

Working out occupational asthma

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Work factors can markedly affect asthma control

Occupational asthma (OA) is now the most common occupational lung disease in industrialised countries, and accounts for about 15% of all adult onset asthma.¹ Up to 3000 cases of OA occur per year in Australia.²

What's the cause?

More than 400 substances are reported to cause sensitiser induced OA, which can be defined as asthma due to allergy exposure in the workplace (Table 1).³ Sensitiser induced OA develops after a period of latency, usually within 2 years of initial exposure. Often asthma symptoms will be preceded by work associated rhinitis symptoms.

Irritant induced OA, a less common form, may develop following exposure of the respiratory tract to an irritant substance. This is a nonallergic mechanism and symptoms usually follow soon after a high level of exposure, such as caused by a spill of chemicals.

Control of pre-existing asthma may also be worsened by work factors similar to common asthma triggers, such as cold air, exercise, stress and irritants. Work exacerbated asthma can be difficult to differentiate from true OA.

OA is preventable

Elimination, substitution or controlled use of substances known to cause OA can significantly reduce the risk of its development. For example, the shift from using powdered latex gloves to using latex free or nonpowdered latex gloves has significantly reduced occupational allergy in health care workers.

Do you get better on holidays?

All adults with asthma should be asked about their occupation, particularly patients with new onset or poorly controlled asthma.⁵ The aim of this

history is to identify if the patient is working in a high risk occupation, note any exacerbation triggers and look for links between work factors and asthma symptoms.

Asking a patient if their asthma control is better when away from work for a period of at least 2 weeks is a good screening question. However with longstanding or severe OA this temporal association may be lost.

Diagnosing OA

Accurate diagnosis of OA involves confirming the presence of asthma and then objectively demonstrating an association between asthma control and workplace exposure. This process entails a combination of investigations including serial peak flow measurements, nonspecific bronchial challenges and immunological evaluation,⁵ usually via specialist referral.

Management

With continued exposure to the causal agent, OA is unlikely to improve and may worsen; hence ideal management usually includes complete avoidance of the agent.⁵ Medical treatment is the same as for other adults with asthma.⁴

Early diagnosis and appropriate management of OA may prevent progressive lung function decline. ♦

1. Toren K, Blanc PD. Asthma caused by occupational exposures is common – a systematic analysis of estimates of population attributable fraction. *BMC Pulm Med* 2009;9:7.
2. Australian Institute of Health and Welfare. Occupational Asthma in Australia. Cat. no. AUS 101. Canberra: AIHW, 2008.
3. Asmapro. Table of agents and substances which can cause asthma. Montpellier: Asmapro, 2009. Available at www.remcomp.fr/asmanet/asmapro/agents.htm.
4. National Asthma Council Australia. Asthma Management Handbook 2006. Available at www.nationalasthma.org.au/cms/index.php.
5. Tarlo SM, Balmes J, Balkissoon R, et al. Diagnosis and management of work related asthma. *Chest* 2008;134:S1–41.

Table 1. Common causal agents for occupational asthma

Agent	Incidence in exposed subjects	Associated industries and occupations
Isocyanates	Approximately 5%	Industries: chemical, adhesive, automotive and plastic Occupations: carpenters, foundry workers, joiners, mechanics, metallurgists, painters, tinsmiths
Wood dust	3.4–13.5%	Industries: paper and timber Occupations: builders, carpenters, joiners, model builders
Flour and grain dust	Proportional to exposure and conditions for some agents, 5–24% for others	Industries: animal foodstuffs, food and food processing Occupations: animal breeders, bakers, butchers, cooks, dockers, farmers
Animals	10–32%	Industries: pharmaceutical and food processing Occupations: animal breeders, biologists, farmers, pet shop workers, veterinary surgeons
Latex	2.9–5.5%, up to 8% in those exposed regularly	Industries: textile Occupations: health care workers, workers involved in surgical glove and toy manufacture
Formaldehyde	30%	Industries: chemical, plastics, rubber, cosmetics and paper Occupations: carpenters, embalmers, foundry workers, hairdressers, health care workers, laboratory staff, tanners
Platinum salts	10% with precautions in place (>50% initially)	Industries: electronics Occupations: chemists, dentists, jewellers, metallurgists, nurses, photographers, refinery workers

Adapted from AIHW;² original source Asmapro.³