

# Occupational Asthma

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Asthma is one of the most common lung diseases. Its symptoms can include episodes of wheezing, shortness of breath, and cough. These problems can be worse at night. Asthma has many causes. Some people who have a tendency to develop allergies are more likely to develop asthma, while others only develop it after exposure to substances in the environment.

Occupational asthma refers to asthma which has been caused by workplace exposures. It is among the most common forms of occupational lung disease. Table 1 includes some of the exposures and jobs which have been associated with occupational asthma.

## Sensitizing Asthma

There are two types of occupational asthma. In the first type, referred to as sensitizing asthma, symptoms develop after the worker has been exposed to a workplace compound for a period of time. This ongoing exposure causes the worker to develop a sensitivity to the compound. Sensitizing asthma is the more commonly diagnosed form of occupational asthma and is based upon an allergy. An allergy is a sensitivity that develops following exposure to a compound in which the body reacts in characteristic ways. Common causes of the sensitizing type of occupational asthma are exposure to isocyanates, western red cedar, laboratory animals and egg proteins. Numerous other compounds also cause occupational asthma.

## Irritant Induced Asthma

In the second type of occupational asthma, symptoms usually begin abruptly after an intense exposure. This type is not based on an allergy, but on a severe irritation. It is referred to as Reactive Airway Dysfunction Syndrome, sometimes referred to as "irritant induced asthma". A persistent asthmatic state develops after workers are exposed to a high concentration of an irritant. Recently, there has been growing evidence that lengthy exposure to low levels of irritants may start an asthmatic condition. Treatment of this type of asthma requires minimizing contact with irritants, along with the usual asthma medications.

## Testing for Occupational Asthma

Workers experiencing shortness of breath, wheezing or coughing at work, or shortly after work, may have occupational asthma. The worker should take a breathing test. If the test shows that the worker has asthma, a detailed work history needs to be taken to identify compounds to which the worker may have become sensitized. Allergy testing should be performed to determine whether, in fact, the individual has been sensitized. In these tests workers have their skin pricked with various substances to see if they react. Unfortunately, specific tests are not available for many compounds which can cause occupational asthma.

There are a number of ways to determine if the asthma is work-related. Tests can be conducted on workers' lungs at home and on the job to see if there is a difference in breathing. A worker's reaction to specific products can sometimes be tested in laboratory settings.

Unless it is thought that the worker's life is at risk, the worker should stay on the job until a physician has determined whether or not they have occupational asthma. The worker will only be eligible for compensation if it can be demonstrated the asthma is work related.

## Treatment

The most effective treatment of occupational asthma is to remove from the workplace the compound which is causing the asthma. Ideally this should be done by substituting the product or enclosing the process. Often this is not possible and the worker must change jobs or their position within the company. One treats occupational asthma with medicines that open up the airways in the lungs.

If workers continue to be exposed to substances which bring on asthmatic attacks, it is likely that the asthma will become worse. Other irritants such as dust or exhaust could also begin to start asthmatic attacks. For workers who leave the source of exposure it can take up to two years for their asthma to stabilize. Often they still have persistent asthma.

# Some Causes of Occupational Asthma

Occupation	Cause
Laboratory workers	Laboratory animals: rats, mice, guinea-pigs
Bird Breeders	Pigeons, budgerigars
Hydro Utility Workers	Caddis Fly
Crab Processing	Crab
Bakery Workers	Eggs
Grain handlers	Grain dust
Bakers and Millers	Wheat/rye flour
Food Process Workers	Green coffee beans
Laxative Manufacture	Psyllium
Florist	Baby's breath, weeping fig
Woodworkers	Western Red Cedar
Detergent manufacturer	Alcalase from <i>B. subtilis</i>
Drug manufacture	Penicillins
Foam manufacture Spray painters	Isocyanates
Paint manufacturer	Phthalic acid anhydride, Trimellitic acid anhydride
Aluminum soldering	Aminoethylethanolamine
Electronics and hot melt glue, electronic soldering, solder wire manufacture	Colphony
Photography	Ethylenediamine
Spray painting	Dimethylethanolamine
Dialysis nurses	Formaldehyde
Bronchoscopy nurses	Glutaraldehyde
Fur strippers	p-Phenylenediamine
Hairdressers	Persulphates, henna
Fabric dye workers	Reactive dyes
Precious metal refining	Platinum salts
Metal plating	Nickel
Chrome plating	Chromium
Welding	Stainless Steel

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