

Breathe More Easily

The HSE estimates that as many as 3,000 people a year develop asthma as a result of exposure to harmful substances work. Paul Nicholson explains the steps employers can take to prevent their staff developing the disease.



Occupational asthma is the most frequently reported work-related lung disease.

This article reviews what safety managers and employers should know in order to prevent and manage occupational asthma. It is based on a systematic evidence review undertaken for the British Occupational Health Research Foundation (BOHRF).

Only 12 per cent of workers in the UK have access to an occupational physician. This means that for many workers their first point of contact for work-related health matters is either their GP – who is unlikely to have had any training in occupational medicine – or their safety manager at work.

Since occupational asthma is the most frequently reported work-related lung disease, it is important that safety managers and employers understand

what occupational asthma is; its causes; how to prevent it; the need for health surveillance; what to do when a worker develops possible symptoms and how to manage a worker with confirmed occupational asthma.

What is asthma?

Asthma affects the small airways that carry air in and out of the lungs. Most people with asthma have periodic attacks of symptoms separated by symptom-free periods.

During an attack the lining of the airways become swollen and the muscles around them tighten so that the airways become narrowed. This makes it difficult to breathe and causes wheezing, coughing and a feeling of tightness in the chest.



Reducing airborne exposure cuts the number of workers who develop asthma.

Symptoms are commonly worse at night or in the early morning. About two-thirds of asthma sufferers also suffer from hayfever type symptoms i.e. rhinitis (sneezing, runny nose), and/or conjunctivitis (itchy red eyes). Around 10 to 15 per cent of cases of adult asthma are caused by work.

What is occupational asthma?

The symptoms of asthma are the same whatever the cause, although one of the distinguishing features of work-related asthma is that symptoms improve regularly when away from work.

There are two types of work-related asthma. Firstly, work-aggravated asthma, where someone's pre-existing asthma is aggravated by workplace exposure to non-specific agents – for example, dust or cold air. Secondly, there is occupational asthma – new onset asthma caused by workplace exposure and not by factors outside of the workplace.

Occupational asthma is also subdivided into two types. The first is irritant-induced occupational asthma which develops typically within a few hours of a high concentration exposure to an irritant gas, fume or vapour at work.

The second is allergic occupational asthma, where someone develops allergic antibodies to a respiratory

sensitiser at work after some months or a few years of repeated or continuous exposure. About 90 per cent of cases of occupational asthma are of the allergic type.

The Health and Safety Executive reports that 1,500 to 3,000 people develop occupational asthma in the UK every year, rising to 7,000 when work-aggravated asthma is included.

What causes occupational asthma?

The risk factors for occupational asthma are the causative factor of exposure to an agent at work and predisposing personal factors.

Personal factors only influence the development of occupational asthma when people are exposed to certain causative agents. In the case of those with a history of hayfever or asthma, these are agents with a high molecular weight (for example, proteins). In the case of cigarette smokers, the agents in question are isocyanates and complex platinum salts.

Conversely, the risk of developing occupational asthma is increased by higher exposures to many workplace agents.

So the major determinant of risk for the development of occupational asthma is the level of exposure to inhalable substances at work.

Personal factors are poor predictors of future disease and should not be used to screen out job applicants, unless they have asthma caused by a particular substance to which they would be re-exposed in their new job.

Apart from that, conditions such as hayfever and asthma are very common and many good job candidates would be screened out unnecessarily because of a very small additional risk. People with no personal or family history of such traits may also develop occupational asthma. Therefore, the focus should be to make the workplace safe for all.

Who is at risk?

The agents most frequently reported to cause occupational asthma include isocyanates, flour and grain dust, colophony and fluxes, latex, animals, aldehydes and wood dust.

The workers most commonly reported as suffering from asthma from surveillance schemes and population studies include: bakers, paint sprayers, chemical workers, animal handlers, welders, metal workers, and laboratory technicians. However, this list is by no means exhaustive.

How is occupational asthma prevented?

Employers and safety managers should be aware of those substances that can cause asthma, assess exposure to them in the workplace and implement programmes to prevent occupational asthma.

This involves preventing exposure to asthma-causing substances through elimination or substitution and, where this is not possible, by effective reduction of exposure. Many studies have demonstrated that reducing airborne exposure reduces the number of workers who develop occupational asthma.

While the use of respiratory protective equipment (RPE) reduces the incidence of occupational asthma, it does not completely prevent the disease and should not be relied upon as a primary or sole means of controlling exposure.

Even brief removal of RPE can lead to the development of occupational asthma. Employers and safety managers should ensure that when RPE is worn, the appropriate type is used

and maintained, fit testing is performed and workers understand how to wear, remove and replace their RPE.

Employers and safety managers should also inform workers about any causes of occupational asthma in the workplace and the need to report any relevant symptoms as soon as they develop.

Health surveillance

Employers should arrange regular health surveillance for workers where a risk of occupational asthma is identified. Periodic health surveillance can detect health effects at an early and reversible stage of disease and the outcome is improved in workers who are included in the programme.

Surveillance should include a questionnaire enquiring about possible signs of asthma. If there is high risk of workers developing the condition, lung function tests should also be undertaken.

Health surveillance should be performed at least annually and more frequently where there are individual indicators of increased risk – for example, in the first two years of exposure and for workers who develop rhinitis or conjunctivitis, as these conditions sometimes precede occupational asthma by one year. BOHRF also recommends more frequent health surveillance for workers who have pre-existing asthma to detect any evidence of deterioration.

Skin prick and blood tests can detect specific antibody in workers who have developed antibodies to high molecular weight agents – for example, enzymes, animal proteins, wheat, shellfish, etc and a few low molecular weight agents – for example, complex platinum salts and acid anhydrides. Such tests are feasible in the workplace.

Prospective surveillance for the development of specific antibodies can be used as part of a broader risk management programme to monitor the effectiveness of control of exposure, and reduce the incidence of occupational asthma.

Occupational health professionals will only provide the results of health surveillance to employers in general terms regarding an employee's fitness for work.

They will not provide clinical information to the employer without the written consent of the employee.

Recently updated guidance on ethics from the Faculty of Occupational Medicine states that the health surveillance programme must incorporate a doctor who is competent to interpret results and make arrangements for further care. The programme of communication of individual and anonymised group data should be agreed between employers, employees and their representatives.

What to do when an employee develops possible symptoms

Safety managers and supervisors who suspect an employee has occupational asthma should arrange for or recommend an early referral to a physician with expertise in occupational asthma.

Making a diagnosis of occupational asthma is not straightforward and requires a careful history and objective testing by a doctor with expertise in occupational asthma.

Furthermore, the management of asthma differs depending on whether it is non-occupational, work-aggravated or occupational asthma.

If work is not the cause then adjusting medication is probably all that is needed. If it is work-aggravated

asthma then careful avoidance of triggers in the workplace or increased use of RPE may suffice.

In the case of irritant occupational asthma, steps must be taken to avoid episodes of high exposures to irritant gases for all employees.

How to manage an employee with confirmed occupational asthma

Employers and safety managers should ensure that employees diagnosed as having occupational asthma avoid further exposure to its cause in the workplace completely and early in the course of their disease to offer the best chance of recovery.

The likelihood of improving symptoms, preventing deterioration or achieving complete recovery is greater in employees who have shorter duration of symptoms and better lung function both at the time of diagnosis and prior to avoidance of exposure.

Where complete avoidance of exposure is not possible, employees should be redeployed to low or occasional exposure areas and have increased health surveillance to monitor their symptoms and lung function.

Redeployment to a low exposure area may lead to improvement or

If there is a high risk of workers developing asthma, lung function tests should be undertaken.



resolution of symptoms or prevent deterioration in some employees, but is not always effective.

Likewise, air-fed helmet respirators may improve or prevent symptoms in some, but not all, employees who continue to be exposed to the causative agent.

Where continued but reduced exposure in an employee diagnosed with occupational asthma is associated with ongoing symptoms, they must be advised that continuing this work will lead to permanent asthma.

Robust efforts must be made to help the employee find suitable alternative work, since around one-third of employees with occupational asthma are unemployed up to six years after diagnosis. Obviously this is associated with financial loss.

When any one employee develops confirmed occupational rhinitis or occupational asthma employers should ensure that a competent person investigates any relevant symptoms among the rest of the workforce. They should also assess exposures and identify opportunities to put remedial measures in place to protect other employees.

Conclusion

The most important action to prevent cases of occupational asthma is to reduce exposure at source. Thereafter, surveillance should be performed for the early identification of symptoms of asthma, rhinitis and conjunctivitis, with additional tests where appropriate.

Effective management of workers suspected to have occupational asthma involves the identification and investigation of symptoms suggestive



If a worker is diagnosed with asthma, avoiding further exposure to its cause at work will give the best chance of recovery.

of asthma immediately they occur.

The symptoms and functional impairment of occupational asthma may persist for many years after avoidance of further exposure to the causative substance.

The likelihood of improvement or resolution of symptoms or of preventing deterioration is greater in workers who have no further exposure to the causative agent.

Therefore, early diagnosis and early avoidance of further exposure – either by relocation of the worker or substitution of the hazard – offer the best chance of improvement or recovery.

References

Newman Taylor AJ, Nicholson PJ. (Editors). Guidelines for the prevention, identification and management of occupational asthma. Evidence

review and recommendations. British Occupational Health Research Foundation. www.bohrf.org.uk/content/asthma.htm

Paul Nicholson is Associate Medical Director, Procter & Gamble Beauty Care in Europe, Middle East & Africa. He represents the Faculty of Occupational Medicine and the Society of Occupational Medicine on the HSE's Asthma Project Board. He was Deputy Chairman of the BOHRF Research Working Group on occupational asthma.

'The most important action to prevent occupational asthma is to reduce exposure at source'

LIQUID STORAGE!

ARE YOU SURE YOU'RE COMPLIANT?

OILS, CHEMICALS OR FLAMMABLE LIQUIDS...

PRACTICAL SOLUTIONS & ADVICE FROM THE UK'S ONLY ISO 9002, ISO 14001 & ISO 18001 ACCREDITED MANUFACTURER



EMPTEEZY

CALL NOW FOR YOUR FREE CATALOGUE
+44 (0)1506 430309

Muk Road, Houstoun Ind. Estate, Livingston, EH54 5QB
Tel: +44 (0) 1506 441486
e-mail: advice@empteezy.co.uk www.empteezy.co.uk

For further information enter Enquiry Number 106 onto our Fax Back form on the inside back cover of this issue.