

- a long history of smoking or exposure to other risk factors;
- persistent difficulty in breathing, wheezing and productive cough despite treatment;
- slow progression;
- hyperinflation (excessive expansion) of the lungs;
- abnormal spirometry (breathing tests) that persist during a stable phase of the disease;
- cyanosis (blue or purple colouration of the skin or mucous membranes).

Features that suggest asthma

- young age when breathing difficulties begin;
- presence of atopy (genetic predisposition to allergies) and/or allergic rhinitis (inflammation of the inside of the

nose caused by allergens);

- day-to-day variation, variation during the day and seasonal variability;
- marked improvement in lung function after a bronchodilator (medication that helps open the lungs and airways) and/or a two-week trial of treatment with systemic steroids.

Additional considerations in the diagnosis of asthma and COPD

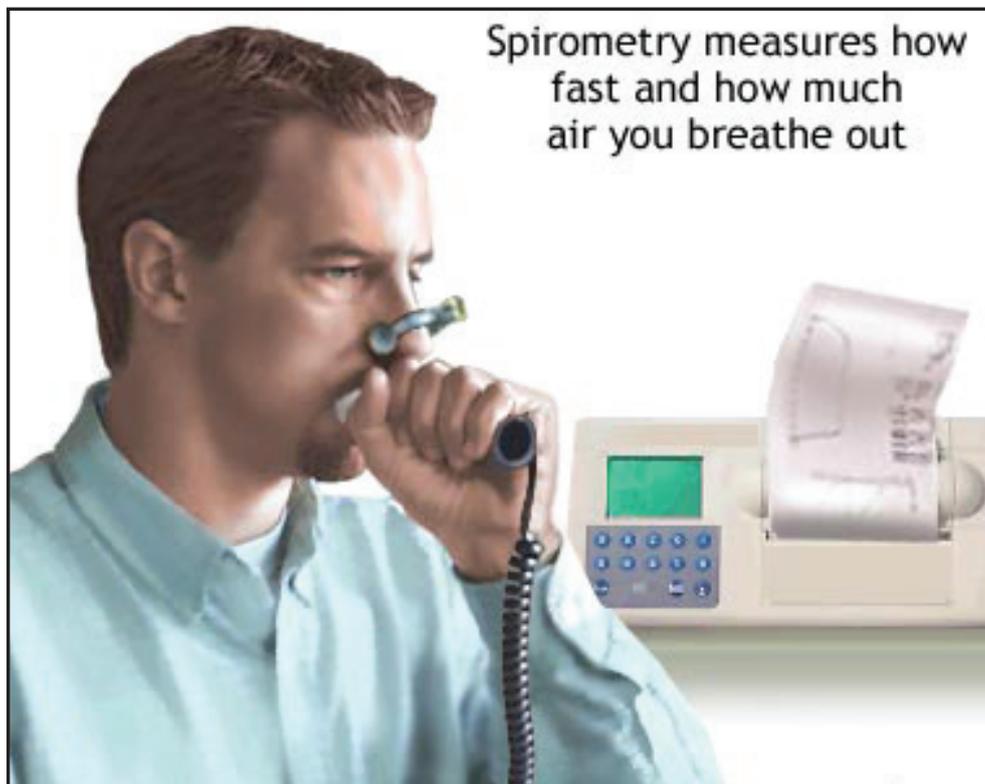
- asthma and COPD may co-exist, and distinguishing them may be difficult;
- breathlessness occurs late in COPD;
- asthmatics who smoke may have an accelerated decline in lung function.

Tests to confirm the presence of COPD

- Spirometry

bronchodilator. Vital capacity refers to the maximum amount of air a person can breathe out from the lungs after a maximum inhalation.

The FEV1 is usually reduced, that is, less than 80% of the predicted value, and is used as a measure of the severity of the condition. If FEV1 is more than 80% of the predicted value, a diagnosis of COPD should only be made in the presence of respiratory symptoms, for example breathlessness or a cough. An improvement in FEV1 more than or equal to 12% from baseline and more than or equal to 200 ml indicates considerable reversibility compatible with asthma but also seen in many patients with COPD. Generally, the improved results demonstrate the likelihood that the diagnosis may be asthma, taking into consideration other symptoms and signs.



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This is a test done using an apparatus called spirometer to measure how much air is taken in and breathed out by the lungs.

The test is essential for the detection, assessment and management of patients with COPD. Spirometry should be done before a patient is given puffs of medicines called short-acting beta-2 agonist bronchodilators like salbutamol, fenoterol or terbutaline. The test should be repeated 20 minutes after giving the medicine.

Measurements used in the diagnosis of COPD are forced expired volume in one second (FEV1), forced vital capacity (FVC) and FEV1/FVC percentage pre-and post-

Further investigations

During the initial medical evaluation, the following are done in addition to spirometry:

- a chest x-ray to exclude other abnormalities;
- a full blood count to identify anaemia or polycythaemia (increase in the total red cell mass);
- a body mass index (BMI) calculation.

Additional investigations

- CT scan of the chest
 - to investigate symptoms that seem inconsistent with the spirometric results;
 - to investigate abnormalities seen on a chest X-ray;
 - to assess appropriateness for surgery.

- Echocardiogram – to assess cardiac status if there are features of cor pulmonale (right sided heart failure)
- Pulse oximetry – to assess need for oxygen therapy
- Sputum culture – to identify micro-organisms if sputum (mucous) is persistently present and purulent (contains pus)

What are the stages of COPD?

Stages of COPD (FEV1/FVC <70%)

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| | Stage 1 Mild | Stage 2 Moderate | Stage 3 Severe | Stage 4 Very severe |
|-------------------------------|-----------------|---------------------|-------------------|------------------------|
| FEV 1 after bronchodilator | ≥80% | 50 - 80% | 30 - 50% | <30% |

SAMJ 2011:66

Treatment

The aim is to alleviate breathlessness and improve effort tolerance. The following methods of treatment are used for COPD:

Inhaled short-acting beta-2 agonists (SA BA)

These work quickly; examples include Salbutamol, Fenoterol and Terbutaline.

Inhaled long-acting beta-2 agonists (LA BA)

These are Salmeterol and Formoterol. LA BAs improve symptoms, reduce worsening of the disease, reduce the need for rescue therapy and improve exercise capacity. Formoterol may also be used as a relief treatment because it works quickly.

Combination of inhaled corticosteroids (ICS) and LA BAs

Inhaled corticosteroids, particularly in combination with LA BAs, have been shown to improve lung function and quality of life.

Inhaled anti-cholinergics

Anticholinergic agents are effective bronchodilators for COPD to relieve constriction of the airways. Tiotropium may be used as a first-line, long-acting bronchodilator treatment in COPD or may be used in combination with LA BAs. Ipratropium bromide may be prescribed for relief from symptoms.

Nebuliser treatment

This is an alternative for Stage 3 and 4 patients with poor inhalation technique and/or acute dyspnoea (shortness of breath). Nebulised Ipratropium plus beta-2 agonists can be used.

Combination bronchodilator treatment

The following combinations are effective:

- short-acting beta-2 agonists + Ipratropium;
- long-acting beta-2 agonists + Ipratropium;
- long-acting anti-cholinergic + short-acting beta-2 agonists;
- long-acting anti-cholinergic + long-acting beta-2 agonists.

Oral theophylline may be added to any combination of inhaled treatment.

Theophyllines

Theophyllines have similar bronchodilator effects to beta-2 agonists and improve quality of life.

Oral corticosteroids

Oral corticosteroids are no longer recommended for stable COPD. Low-dose oral corticosteroids only cause small improvements in lung function. Higher doses (≥30 mg/d) are associated with improvements in lung function but also with major side-effects that include high blood pressure, hyperglycaemia (high blood sugar) and osteoporosis (bone disease).

Mucolytics and mucokinetic agents

Coughing up persistent mucous is a distressing symptom. Unfortunately, the effectiveness of mucolytics, mucokinetic drugs, cough syrups and acetylcysteine (oral and inhaled) has not been proven, and therefore these are not recommended.

Newer phosphodiesterase inhibitors

Phosphodiesterase inhibitors such as Roflumilast have been shown to be effective in phase III clinical trials but are not yet registered for use in South Africa.

Chest physiotherapy

A cough may be improved by instruction from a physiotherapist, who plays an important role in advising on breathing and coughing techniques.

Venesection/phlebotomy

An increased haematocrit (volume of red blood cells in the blood) causes aggravation of cardiac failure, increased abnormal breathing and an increased incidence of blood clots. Therapeutic venesection (drawing of blood) should be considered as this can keep the volume of red blood cells in the normal range.

Long-term oxygen therapy (LTOT)

Oxygen is administered by facemask or nasal cannula device for a total of at least 16 hours per 24-hour day at a flow rate of 1 to 2 litres/minute. Oxygen can be delivered by oxygen concentrators or by cylinders. With these systems, patients do not have to be confined to their homes.

Lung surgery

The following surgical techniques can improve lung function and symptoms of COPD:

- A bullectomy may be performed to decompress adjacent lung tissue if there are large, localised bullae (bubbles).
- Lung volume reduction surgery – this is where parts of the lung are removed to reduce hyperinflation. This is an alternative to lung transplantation in patients with severe inhomogeneous emphysema who continue to suffer from symptoms despite the best medical treatment plan.
- Lung transplantation – this approach may be used in patients with diffuse severe emphysema, but access to transplantation is very limited in South Africa. Its effect on survival after two years remains controversial.

Pulmonary rehabilitation

Pulmonary rehabilitation is a multidisciplinary programme of care for patients with chronic respiratory impairment to improve a patient's physical and social performance and independence.

What is covered under PMBs for COPD?

Medical aid cover includes diagnosis, treatment and care if you have COPD. According to the Chronic Disease List (CDL), all patients should stop smoking, avoid irritants and have an annual influenza immunisation.

The doctor may prescribe the treatment as follows:

| Stage 1 COPD |
|--------------------------------------------------------------------------------------------------------------------------------------------|
| Bronchodilators |
| Beta2 agonist inhaler |
| Ipratropium Bromide |
| Combination of Bronchodilators, Beta2 agonist inhaler, Ipratropium Bromide |
| Oral theophylline |
| If no improvement, oral corticosteroids for 14 days |
| For severe and advanced disease, long-term domiciliary oxygen therapy should be considered to treat complications and prevent weight loss. |

| Stage 2 & 3 COPD |
|--------------------------------------------------------------------------------------------------------------------------------------------|
| Bronchodilators |
| Beta2 agonist inhaler |
| Ipratropium Bromide |
| Combination of Bronchodilators, Beta2 agonist inhaler, Ipratropium Bromide |
| Oral theophylline |
| Oral corticosteroids trial for 14 days |
| For severe and advanced disease, long-term domiciliary oxygen therapy should be considered to treat complications and prevent weight loss. |

It is important for the doctor to register the condition with the scheme so that benefits for treatment can be paid as PMB. The scheme must make provision beyond the drugs listed on its CDL in cases where the medication on the CDL does not work for the member or causes harm.

Confirm with your medical scheme about the diagnostic tests covered for the condition and how many per year they cover before the investigations are done. This is important because the scheme is allowed to limit the number and types of tests covered per year. If the doctor deems it necessary for additional tests to be done, the doctor should write a clinical motivation to the scheme for payment for the tests to be considered as PMB.

Prevention and care

Stop smoking

Encouraging patients with COPD to stop smoking is one of the most important components of management.

Vaccination and anti-viral therapy

Pneumococcal vaccination and an annual influenza vaccination should be offered to all patients with COPD as recommended by the doctor.

Nutritional factors

The normal range for body mass index (BMI) is 20 to less than 25. BMI should be calculated in patients with COPD:

- if the BMI is abnormal (high or low), or changing over time, the patient should be referred for dietetic advice;
- if the BMI is low, patients should also be given nutritional supplements to increase their total intake of calories and be encouraged to exercise to enhance the effects of nutritional supplementation.

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PMBs

Prescribed minimum benefits (PMBs) are defined by law. They are the minimum level of diagnosis, treatment, and care that your medical scheme must cover – and it must pay for your PMB condition/s from its risk pool and in full. There are medical interventions available over and above those prescribed for PMB conditions but your scheme may choose not to pay for them. A designated service provider (DSP) is a healthcare provider (e.g. doctor, pharmacist, hospital) that is your medical scheme's first choice when you need treatment or care for a PMB condition. You can use a non-DSP voluntarily or involuntarily but be aware that when you choose to use a non-DSP, you may have to pay a portion of the bill as a co-payment. PMBs include 270 serious health conditions, any emergency condition, and 25 chronic diseases; they can be found on our website by accessing the link provided (www.medicalschemes.com/medical_schemes_pmb/index.htm).

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