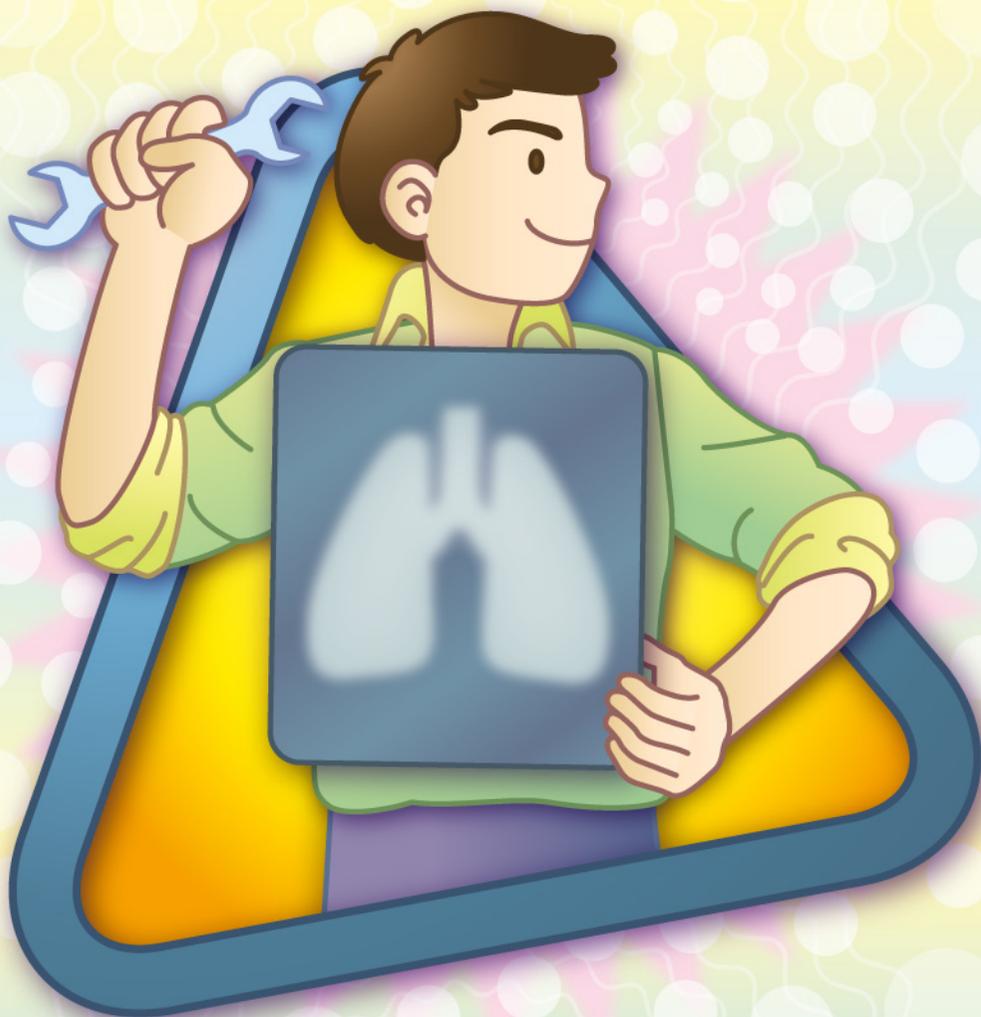


# Work and Chronic Obstructive Pulmonary Disease



Occupational Safety and Health Branch  
Labour Department



This booklet is prepared by  
the Occupational Safety and Health Branch, Labour Department

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# Work and Chronic Obstructive Pulmonary Disease



## What is Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) is a chronic progressive disease of the airways, which are narrowed by inflammation, with thickened and swollen walls and increased mucus production, as well as by distortion and loss of support of normal lung tissues, leading to difficulty in getting air in and out of the lungs.

COPD generally includes “Chronic Bronchitis” and “Emphysema”.

“Chronic Bronchitis” is characterized by excessive mucus secretion, causing productive cough on most days for three months or more over two consecutive years.

“Emphysema” is characterized by the abnormal enlargement of the airways distal to the terminal bronchioles and destruction of their walls, leading to the trapping of air in the enlarged air sacs.

## **Causes of Chronic Obstructive Pulmonary Disease**

### **1. Smoking**

Smoking is the most common cause of COPD. About 90% of COPD patients are former or current smokers. Harmful fumes from pipes, cigars and cigarettes stimulate the bronchioles to produce excessive mucus and cause inflammatory destruction of the airway walls and lung tissues. Secondhand smoke can also cause COPD.



### **2. Dust, fumes or irritant gases in work environment**

Prolonged exposure to harmful substances at work, e.g. coal dust, silica dust and welding fumes, is also a contributing factor for COPD.

### 3. Air Pollution

Pollutants in the air such as fumes from cooking and vehicle emissions may increase the risk of developing COPD.



### 4. Hereditary

Certain gene defect causing enzyme deficiency also accounts for COPD.

## Symptoms

- excessive sputum production and persistent cough
- shortness of breath
  - usually occurs when the patients are on exertion
  - in severe cases, the symptom even occurs at rest



## Complications

Pneumonia, pneumothorax and pulmonary heart disease are the common complications.

### Pneumonia

- Patients with COPD are more prone to pneumonia because of the pathological changes of the airways which result in excessive mucus secretion. In smokers, the weakened immune function of their lungs also contribute to increased risk of pneumonia.

### Pneumothorax

- COPD patients may have pneumothorax when air in their lungs gets into the pleural cavity due to rupture of the air sac. In these circumstances, they usually feel sharp pain in the chest and shortness of breath suddenly.

### Pulmonary heart disease

- It is a kind of heart disease consequential to the increased workload of the right atrium and ventricle because of reduced lung function and therefore lower oxygen content in the blood. In severe cases, it may lead to heart failure and failure of respiratory function.

## Treatment

### Smoking cessation

- Smoking cessation intervention for patients with COPD includes behavioural modification, counselling and medication.
- Smoking cessation not only prevents but could also slow down its progress. stop smoking.
- Quitting smoking helps to alleviate the symptoms of increased sputum production and chronic cough.



## Medication

- Medication provides symptomatic relief and reduces the chance of complications.

## Bronchodilators

- Bronchodilators take the form of either inhaler or oral medication, which relaxes the airway muscles, and hence dilates the airways and reduces the bronchial obstruction
- Bronchodilator inhaler is more effective than oral medication because it goes right to the lungs and has less side effects
- Side effects : dizziness, palpitation and trembling



## Steroid

- Inhaled steroid has been shown to improve significantly the lung function of some stable COPD patients by enhancing airflow of their airways
- Oral and intravenous steroid can hasten recovery of patients who have disease exacerbation
- Side effects : Inhaled steroid does not have much serious side effects, while oral and intravenous steroid may lead to side effects such as oedema, obesity and excessive hair growth



## Antibiotics

- Antibiotics are used for the treatment of infective diseases to avoid permanent lung damage



## Oxygen Therapy

- Generally, patients with COPD may suffer from hypoxia in the later stage of the disease. Therefore these patients are required to have long term oxygen therapy to increase the blood oxygen level and improve the cardiopulmonary function.
- Oxygen therapy has been shown to improve the survival of patients with COPD and reduce the number of hospital admissions.



## Surgery

- In selected cases, resection of emphysematous lung tissues or large bullae can improve the patient's lung function and daily activities.

## Healthy Lifestyle

- Balanced diet
- Regular exercises



## Participation in a Rehabilitation Programme

- Health education, aerobic exercise training, dietary counselling and occupational therapy can improve pulmonary function as well as the quality of life of the COPD patients.



## Immunization

- Prophylactic immunization with influenza vaccine can help to reduce the chance of getting influenza and its complications.



## How work affects the disease

- Patients with COPD should pay particular attention to certain work situations or requirements that may affect the stability of the disease, for example:

### 1. Work stress

It can result in tension causing a rise in blood pressure and airway constriction, which may lead to shortness of breath.



### 2. Physical demand

Our body has to use more oxygen when workload is heavy and work is physically demanding. In these circumstances, COPD patients are more likely to have shortness of breath.

### 3. Cold environment

Working in a cold environment may induce bronchial constriction and cause coughing, shortness of breath and breathing difficulty.



### 4. Dust, fumes or irritant gases in work environment

The airways of COPD patients can be irritated by these air contaminants, leading to increased mucus secretion, coughing and shortness of breath. In severe cases, bronchial constriction can result in suffocation and even death.

- COPD patients should take appropriate precautionary measures against these hazards to prevent deterioration of the disease.

## How the disease affects work

At the initial stage, COPD patients only have mild symptoms that will unlikely affect their work. There may be serious impact on their work abilities as the disease deteriorates and complications occur.

### 1. Treatment aspect

- In general, there is minimal impact on work when the disease is well under control.
- However, the use of bronchodilators by some patients may have side effects like dizziness and trembling. This may compromise the safety of the patients and other people. Therefore, they should avoid any work which is inherently hazardous or where the safety of others can be affected by the their health condition. For example:
  - work in isolation;
  - work in remote areas that are far from medical facilities;
  - work in a dangerous environment, e.g. at high altitudes, on water, under water, underground, in confined spaces or workplaces with a lot of air contaminants; and
  - fire-fighting and emergency medical care.

### 2. Complications

The disease may progress and cause complications such as pneumonia, pneumothorax and heart failure, which may affect work abilities. Therefore, patients with COPD should have regular follow-up consultations with their attending doctors so that any complications can be diagnosed and treated early and appropriate advice on safety and health at work given.

## Patients with Chronic Obstructive Pulmonary Disease should

- Understand your own illness



- Know the therapeutic effects and side effects of medications

- Comply with the health advice given by health care professionals and take regular follow-up



- Participate actively in the rehabilitation programme

- Seek advice from your doctors if you have to work in workplaces where air pollution is serious or there are dust, fumes or irritant gases in the environment



- Bring along enough medication, especially when travelling overseas for work

Even though COPD cannot be cured, a healthy lifestyle with effective treatment and rehabilitation can delay complications and help maintain good health conditions for work.

## Care with a Loving Heart Card

It is highly risky when COPD patients suffer from sudden bronchial constriction leading to suffocation. To ensure your safety at work, the Labour Department has designed a “Care with a Loving Heart Card” for you. By carrying this card with you while at work, your colleagues and health care providers can immediately refer to your health condition and other relevant information on the card and give you appropriate advice and treatment in case of any emergency.



 Care with a Loving Heart Card	
Name :	
Illness :	
Medications :	
Hospital / Clinic : (Name)	
(Address/Tel.)	

## **Enquiries**

For enquiries on this booklet or advice on occupational health and hygiene matters, please contact the Labour Department's Occupational Safety and Health Branch through :

**Telephone : 2852 4041**

**Fax : 2581 2049**

**Email : [enquiry@labour.gov.hk](mailto:enquiry@labour.gov.hk)**

Information on the services offered by the Labour Department and on major labour legislation can also be found on our website <http://www.labour.gov.hk>.

Information on the services offered by Occupational Safety and Health Council can be obtained through hotline 2739 9000.

## **Complaints**

If you have any complaints about unsafe workplaces and practices, please call the Labour Department's occupational safety and health complaint hotline at 2542 2172. All complaints will be treated in the strict confidence.

