

Chapter 4

Asthma – work related



The hazard

Work related asthma is diagnosed when there is an association between symptoms and work.

The categories of work-related asthma are:

- a. Work aggravated asthma - existing or new asthma made worse by work.
- b. Asthma caused by exposures at work:
 - allergy or sensitisation to substances at work. Symptoms may occur sometime after exposure.
 - irritant asthma is when the airways react to the substance. Symptoms develop within a few hours of exposure.

It is estimated that about 15% of adult onset asthma is related to work exposures.

For about 30% of people, work related asthma may cause long-term lung problems. There is a high risk of unemployment in people with these conditions. Prevention is essential.

Workers most likely to develop occupational asthma include spray painters (isocyanates), mechanics and storage workers (diesel exhaust exposure), chemical workers, welders, plastics and rubber workers, metal workers, food processing workers and laboratory technicians.

Whatever the type of work-related asthma, the symptoms include:

- Recurring sore or watering eyes
- Recurring blocked or running nose
- Bouts of coughing
- Chest tightness
- Wheezing
- Persistent history of chest problems.

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Symptoms often improve on days away from work. Having these symptoms is not a diagnosis of work-related asthma but indicates the person's health needs further medical investigation - for example, serial peak flow measurements, with at least four readings per day.

The most important action is to avoid exposure. The best chance of complete recovery is early diagnosis and avoidance of further exposure. People who remain in the same job and continue to be exposed are unlikely to improve and symptoms may worsen.

A history of non-work-related asthma is not a reason to exclude people from work. The evidence indicates that a previous history of asthma is not significantly associated with occupational asthma.

However, when occupational asthma has been diagnosed, the worker needs to be removed from exposure. When asthma causing agents are used, regular health monitoring is necessary.

General manufacturing

The most frequently reported causative agents include isocyanates - found in many paints and foams - fluxes and aldehydes.

Several hundred agents have been reported in the medical literature and new causes are reported regularly.

Agent	Source
Azodicarbonamide	Polymers in the rubber and plastics industries
Chromium (VI) compounds	Stainless steel welding fume and electroplating
Cobalt (metal and compounds)	Hard metal production
Ethylenediamine	Corrosive chemical with an irritating vapour used in printed circuit board and metal finishing industries Epoxy coatings and resins and manufacture of pharmaceuticals
Flux fume	Gum rosin (colophony) is the form used by solders
Glutaraldehyde	Oil and gas industry for the inhibition of corrosion causing bacteria
Isocyanates	Manufacture of polyurethane foams, plastics, coatings, varnish, two-pack paints and adhesives. Spray painters beware!
Maleic anhydride	Manufacture of polyester resins, oil additives and maleic acid

Agent	Source
Methyltetrahydrophthalic anhydride	Production of epoxy resins used in the manufacture of special application plastics
Nickel sulphate	Electroplating industry and the production of hard metal
Phthalic anhydride	Manufacture of plasticisers, resins, dyes, pesticides and pharmaceuticals
Subtilisins	Enzymes used in the manufacture of detergents. Also food and leather processing.
Tetrachlorophthalic anhydride	Production of epoxy resins for manufacture of plastics, manufacture of plastics, paints and electronic components
Trimellitic anhydride	Plasticisers, wire enamels, surface coatings, wall and floor coverings

Food processing

Many ingredients used in food preparation can react with or irritate our lungs. Dusts and food additives that can cause or aggravate asthma include:

- Wheat and soya flour (up to 40 compounds can cause Bakers Lung)
- Garlic, paprika and rice dust
- Added enzymes e.g. amylase, pancreatin or savinase
- Certain food coatings, herbs and spices.

Reducing the risk of work-related asthma

Using the hierarchy of control to decide what to do to remove or reduce the risks is an obligation of the PCBU/employer. There are no regulations re work related asthma but there are:

- Regulations and Codes of Practice for hazardous substances
- Codes of Practice for welding and spray painting.

Remember to check labels and Safety Data Sheets for symbols and risk phrases such as:

- H334 - may cause allergy or asthma symptoms or breathing difficulties if inhaled
- P261 - avoid breathing dust/fume/gas/mist/vapours/spray
- P285 - in case of inadequate ventilation wear respiratory protection
- R42 may cause sensitisation by inhalation (may lead to asthma), or
- R42/43 may cause sensitisation by inhalation and skin contact.

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Controlling the hazards

The best option is to remove the dust, fumes or vapours, e.g. design closed production processes to prevent dust/fumes entering the air.

The next best option - use ventilation systems e.g. spray booths, positive pressure hoods, fume cupboards, extraction ventilation and dust suppression

The backup option - it is essential to prevent exposures, so respiratory protection is necessary - see the section on respiratory protection for a basic guide on what to use. In addition to the above, include job rotation or rest breaks to decrease the risk of exposure.

If the above does not reduce the risks - then go back to the start and rethink it all - work related asthma can have a serious effect on workers' health and their future employment, so risk control is essential.

Health monitoring is required if there is a significant risk and is often not performed. Spray painters using any isocyanate needs regular lung functions tests. There are guides for workers, PCBU/employers and Doctors on what and how to do health monitoring.

Remember

The PCBU/employer has an obligation to consult, including taking into account your views when making a decision on the matter, including work related asthma and to inform you, and the work group affected by the matter of their decisions.

Talking about work related asthma

- Illnesses like asthma are often ignored by PCBU/employers
- Doctors may not take a good work history and miss the link between work and asthma
- Education of members is important.

Case study – foam headrests

An AMWU member was working, making foam headrests and experienced a severe reaction to the isocyanate. A rash developed on her face and forearm.

The company initially refused a request to move her to another area as the member was needed because she was the most experienced operator.

The member contacted the HSR who also requested the move – she was moved temporarily and told she would still be needed to work there in periods of high need.

The HSR advised the member that she should go to the doctor. Her doctor did tests proving her sensitization and issued a certificate that she should not work in the area.

The company were still reluctant to move her permanently.

The HSR tabled the National Health Monitoring Guidelines for Hazardous Substances which says once a person is sensitized, even very low exposures are extremely hazardous to their health.

This also prompted discussions to improve the area. The following controls were implemented:

- The extraction system was upgraded
- The supplier of the product was bought in to fix the formula to minimise release
- Workers were provided with:
 - training on isocyanates
 - individual PPEs – which were replaced when requested
 - health surveillance.