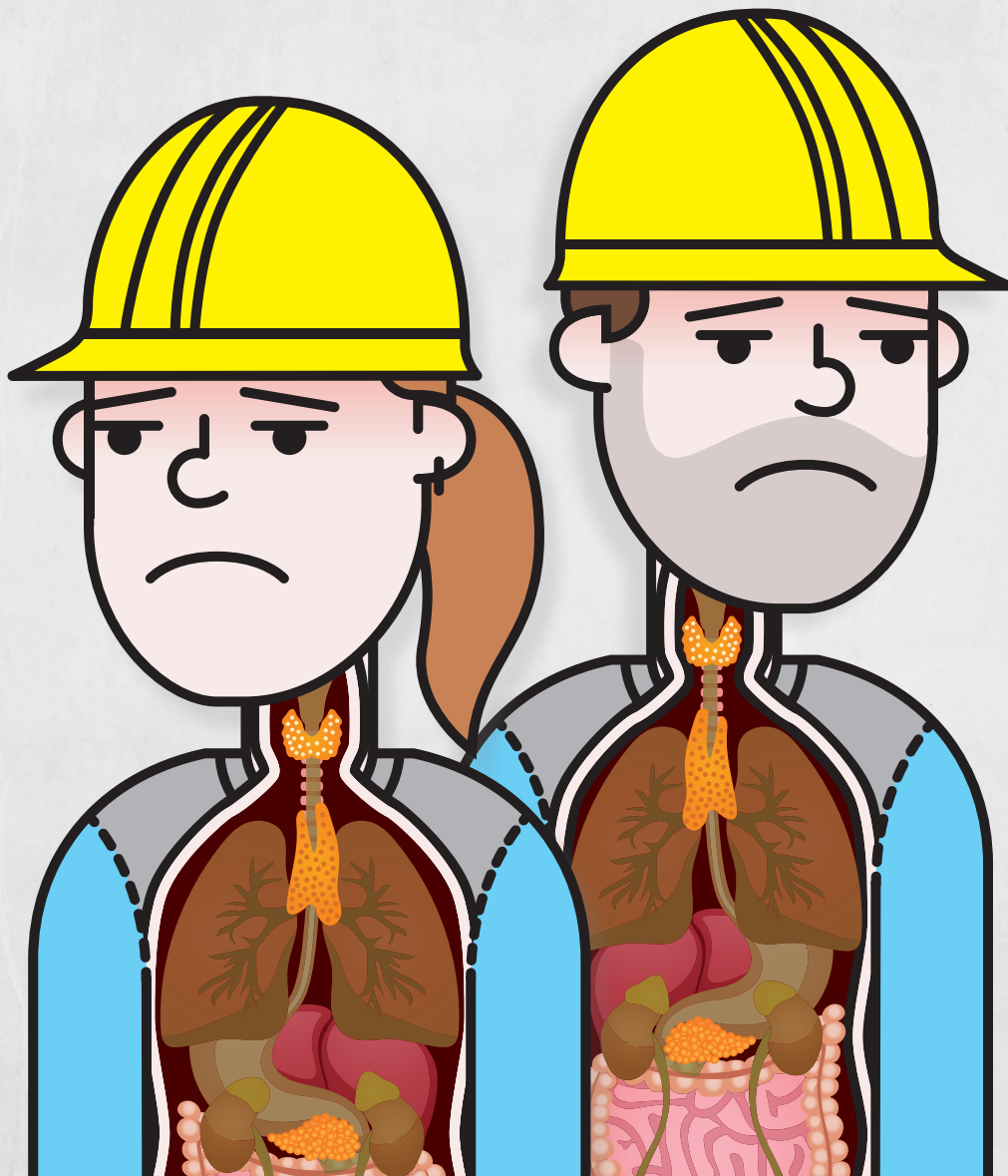




Protecting you for life's **best** moments.

Understanding Chronic Obstructive Pulmonary Disease (COPD) in Industrial Applications



Understanding COPD in Industrial Applications

Industrial operators are faced with many hazards as a result of the work they carry out. Some of these hazards are obvious as they pose an immediate threat to health, while others may be harder to identify, so it isn't always clear how serious they actually are.

One area across industrial applications where this is prevalent is respiratory safety. While we know our lungs are important, we're not always aware of what health risks our jobs might be exposing us to and the long-term health effects these may be causing.

Chronic Obstructive Pulmonary Disease (COPD) is the name given to a group of progressive lung diseases, with the most common being emphysema and chronic bronchitis. Emphysema affects sufferers by slowly destroying the air sacs in their lungs which impacts outward air flow, while Bronchitis causes the bronchial tubes to narrow as they become inflamed which encourages mucus build up. Over time, if these symptoms are left undiagnosed, COPD can lead to a faster progression of the disease with more severe respiratory infections and an increased risk of heart problems.

Unsurprisingly, the most common cause of COPD is from smoking cigarettes. Cigarette smoke is full of toxic chemicals which are harmful to the respiratory system. The next biggest exposure risk group (making up around 10-15% of all COPD cases) are those in industrial applications. This is due to the exposure of hazardous substances such as crystalline silica, welding fumes, mineral dust, and organic dusts, all of which contribute to the onset of the issues seen in emphysema and chronic bronchitis.

Identifying COPD

There are 4 stages of COPD, stage 1 (early), stage 2 (moderate), stage 3 (severe) and stage 4 (very severe). In the beginning, COPD symptoms can be very mild and people may often mistake symptoms for a common cold. This can include occasional shortness of breath, repeated cough and the need to clear the throat often. As these symptoms begin to occur, people may avoid physical activities as this becomes more strenuous than it previously was for them. At first these symptoms may be easy to overlook, however as the lungs sustain more damage, this then becomes harder to ignore as it starts to have more negative effects on the person's quality of life.

Symptoms include

- Shortness of breath
- Wheezing
- Chest tightness
- Chronic cough
- Chest infections
- Mucus build up
- Frequent colds and flu
- Fatigue
- Weight loss
- Swelling (feet, ankles & legs).

Once the condition has progressed into stages 3 and 4, significant changes in quality of life occur. Daily tasks such as work and house chores become difficult to complete and breathing flare-ups can become life threatening. In addition to this, at end stages of COPD, a lot of people can have trouble receiving enough oxygen. Low blood oxygen levels can also lead to serious health conditions like hypoxemia and cyanosis.

Diagnosis & Treatment

In order to receive a COPD diagnosis, there are a number of symptoms, physical exams and tests that need to be completed in order to assess the person's condition accurately and to rule out or diagnose any other respiratory illnesses.

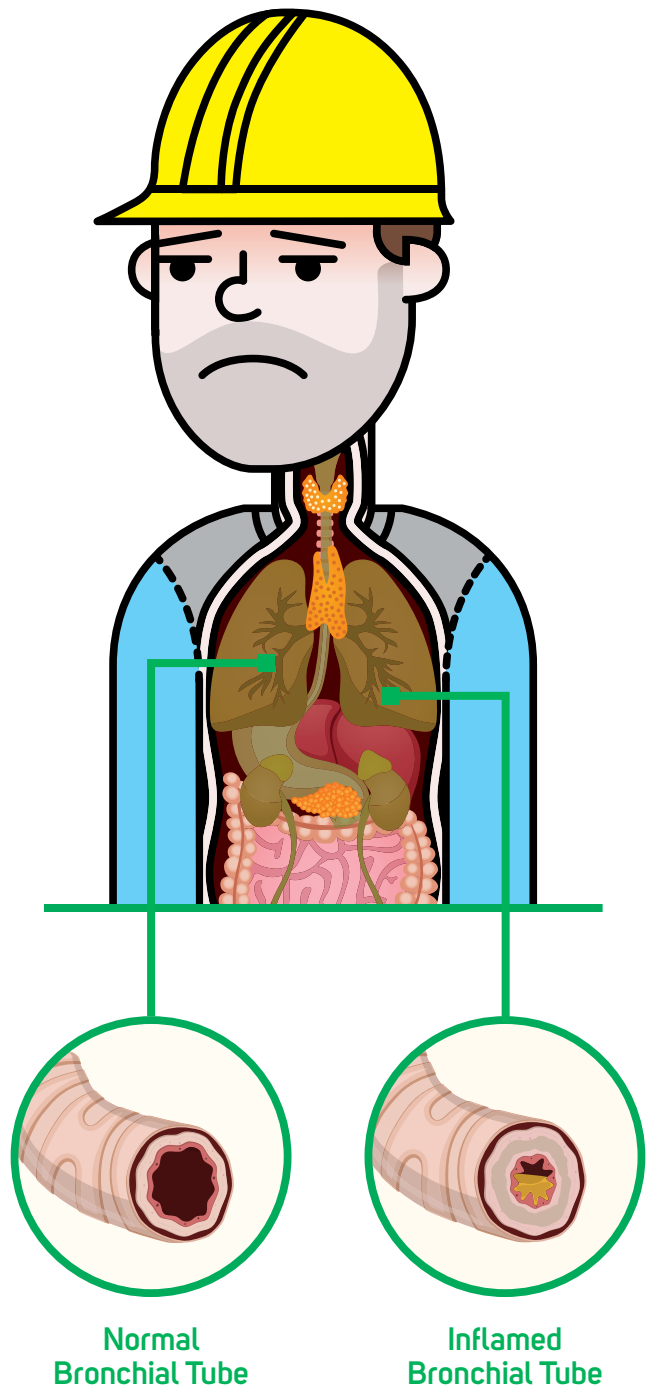
Physical examinations are used to listen to how the lungs function as breathing occurs. Spirometry tests are used to assess lung function. X-rays or CT scans are used to gain a detailed look at vital organs and blood vessels, and arterial blood gas tests are used to measure blood oxygen and carbon dioxide levels.

The best course of action and its success may be determined by which stage the COPD has advanced. The most obvious is around lifestyle/behavioral changes. People that smoke cigarettes should quit. This also means limiting their exposure to secondhand smoke.

The next best step would be to avoid exposure to occupational hazards, whether this is through substituting materials being used, introducing engineering and administrative controls, or through wearing the appropriate PPE. It is also important to look at diet and frequency/duration of exercise being completed.

There are a number of medications available, aimed to loosen tight muscles in the airways, clear mucus, reduce inflammation, ease chest tightness and shortness of breath. If these do not work, then there is oxygen therapy which gives supplemental oxygen, and surgery such as bullectomy to remove abnormal air spaces in the lungs, or a complete lung transplant.

It's clear that COPD is a respiratory illness that can have a hugely negative impact on people's lives. But worst of all this is something that can be avoided and does not need to be a reality for industrial workers. By implementing appropriate safety measures and through ensuring these are maintained, exposure to hazardous materials can be minimized significantly and so too can the chances of suffering from COPD.



Sources:

CanCOLD study. Retrieved from European Respiratory Journal: <https://erj.ersjournals.com/content/50/3/1701154>

Cho et al. (2015, February 19). Work-related COPD after years of occupational exposure. Retrieved from National Center for Biotechnology Information: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4357143/>

Health and Safety Executive. (n.d.). COPD causes - occupations and substances. Retrieved from Health and Safety Executive: <https://www.hse.gov.uk/copd/causes.htm>

Lung Health Institute. (2018, February 10). Stages of COPD: Mild through End-Stage COPD. Retrieved from Lung Health Institute: <https://lunginstitute.com/blog/stages-of-copd-mild-through-end-stage/>

Mayo Clinic. (2021). COPD. Retrieved from Mayo Clinic: <https://www.mayoclinic.org/diseases-conditions/copd/diagnosis-treatment/drc-20353685>

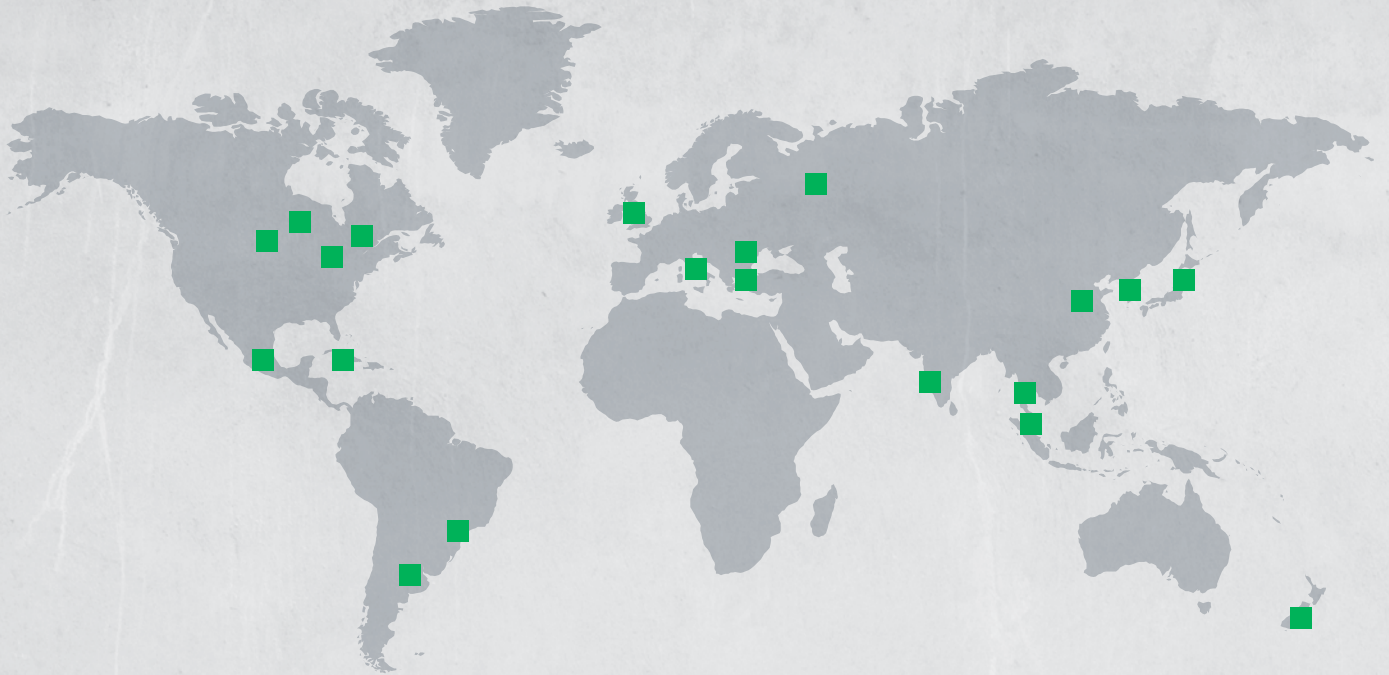
NHS. (2019, September 20). Chronic obstructive pulmonary disease (COPD). Retrieved from NHS: <https://www.nhs.uk/conditions/chronic-obstructive-pulmonary-disease-copd/>

Pietrangelo, A. (2021, January 22). Everything You Need to Know About Chronic Obstructive Pulmonary Disease (COPD). Retrieved from Healthline: <https://www.healthline.com/health/copd#diet>

Yoo et al. (2014, October 16). Welding fume exposure and chronic obstructive pulmonary disease in welders. Retrieved from Oxford University Press: <https://academic.oup.com/occmed/article/65/1/72/1431717>



Protecting you for life's **best** moments.



Know your environment. Know your risks. **Choose your protection.**

Want to know more? **Contact us:**



[linkedin.com/company/gvs-rpb](https://www.linkedin.com/company/gvs-rpb)



[youtube.com/gvsrpb](https://www.youtube.com/gvsrpb)



[gvs-rpb.com](https://www.gvs-rpb.com)



1-866-494-4599

Copyright ©2022 RPB® Safety IP, LLC. All rights reserved. All materials contained in this publication are protected by United States copyright law and may not be reproduced, distributed, transmitted, displayed, published or broadcast without the prior written permission of RPB® Safety IP, LLC. You may not alter or remove any trademark, copyright or other notice from copies of the content.

Trademarks and Other Intellectual Property. All trademarks, service marks, and logos used in this publication, both registered and unregistered, are the trademarks, service marks, or logos of their respective owners. The green and gray color combination is a registered trademark of RPB® Safety, LLC. All rights in the GVS-RPB® Intellectual Property contained in this publication, including copyright, trademarks, service marks, trade secret, and patent rights are reserved. GVS-RPB® Intellectual Property means any patent, patented articles, patent applications, designs, industrial designs, copyrights, software, source code, database rights, moral rights, inventions, techniques, technical data, trade secrets, know-how, brands, trademarks, trade names, slogans, logos, and any other common law and proprietary rights, whether registered or unregistered anywhere in the world, that are owned by, developed in whole or in part by, or licensed by GVS® S.p.A or RPB® Safety, LLC.