

Diseases, Disorders and Injuries

Chronic Obstructive Pulmonary Diseases

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What are chronic obstructive pulmonary diseases?

Chronic obstructive pulmonary (or lung) diseases (COPD or COLD) refers to a group of diseases in which airflow into or out of the lungs is insufficient. Chronic obstructive pulmonary diseases is a general term for a number of diseases that include chronic bronchitis and emphysema. Patients may experience symptoms like shortness of breath that gets worse over time (e.g., several years), chronic coughing, sputum production, and obstructed airways under some conditions. COPD slowly worsens over a period of years. Severity is associated with more frequent episodes requiring treatment, further airflow reduction, and early death.

Chronic bronchitis

Chronic bronchitis refers to the condition in which there is chronic, excessive mucous secretion in the bronchial tree. Bronchitis is an inflammation of the lining of the bronchial tubes (bronchi) that go from the end of the trachea (windpipe) to the right and left lobes of the lungs. When the bronchi are inflamed, they can swell (i.e., the diameter decreases) and produce excessive amounts of sputum (mucous or phlegm) that is expectorated (coughed up and spit out). The swelling and excessive mucous in the bronchi and branching bronchioles cause a decrease in airflow.

Patients are said to have chronic bronchitis when they produce sputum on most days for at least three months in the year over a period of at least two years. A person who develops chronic bronchitis can experience respiratory infections and shortness of breath.

Emphysema

Emphysema, often associated with chronic bronchitis, is a chronic lung disease in which the air sacs (alveoli) at the end of the small bronchioles are enlarged or over-inflated and are eventually destroyed. The alveoli are the parts of the lung where most of the air exchange occurs; that is, where oxygen in the air is transferred to the bloodstream and where carbon dioxide is removed from the bloodstream and exhaled. Because air exchange is impaired, a person who develops emphysema experiences shortness of breath that occurs during strenuous exertion in the early stages of the disease and even at rest in later stages.

What are the risk factors for developing chronic obstructive lung diseases?

Many factors contribute to the development of chronic obstructive lung diseases. Studies indicate that about 15% of all cases of COPD are work-related. Occupations such as coal miners, hard-rock miners, tunnel workers, concrete-manufacturing workers, and other industries such as rubber, plastics, leather, utilities, building services, textiles and construction are often associated with COPD. These factors may relate to personal conditions or activities as well as working conditions. Tobacco smoke, air pollution, and various workplace dusts, fumes, vapours, and gases have all been associated with obstructive lung diseases.

The Public Health Agency of Canada (PHAC) reports that 80 to 90% of COPD cases have cigarette smoking as the main underlying cause. PHAC also reports, "Another important risk factor is occupational exposure to dusts (e.g., coal dust, grain dust) and some fumes. Exposure to non-specific dust is likely to add to the effect of smoking."

Many epidemiological studies consistently show relationships between occupational exposure to airborne contaminants and the incidence of chronic airway diseases. Because many factors contribute to chronic obstructive lung diseases, they cannot be classified as occupational disorders. Chronic obstructive lung diseases are considered to be work-related conditions when the occupation (or workplace materials to which employees are exposed) can be:

- a factor causing the condition,
- a contributing factor, or
- a factor aggravating or "setting off" a pre-existing condition.

What are the complications or effects of COPD?

Adults with COPD are more likely to:

- Have activity limitations such as difficulty walking or climbing stairs.
- Need special equipment such as portable oxygen tanks.

- Not engage in social activities such as eating out, going to places of worship, going to group events, or getting together with friends or neighbours.
 - Have increased confusion or memory loss.
 - Have more emergency room visits or overnight hospital stays.
 - Have other chronic diseases such as arthritis, congestive heart failure, diabetes, coronary heart disease, stroke, or asthma.
 - Have depression or other mental or emotional conditions.
 - Report a fair or poor health status.
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What are COPD flare-ups?

A COPD flare-up occurs when symptoms become worse or new symptoms develop. A lung infection often triggers a flare-up. Avoiding flare-ups is an important part of managing the disease.

- Staying healthy will help the body fight infections. Eat healthy foods, exercise, and get enough sleep. Stay away from people who are sick.
 - Take all medications as prescribed by the doctor.
 - Develop a plan with your doctor to deal with a potential flare-up.
 - Be aware of things that can trigger symptoms, such as air pollution, smoke, dusts, or breathing very cold or very humid air.
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Is COPD an occupational concern?

Workplaces should take measures to reduce occupational exposure to dust (e.g., coal dust, grain dust) and some fumes to help prevent the disease from developing.

For individuals with existing conditions, workplaces should be aware that COPD affects the individual's ability to do physically demanding tasks, including walking distances, lifting, etc. In more severe cases, walking and talking can be difficult.

If a worker is diagnosed with COPD, determine if any concerns are reasonable given the individual's expected duties and the facts of each individual's symptoms and treatment plan. Employers must accommodate employees with COPD (unless it can be shown to cause undue hardship to the organization). Employers and employees should work together to address concerns around COPD respectfully. These accommodations may include changes in job tasks that require physical exertion or a schedule of regular breaks to maintain the physical pacing of tasks. Time off to attend medical appointments would be another example.

Workplaces can also help by:

- Limiting distances needed to be walked, such as by assigning a parking space that is close to the entrance and moving the individual's workstation closer to the entrance.
- Providing a physically accessible workplace and allowing the use of medical items, such as an oxygen tank, scooter, or motorized chair.
- Providing assistance with tasks that involve lifting, bending, and reaching.
- Allowing the individual to work from home, where possible.
- Providing time or a private place to administer any medications.
- Providing good ventilation of the workspace.
- Providing advanced notice of any activities that will generate dust, such as construction or cleaning.
- Implementing a scent-free workplace policy and program.
- Provide facilities for hand washing (frequent hand washing can reduce the chance of infection, which worsens COPD).
- Allowing the individual not to attend large gatherings or not work with others who may be ill.

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