

With Every Breath We Make

Clean Air Workplace series:

Bitesize 2



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**START WITH
CLEAN AIR**





Bitesize 2: Air pollution in the workplace - health impact

This Bitesize brief brings together a wealth of research on the health impact of air pollution in the general population and in workplace settings. It is the second of four within the Clean Air Workplaces Bitesize series, which supplements the White Paper, *With Every Breath We Make: Ensuring Healthy Air for Manufacturing Workers*ⁱ.

The World Health Organization (WHO) recognises that air pollution is the largest environmental health risk we face todayⁱⁱ. In the UK, air pollution is responsible for 36,000 deaths a yearⁱⁱⁱ and causes and irritates heart and lung conditions^{iv}.

Prolonged exposure to high levels of air pollution can damage lung function, increase blood pressure, and increase lung and heart related hospital admissions and likelihood of death^v. Even short-term exposure can be dangerous by causing and triggering asthma attacks. Studies have estimated that poor air quality contributes towards 19% of all cardiovascular deaths and 29% of all lung cancer deaths in the UK.

It is estimated that just a one $\mu\text{g}/\text{m}^3$ reduction in fine particulate matter ($\text{PM}_{2.5}$) in England could prevent around 50,900 cases of coronary heart disease, 16,500 strokes, 9,300 cases of asthma and 4,200 lung cancers over an 18-year period^{vi}.

The Health and Safety Executive (HSE) estimates that 15% of all chronic obstructive pulmonary disease (COPD) cases are contracted in a work setting^{vii}. The current estimate for the number of people living with COPD

in the UK is 3 million, which implies 450,000 people are living with work-related lung disease just from COPD alone^{viii}.

The health impact goes beyond cardio-pulmonary conditions, both short and long-term, to cancer, diabetes, dementia, and damage to foetal development^{ix}.

There are more workplace air pollutants than $\text{PM}_{2.5}$ including:

- Any harmful fumes, aerosols or dust that can be inhaled
- Elements like lead and arsenic plus minerals such as asbestos and silica
- Compounds and mixtures such as pesticides or solvents, cleaning agents, fragrances, personal care products
- Biological agents - viruses, bacteria and fungi
- Vehicle exhaust emissions: nitrogen oxides, carbon dioxide, carbon monoxide, polycyclic aromatic hydrocarbons
- Plastic and micro-plastic fibres through manufacturing settings
- Furniture and carpets off gassing flame retardants and other volatile organic compounds



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COSHH stands for 'Control of Substances Hazardous to Health' and places a duty on employers to identify substances that harm workers' health and then to eliminate, substitute or reduce exposure by engineering controls and definitely not to exceed the Workplace Emission Limits (WELs). The extent to which current regulations protect workers from ill health when working with specific substances and materials is covered in the Bitesize 3.

The Lancet Commission on pollution and health reports 800,000 deaths globally are a consequence of poor air quality at work. In the UK, the CBI calculates that three million working days currently lost to illness will be regained if air pollution is reduced to the WHO recommended levels^{xi}. The increased productivity would benefit the UK economy by £1.6 billion as a result, and workers would gain through an additional £900 million in earnings currently lost because of air pollution^{xii}.

Air pollution is not a new concern.

The trade unions, represented by the Trade Union Congress (TUC), have been seeking greater action on harmful pollutants in the workplace for over a decade. They have produced useful guidance to inform union health and safety representatives on the health risks arising from diesel exhaust exposure in the workplace^{xiii}. Similarly, the Unite union has invested significant efforts into raising awareness about the impact of diesel fumes on workers^{xiv}, and calls on the HSE to halve the legally permissible level of exposure to silica dust^{xv}, which they state will save 4,000 lives a year^{xvi}.

In general, Trade Union representatives believe that there is sufficient academic evidence to tighten air pollution regulation in the workplace. They also note a lack of enforcement support from HSE of existing air quality regulation, resulting in greater exposure for all workers.

Bitesize 3 will consider the regulatory framework around workplace air pollution and what needs to be done to enable change at a legislative and regulatory/enforcement level.

It's time to build back better and fairer.

Endnotes

- i https://www.globalactionplan.org.uk/files/with_every_breath_we_make_-_ensuring_healthy_air_for_manufacturing_workers.pdf
- ii <https://www.who.int/airpollution/ambient/en/>
- iii <https://www.gov.uk/government/news/public-health-england-publishes-air-pollution-evidence-review>
- iv <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>
- v <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>
- vi <https://www.cbi.org.uk/media/5539/2020-09-cbi-economics-caf-report.pdf>
- vii <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>
- viii <https://www.hse.gov.uk/statistics/causdis/copd.pdf>
- ix <https://www.blf.org.uk/taskforce/data-tracker/occupational-lung-disease/occupational-lung-disease>
- x <https://www.bmj.com/company/newsroom/air-pollution-linked-to-several-new-causes-of-hospital-admissions/>
- xi <https://www.thelancet.com/commissions/pollution-and-health>
- xii <https://www.cbi.org.uk/media/5539/2020-09-cbi-economics-caf-report.pdf>
- xiii <https://www.cbi.org.uk/media/5539/2020-09-cbi-economics-caf-report.pdf>
- xiv <https://www.tuc.org.uk/resource/diesel-exhaust-workplace>
- xv <https://www.unitetheunion.org/media/1279/diesel-exhaust-emissions-at-work-guidance-for-unite-members.pdf>
- xvi <https://www.hazards.org/gallery/choked.htm>
- xvii https://www.tuc.org.uk/news/risks-916-28-september-2019#_Toc20733463